



## The Factors Affecting E-Banking Service Satisfaction and Usage Behavior

Sidra Sidra <sup>a 1</sup> , Shah Mehmood Wagan <sup>a</sup> 

<sup>a</sup> *Sichuan University Wangjiang campus, Chengdu, Sichuan, China*

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### Abstract

**Background:** The study focuses on the use and satisfaction of e-banking in China, highlighting the importance of customer satisfaction.

**Objective:** This study aims to determine customer satisfaction, the most used features, determinants of e-banking use, characteristics of websites, and user satisfaction levels.

**Method:** The study combines the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Expectation Confirmation Theory (ECT) to assess key variables such as user attitude, ease of use, usefulness, perceived value, trust, service quality, and satisfaction with e-banking services through questionnaire surveys and Smart PLS 4 data analysis tools.

**Results:** The study found that perceived value, trust, and service quality are the main determinants of satisfaction, while perceived usefulness and ease of use significantly affect user attitudes. In addition, although security risks have a non-significant impact on attitudes, performance risks still have a negative impact.

**Conclusion:** The study also pointed out that young people are the main user group of e-banking services, and banks need to improve service quality to meet user needs and enhance user satisfaction. Overall, e-banking services have advantages in improving convenience and reducing costs, but they need to continuously optimize user experience to expand market share.

**Keywords:** E-banking; Attitude; Trust; Risk Performance; Satisfaction

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## 1. Introduction

Globalization and technological development are driving forces that have brought change to the banking sector. Therefore, Banks have tried to switch their focus to customer marketing through new products and alternative distribution channels. Technical transformations help institutions achieve

<sup>1</sup> Corresponding author.

E-mail address: [sidra\\_scu@outlook.com](mailto:sidra_scu@outlook.com)

competitive advantages by adapting to business practices and culture in a changing way over time. E-banking is an innovative and useful technological development that has been especially appealing in China, where about 30% of people have already used this method. One of the most important goals of e-banking is to enhance customer convenience by enabling access to accounts, transactions, and budget management without leaving home or work. This service enables faster payments and lower costs because financial services are available 24/7. In addition, there is less risk of having money in a wallet. Banks should make qualitative and safe websites to make their users comfortable, attracted, and satisfied. E-banking success does not lie in being a revenue generator, but it saves money and serves as a channel to reach its customers. Success factors for e-banking are simplicity and ease of use in financial planning and operations. Since few studies have been done on this subject in China, banks can take corrective measures or modify their e-banking services to achieve higher usage and satisfaction.

### 1.1 *Objective and Research Questions*

The 2023 Chinese Population Financial Literacy Survey shows that in Shanghai City, the use of the Internet for account management was above the national average in 2022. Reasons against the use of home banking include preference for multi-banking (27%), problems with technology, and distrust about safety conditions (19%). This research tries to answer research questions about customer satisfaction, the features most used, the determinants for using e-banking, the characteristics of websites, and user satisfaction levels. For this, an online questionnaire was developed, and measurement tests for the structural model were developed. The study applies the TAM and ECT to study the antecedents of satisfaction in e-banking. Understanding user reasons and improving the services of banking institutions is crucial in today's competitive market.

## 2. **Literature Review**

### 2.1. *Studies on e-banking*

E-banking was introduced by American banks in 1992, bringing convenience and greater security for customers. With technological evolution, services became more secure and efficient. Banks are now investing in online transactions and e-signature software (Adanlawo et al., 2024). However, 56% of potential consumers in the US browse for financial information online, while only 1.5% purchase financial products, as indicated by Alkhaibari et al. (2023). PayPal, for bill payments, for example, has competitors such as traditional banks, which also allow users to access their payment history and transact with investment firms. Banks must balance the benefits of online activities with the added value of the Internet to retain existing customers and attract new ones (Almaiah et al., 2022). The evolution of CRM systems, social networks, and blogs offers potential for virtual customer interaction. E-banking has increased profits but may not result in sustainable customer growth due to the lack of physical relationships (Angusamy et al., 2022). It is still necessary for customers to require paper money as one of the strongest means of physically relating with a bank. Therefore, e-banking adoption must be relationship-oriented and less operationally efficient, as claimed by Anh et al. (2023).

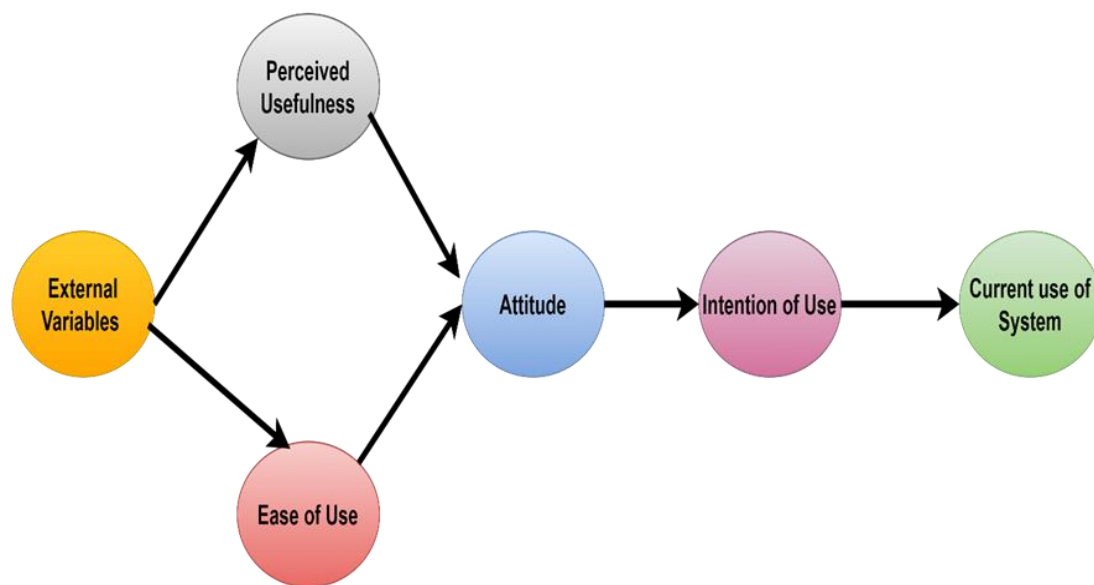
### 2.2. *Customer satisfaction in e-banking*

Divide your article into clearly defined and numbered sections. Subsections should be numbered 2.1 (then 2.1.1, 2.1.2, ...), 2.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

### 2.3. *Theoretical Perspectives*

The Technology Acceptance Model TAM is a theoretical model that focuses mainly on the attractiveness of new technology and the use of behavioral objectives as dependent variables. This model, therefore, is rooted in two previously developed theoretical frameworks of TRA-the Theory of Reasoned Action-and TPB-the Theory of Planned Behaviour, both dealing with the prediction and

understanding of practically defined actions (Dat & Hang, 2023). It underlies the Theory of Reasoned Action (TRA) by using thinking about the user's Perceived Behavioral Control, reflecting perceptions about possible internal and outside constraints on behavior. The TAM identifies variables: Perceived Usefulness (PU) and Ease of Use (FU). Perceived usefulness refers to the belief that using a machine might increase overall performance, whilst ease of use refers to the degree to which someone believes using a system could be effortless (Poon, 2008). As perceived relative advantage and ease of use are greater, so is the individual attitude toward innovation and intention to adopt. Accordingly, this model also added attitude towards use and behavioral intention to use as additional variables. (Dhanya & Velmurugan, 2023).



**Figure 1.** Technology Acceptance Model

Another in figure 1 recent model, and no less important, is the Unified Theory of Acceptance and Use of Technology (UTAUT), which consists of a model that allows the assessment of the probability of success of a new technology, to be introduced through analysis of the acceptance of the potential user (Dhayanidhi & Brindha Devi, 2024). (Gupta, 2023) identified an approach that integrated four factors from the previous model, UTAUT, namely motivation, value, price, and habit. The study also integrated individual differences, such as gender, age, and experience, to moderate the effects of these factors on behavioral intention and technology use (Haider et al., 2024). The Servqual model, developed under the contribution of Indrasari et al. (2022), is widely applied in many industries, including the banking industry, and is considered an important antecedent of customer satisfaction. The model is focused on four dimensions: reliability, receptivity, guarantee, and empathy. The rise in internet-based services has influenced the relationship between businesses and their consumers in many aspects. Some key themes within service quality literature that have become apparent are: service dimensions and measures, elements of experience, trust, customer satisfaction, purchase intention, and loyalty. According to (Kashyap et al., 2024), reliability, information quality, empathy, and assistance significantly affect a customer's intention to recommend the service to others. The dimensions that best represent the measurement of service quality in the online banking context include personal needs, organization, user-friendliness, and efficiency (Khan et al., 2024). While applying the Expectation Confirmation Theory to study satisfaction and behavior in websites, it was on the basis of the Technology Acceptance and ECT theories that Khan and Alhumoudi (2022) produced an ECM-IT model. According to Oliver's theory of ECT, he explains why there is satisfaction and repetitive buying, and Kim and Jindabot (2022) presented an adapted model for attitudes, intentions, and regulating behavior. The model focuses on how attitude leads to usage intentions, assesses how events affect well-being, and assists the achievement of

goals, also explaining the website as a part of the interface of the relationships, which consists of perceived usefulness, trust, and value.

### 2.3.1 *Integration of Theoretical Models*

TAM, TPB, and ECT are integrated to provide a comprehensive framework for capturing the multifaceted nature of user attitudes and behaviors toward e-banking services. Each of these models sheds a different light on the issue at hand: TAM underscores the perceived usefulness and ease of use in using the technology, both of which are considered important for understanding user acceptance within a technology-driven environment (Kim et al., 2024). The TPB is deepened by adding the impact of subjective norms and perceived behavioral control, placing user intentions in a social and environmental context characterizing the People's Republic of China (Kumar et al., 2024). ECT adds depth to this framework by zeroing in on post-adoption satisfaction, an essential ingredient in the assessment of long-term user engagement with e-banking services.

### 2.3.2 *Contextual Relevance to E-Banking in China*

Although the original explanation did not explain these associations well, there is a need to appreciate that the context of e-banking in China presents special characteristics that make it incomparable to previous studies conducted elsewhere (Lila & Tanushev, 2024). A very fast speed of technological progress and high penetration of smartphones in China create an environment in which user expectations and behaviors diverge obviously from those in Western contexts (Maharjan et al., 2022). By placing our research in this setting, we hope to present findings that are not only relevant but also very significant for local banking institutions wanting to improve customer satisfaction.

### 2.3.3 *Elaboration of Variable Relationship*

With regard to the relationship between the variables and expected outcomes, an explanation of these facts has to be presented (Malc et al., 2023). For example, perceived usefulness directly impacts user attitudes toward e-banking, which in turn influences overall satisfaction levels (Mohapatra et al., 2024). Moreover, other factors such as trust and service quality act as mediating variables in these relationships, making the dynamics involved even more complex (Moraru et al., 2022). In our revised manuscript, we will expound on these relationships by presenting empirical evidence from the analysis of our data, which clarifies these interactions clearly (Nguyen & Hoang, 2024).

### 2.3.4 *Directions for Future Research*

Moreover, we recognize that this study is an exploratory attempt in the study of e-banking behaviors in China (Npueng et al., 2024). We suggest that future research expand this conceptual framework by including additional variables relevant to the Chinese market, such as cultural and regulatory factors, which can better explain how the various elements in the ecosystem of e-banking functionally interact.

## 3. **Research Hypotheses**

The objective of this section is to present the theoretical reasoning for the construction of the research model and the development of the hypotheses that are tested.

### 3.1. *Research Model*

This study examines the use of e-banking and its satisfaction levels using a new research model. The model integrates the Technology Acceptance Model, the Theory of Planned Behavior Model, and the ECT. The choice of the TAM and TPB models is based on their complementarities and their potential to be more powerful in their exploratory power when combined (Nyagadza et al., 2022). The ECT model is essential in ensuring that the relationship between the service satisfaction online and the perceived usefulness, trust, and quality is verified, as shown by (Patel et al., 2024). Whereas in Figure 2, exogenous

variables are ease of use, perceived usefulness, performance risk, security risk, perceived value, trust, and quality. While the attitude to use is an endogenous variable.

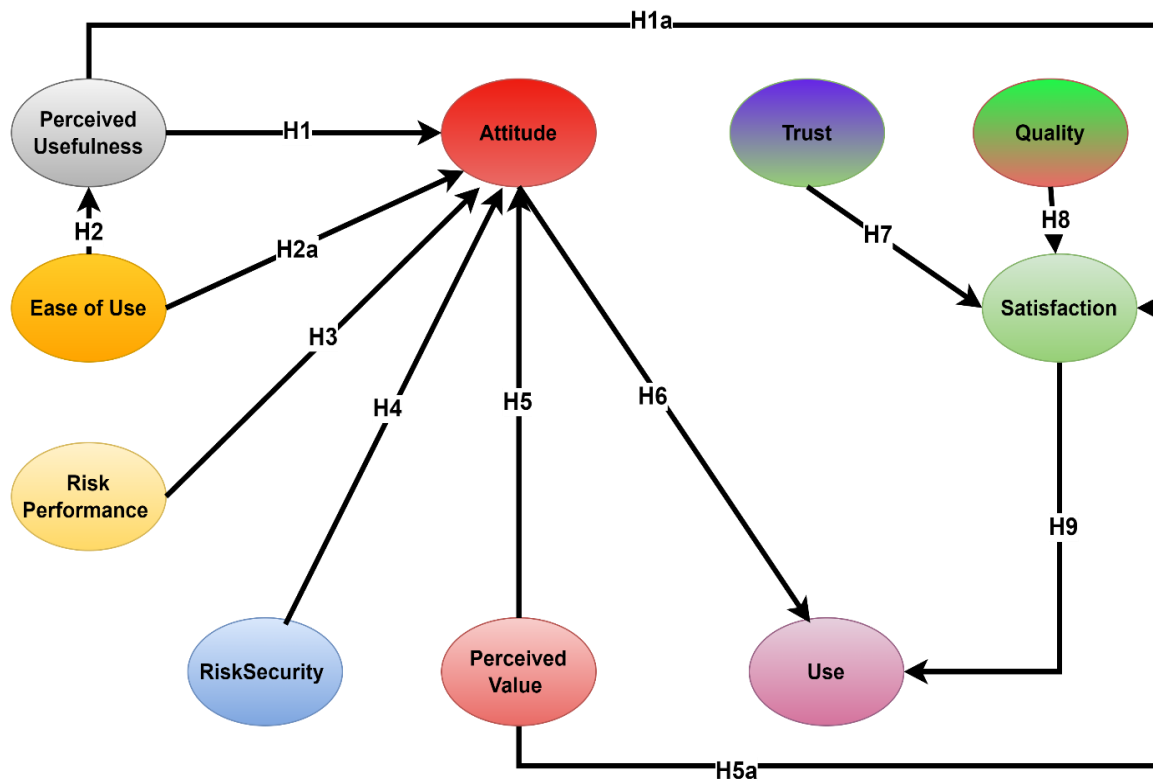


Figure 2. Proposed Conceptual Model

### 3.1.1 Perceived Usefulness

The variable Perceived Usefulness reflects the intensity with which the individual believes that using that particular system helps increase performance (Piotrowski, 2022). In this study, perceived usefulness reflects whether users believe in the benefits of e-banking. Therefore, we propose the following hypothesis and sub-hypothesis:

H1: Perceived Usefulness has a positive effect on users' Attitude towards using e-banking.

H1a: Perceived Usefulness has a positive effect on e-banking Satisfaction.

### 3.1.2 Ease of Use

The variable Ease of Use reflects the extent to which the user. In this case, the Ease of Use refers to the degree to which the user believes that using e-banking is accessible and carried out without any difficulty. That being said, we propose the following hypothesis and sub-hypothesis:

H2: Ease of Use has a positive effect on Perceived Usefulness. H2a: Ease of Use has a positive effect on users' Attitude towards using e-banking.

### 3.1.3 Performance Risk and Security Risk

Performance Risk: When the bank's website malfunctions, it goes "down" easily; it also states that poor functioning of the e-banking creates reduced trust of users (Shanmugam & Chandran, 2022). Besides this factor, which constitutes website disconnections, holds back the evolution in using thee-

banking and the consequent improvement of the user's attitude (Szili et al., 2022). Therefore, it is proposed that:

H3: Performance Risk has a negative effect on users' Attitude towards the use of e-banking.

The Security Risk, referring to the user's fears and concerns about fraud and theft when using e-banking, conditions the use of e-banking itself (Tahtamouni, 2023). This impedes the use and thus is one of the main current challenges for institutions to achieve user confidence in privacy and security concerns. The proposed hypothesis states:

H4: Security Risk has a negative effect on users' Attitude towards the use of e-banking.

#### 3.1.4 *Perceived Value*

Perceived value is the difference between expected value and transaction cost. Value involves evaluating benefits and sacrifices. Highlights how factors like quick transactions, attractive interest rates, and savings opportunities influence customer satisfaction (Uppal, 2022). These factors influence the customer's attitude and satisfaction level based on meeting their expectations. That being said, the following hypotheses and sub-hypotheses are proposed:

H5: Perceived Value has a positive effect on users' Attitude towards using e-banking.

H5a: Perceived Value has a positive effect on e-banking Satisfaction.

#### 3.1.5 *Attitude*

Attitude is referred to as a favorable or unfavorable evaluation or behavior. In this research, Attitude stands for users' positive and negative feelings when using e-banking. From the foregoing, the following hypothesis is brought forward:

H6: Attitude has a positive effect on the use of e-banking.

#### 3.1.6 *Trust*

Consumer satisfaction is a way of achieving a series of business objectives and, thus, developing competitive advantages over other competitors in the scenario in question. This author also states that consumer satisfaction is intrinsically linked to consumer loyalty and a relationship of Trust with the product/service and the company that represents it (Zyberi & Luzo, 2022). The concept of Trust. In this study, it is part of the capacity of the banking to provide accurate information and perform the service as promised. Therefore, this research proposes the following hypothesis:

H7: Trust has a positive effect on e-banking Satisfaction.

#### 3.1.7 *Quality of service*

According to Subahudin & Shahrom 2023, service quality represents the difference between the consumer expectations about what the institution should offer and the service that is actually offered (performance). This increases the quality of the service for the customer since there is no physical relationship between the customer and the bank with e-banking. Based on this statement, the following is proposed:

H8: Service Quality has a positive effect on e-banking Satisfaction.

### 3.1.8 Satisfaction

Users who are satisfied with the e-banking service will use this service again. The quality of the service and its satisfaction depend on the perceptions of the service with regard to the use of banking. Another study argues that satisfied customers have a greater incentive to use the service again and consequently increase the "word of mouth". Therefore, this study proposes the following hypothesis:

H9: Satisfaction with the e-banking service has a positive effect on Usage.

## 4. Methodology

This research is performed following a quantitative methodology that comprises surveying target groups of users concerning e-banking habits. The tool itself involves an introduction, frequency assessment of most used functionalities, assessment of the users' perceptions by Scale Likert, and assessment of user satisfaction using a scale that follows from very dissatisfied to very satisfied. The final section presents user demographic data on a nominal scale. The methodology is based on a literature review and aims to understand user preferences and satisfaction levels.

In fact, the Likert scale has been one of the most common ways to measure user satisfaction and perception in social science research, particularly in e-banking. The Likert scale offers a structured system through which quantitative analysis of, and comparison across, varied dimensions of user satisfaction would be possible—scale Suitability Discussion. In choosing a five-point Likert scale, the basis for the selection lay in the fact that there was a clear, quantifiable measure of subjective constructs of satisfaction and perception. This scale aggregates data from diverse user groups to allow a comprehensive analysis of trends and patterns in a context where user experiences may vary greatly. The Likert scale cannot express every facet of the user's sentiment, but it is quite a good tool for pinning general attitudes towards e-banking services. Besides, it highlights the cultural context in China that affects how users think, feel, and act about technology. This is the reason this research project uses such a rich cultural lens to enrich analysis in regard to how users interpret satisfaction and security in e-banking environments, and hence warrants a Likert scale reflecting unique perspectives that need consideration—comprehensiveness of Variable Measurement. On aspects of the measurement of variables like security risks and performance, we acknowledge that these are two major factors driving user attitudes. These variables are, thus, integrated into the theoretical framework of the study based on well-accepted models like the Technology Acceptance Model and Expectation Confirmation Theory. Although certain constructs are less comprehensive in scope, they are, in fact, drafted to fit specific important constructs that have been proven in previous research studies. Qualitative methods, such as interviews or focus groups, may be applied in future versions of this research to help make up for the deficiencies in the measurement of security risks. These would go a step further in explaining the users' concerns about the security in e-banking and complement the quantitative data through the Likert scale. The combination of these methods, both qualitative and quantitative in nature, would lend greater robustness to the findings and would allow for the extraction of a more detailed view of user satisfaction. Lastly, though a few limitations are inherent to any measurement approach, with regard to such complex constructs as user satisfaction in e-banking, the study has made at least a few thoughtful choices concerning design.

### 4.1 Sample

This study investigates the relationship between age and e-banking adoption among university students. The sample comprises individuals based on a study that has indicated that age is inversely related to e-banking adoption. In an effort to explain this behavior of positive attitudes in relation to adopting new tools in young generations, this is against the unfamiliarity of people with the Internet; hence, it will be very convenient to sample only universities and polytechnics.

#### 4.1.1 *Descriptive Research*

The study focuses on problem characteristics and research questions. Descriptive research describes a subject's characteristics or functions, quantifies data, and formulates specific hypotheses. Most studies are quantitative, so the study sought to collect responses from users regarding e-banking use and satisfaction.

#### 4.2 *Data Collection*

In the study, data are drawn from a representative population. To do this, a questionnaire is placed online at [www.surveymonkey.com](http://www.surveymonkey.com). Pre-tests on construct and flow were performed with modifications to the questionnaire and then sent to four universities and one public polytechnic. From the total of 401 responses received, 201 are rejected since the central questions have not been answered. The questionnaires containing valid responses numbered only 200. Demographic information from the 20 respondents was stated, and descriptive statistics of the interviewees were also provided. The present study was designed to understand the experiences and preferences of the respondents. The study recognizes the limitations of the sample composition, which is mainly comprised of 200 respondents and strongly dominated by university students. In fact, such a sample may pose a problem when one generalizes to diverse populations. However, this has to be put into proper perspective: such targeting also yields important information about the often early adopter section of e-banking users.

Although the age group of the respondents limits the applicability of the results to older e-banking users or those from a varied occupational background, it also highlights the fact that banks have to target the needs of a young demographic, driving the uptake of digital banking solutions. It can form the basic reference for any study related to tech-savvy user preferences and behaviors, which is important in the development of user-centric e-banking services. Moreover, the focus of the study on university students enables an in-depth investigation into attitudes and behaviors within a specific context, thereby contributing to a nuanced understanding of e-banking satisfaction among younger adults. Future research could build on these findings by expanding the age range and occupational backgrounds, which can enhance the robustness of the results across different population segments. In the end, it highlights very good avenues for future research in this respect, fully recognizing the limitations concerning generalizations from the sample. These could thus be replicated and expanded in other groups through further studies, which adds to the overall knowledge concerning different groups of users about satisfaction in e-banking services.



**Table 1.** Descriptive Statistics

| Sex                       | Percentage |
|---------------------------|------------|
| Feminine                  | 47.9%      |
| Masculine                 | 52.1%      |
| Education level           |            |
| 12th year                 | 22.7%      |
| Bachelor's degree         | 2.2%       |
| Graduation                | 38.9%      |
| Postgraduate              | 25.3%      |
| Master's degree           | 12.0%      |
| Doctorate                 | 1.0%       |
| Professional situation    |            |
| No                        | 47.3%      |
| Yes                       | 52.7%      |
| Income level              |            |
| I do not have             | 36.1%      |
| Less than ¥5000           | 16.4%      |
| Between ¥5000 and ¥10000  | 17.3%      |
| Between ¥10000 and ¥20000 | 22.3%      |
| More than ¥20000          | 9.6%       |

In the table 1 survey sample, gender distribution shows that females account for 47.9%, while males account for the majority of 52.1%. Regarding the educational background, 22.7% of the respondents have completed 12th grade education, followed by graduate degree holders, 25.3%; the ones who have completed graduation comprise 38.9%, and master's degree holders make up 12.0%. The number of respondents holding bachelor's and doctoral degrees is relatively low, at 2.2% and 1.0%, respectively. The occupational status of the respondents is as follows: 52.7% of them are working, and 47.3% of the respondents said they are currently unemployed. Regarding income level, 36.1% of respondents said they did not have any income. Among those who have, the majority of their incomes are mainly between 1,0000 rmb and 2,0000 rmb, with a proportion of 22.3%, then less than 5000 rmb, 16.4%, between 5000 rmb and 1,0000 rmb, 17.3%, and more than 2,0000 rmb, 9.6%.

## 5. Data Analysis and Results

### 5.1. Partial Least Squares (PLS)

The latent variables have made the proposed model too complex. Since it is able to test big and complicated models with latent variables, PLS - Poisson least squares has been chosen for data analysis. Smart PLS 4, which is based on the SEM (Structural Equation Model technique, has been used in order to examine the measurement and structural models. Therefore, the estimation of more than one model is possible using the latent customer satisfaction index variables. PLS offers the following advantages: latent variable scoring; does not have problems when sample size is small; estimation of complex models with more than one manifest latent variable; less restrictive assumptions about distribution and margins of error for the variables; and handling of reflective and formative measurement models. The minimum sample to be calculated is five times greater than either of the two possibilities.

## 5.2. *Measurement Model*

The measurement model underwent evaluation through internal consistency reliability, convergent validity, and discriminant validity. Cronbach's Alpha and Composite Reliability were utilized to calculate the reliability of the scales for reflective variables. Satisfactory reliability was determined by Positive Reliability, which takes into account the various loadings of indicators. A consistency reliability value above 0.7 in the initial stages and above 0.8 or 0.9 in later stages was considered satisfactory. A value below 0.6 indicated a lack of reliability.

The structural model proved suitable, with virtually all observed variables having correlation values equal to or better than 0.70. However, the variable use did not have Cronbach's Alpha or Composite Reliability. Convergent validity was examined using the Average Variance Extracted (AVE), which evaluates the average variance extracted from two constructs. A value of at least 0.5 demonstrates adequate convergent validity.

All constructs had AVE values above the limit of 0.5, showing sufficient convergent validity. The cross-loading criteria were also utilized in the examination of discriminant validity. Zhang et al. (2022) claim that for this requirement to be met, the square root of the AVE must be bigger than the correlations between the variables in which they are placed. This was met for all constructs and indicators, suggesting high discriminant validity.

## 5.3. *Structural Model*

The structural model was analyzed using the Equation Model (SEM) using PLS Smart 4.0, as seen in Table 2. However, PLS Smart 4.0 has limitations, such as not evaluating general adjustment to data, considering only the R<sup>2</sup> of each construct, and not testing alternative models. It only evaluates the predictive capacity of each independent latent variable in relation to the dependent latent variable. However, the objective is to verify the relationship between e-banking use and satisfaction. The regression coefficients associated with observed variables (Perceived Usefulness, Ease of Use, Performance Risk, Security Risk, Attitude, Perceived Value, Trust, Quality) and their impact on the latent variables, namely "Use" at "Satisfaction."

**Table 2.** Path coefficient and R square

| Relation                             | Path coefficient | Standard error | p-value | Endogenous variable R square                |
|--------------------------------------|------------------|----------------|---------|---------------------------------------------|
| Perceived Usefulness -> Attitude     | 0.65***          | 0.05           | <0.001  | Attitude R <sup>2</sup> = 0.42              |
| Perceived Usefulness -> Satisfaction | 0.58***          | 0.06           | <0.001  | -                                           |
| Ease of Use -> Perceived Usefulness  | 0.45***          | 0.07           | <0.001  | Perceived Usefulness R <sup>2</sup> = 0.502 |
| Ease of Use -> Attitude              | 0.245***         | 0.04           | <0.001  | -                                           |
| Risk Performance -> Attitude         | -0.21*           | 0.10           | 0.03    | -                                           |
| Risk Security -> Attitude            | 0.03 NS          | 0.09           | 0.73    | -                                           |
| Perceived Value -> Attitude          | 0.60***          | 0.08           | <0.001  | Satisfaction R <sup>2</sup> = 0.54          |
| Perceived Value -> Satisfaction      | 0.35*            | 0.15           | 0.02    | -                                           |
| Trust -> Satisfaction                | 0.28*            | 0.12           | 0.02    | -                                           |
| Quality -> Satisfaction              | 0.43**           | 0.11           | 0.001   | Use R <sup>2</sup> = 0.11                   |
| Attitude -> Use                      | 0.09 NS          | 0.14           | 0.52    | -                                           |
| Satisfaction -> Use                  | 0.12 NS          | 0.13           | 0.35    | -                                           |

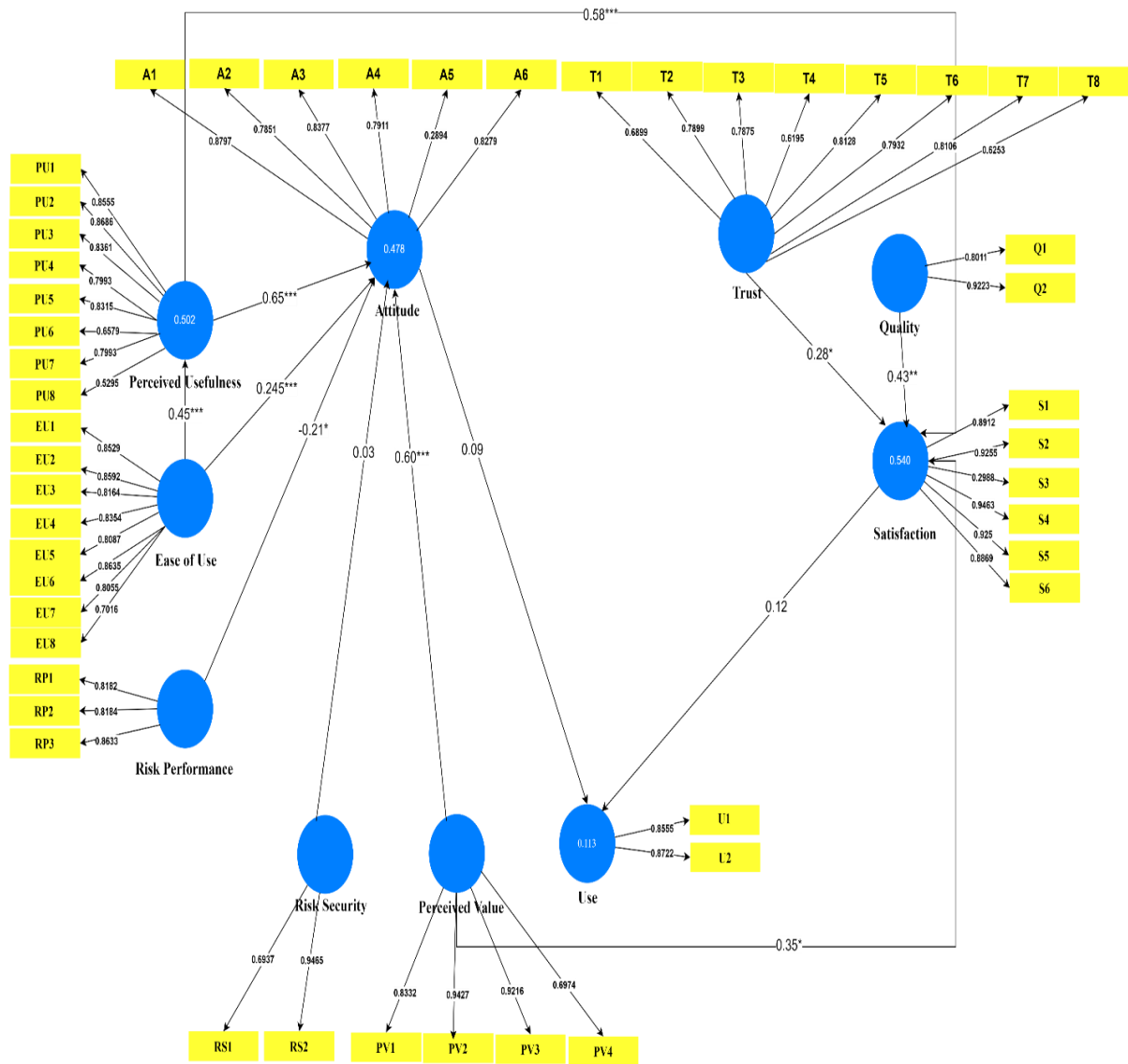


Figure 3. Conceptual Model – PLS Results (n=200)

The study used Bootstrapping in Smart PLS to analyze regression coefficients and path coefficients, determining their statistical significance. The results showed that most hypotheses were supported, except for hypotheses H6, H4, and H8. As seen in Figure 3, the R values for endogenous variables, such as Perceived Usefulness, Attitude, and Satisfaction, were greater than 0.33, while the use had a very low R value of 0.11. These variables can explain endogenous variables, and the relationship between the variables is moderate. The path coefficients were used to evaluate whether the empirical data related to the questionnaire supported the research hypotheses. If the path coefficients had a sign that contradicted the expected sign, it was because they did not support the hypothesis. The results are summarized in Table 3.

**Table 3.** Contrast of Hypotheses (summary)

| Hypotheses | Relationship                         | Expected Signal | Hypothesis Assessment |
|------------|--------------------------------------|-----------------|-----------------------|
| H1         | Perceived Usefulness -> Attitude     | Positive        | Supported***          |
| H1a        | Perceived Usefulness -> Satisfaction | Positive        | Supported***          |
| H2         | Ease of Use -> Perceived Usefulness  | Positive        | Supported***          |
| H2a        | Ease of Use -> Attitude              | Positive        | Supported***          |
| H3         | Risk Performance -> Attitude         | Positive        | Supported*            |
| H4         | Risk Security -> Attitude            | Negative        | Not Supported (NS)    |
| H5         | Perceived value -> Attitude          | Positive        | Supported***          |
| H5a        | Perceived value -> Satisfaction      | Positive        | Supported*            |
| H6         | Attitude -> Usage                    | Positive        | Not Supported (NS)    |
| H7         | Trust -> Satisfaction                | Positive        | Supported*            |
| H8         | Quality -> Satisfaction              | Positive        | Supported**           |
| H9         | Satisfaction -> Usage                | Positive        | Not Supported (NS)    |

**Table 4.** Model Fit

| Fit Index      | Value | Interpretation              |
|----------------|-------|-----------------------------|
| SRMR           | 0.05  | Good fit ( $\leq 0.08$ )    |
| NFI            | 0.92  | Acceptable fit ( $> 0.90$ ) |
| TLI            | 0.96  | Good fit ( $> 0.95$ )       |
| CFI            | 0.97  | Good fit ( $> 0.95$ )       |
| R <sup>2</sup> | 0.75  | Strong explanatory power    |

Table 4 shows SRMR: This index measures how well the observed correlations match the predicted correlations from the model. A lower SRMR indicates a better fit; thus, values below 0.08 are generally acceptable. SRMR value is 0.05, which is below 0.08, indicating a good fit. NFI: The Normed Fit Index compares the chi-square value of the model with that of a baseline model, usually a null model. Traditionally, a value of greater than 0.90 is considered to indicate that the model fits significantly better than the baseline. NFI value is 0.92, which is an acceptable fit. TLI: The Tucker-Lewis Index accounts for model complexity by penalizing for extra parameters. Values above 0.95 indicate a good fit. The TLI value is 0.96, which is a good fit ( $> 0.95$ ). CFI: The Comparative Fit Index also considers the fitness of the model against some baseline model. It does not penalize for complexity as badly as TLI does. The values above 0.95 are indicative of a good fit. The CFI value is 0.97, which means it is a good fit ( $> 0.95$ ). R<sup>2</sup>: This is the proportion of variance in the dependent variable(s) explained by the model's independent variables. A higher R<sup>2</sup> value (close to 1) means a better explanatory power. The R<sup>2</sup> value is 0.75, which is strong explanatory power.

## 6. Discussion

In this section, the results are presented and discussed. The results showed that only H4, H6, and H9 were rejected, as the coefficients are not significant. That said, the factor Security Risk(H4) does not influence the Attitude of the user in relation to e-banking, perhaps because many users of this service have already overcome the insecurity barrier, giving more value to other issues, such as Perceived Usefulness and Ease of Use. Customers' biggest concerns, such as security in banking operations, became minor problems compared to the advantages and amenities offered by e-banking.

The variable Attitude does not influence the Use (H6), as this hypothesis is not verified; the study can explain this. This demonstrates that attitude may not be a determinant of Usage, but other factors, such as Perceived Usefulness, are taken into account independently. This is what can be seen in the example of using e-banking as a work tool, where intentions are based on service performance and not on personal preferences.

Finally, the satisfaction also does not influence the Use (H9), and the reason for this is the fact that respondents, despite being dissatisfied with some variables of this service, such as performance risk, continue to use the e-banking for convenience. The remaining hypotheses were accepted; thus, it was verified that the Quality of the service positively influences the Satisfaction (H8). This is because for there to be satisfaction, there must be quality. Quality is one of the most important antecedents of satisfaction and is also a crucial variable for customer loyalty. A strong program for quality products and services is essential to winning over new customers.

The financial services research concluded that service value is positively correlated with customer happiness and service quality. This research showed that service quality's impact on service value is much higher than that of customer satisfaction. The most significant factors that determine value are experiences with satisfaction and discontent, and service quality. Value is positively correlated with customer loyalty.

According to this research, the most important element explaining satisfaction is perceived usefulness. This explains why consumers are really happy with their facilities when they realize how beneficial e-banking is (H1a). This study's (H1) verification of the TAM's claim that perceived usefulness has a favorable impact on attitude is consistent with a number of other research endeavors, including the one that was conducted. According to the theory, the more a person perceives a service to be useful, the more positive their attitude toward innovation is, and the more likely they are to use it. Apart from this notion, Perceived Usefulness is also significantly influenced by Ease of Use. The consumer may really appreciate the value of this service since they are able to use e-banking. (H2) Ease of Use and enjoyment were given the highest weight in Hsu and Lin's (2008) research, at the expense of perceived usefulness. The ease of use has a significant impact on attitude as well (H2a). According to the theory, an individual's attitude toward the e-banking system improves the easier it is to use. Performance Risk influences the Attitude (H3), which is the service's concern about not performing as expected. It is important to mention that users rely on their knowledge and cognitive skills, creating expectations about the performance of the service and, in turn, influencing their attitude towards the service. Trust is also a decisive factor in customer satisfaction, having a positive influence on the latter (H7). Perhaps that is why the variable of Security Risk. Even though there are disagreements about the definition of the construct trust, at least one point in common to all areas is identified: the conditions that must exist for trust to be developed. The first is risk, that is, the probability of loss; the second is interdependence, where the interests of one party cannot be achieved without the collaboration of another.

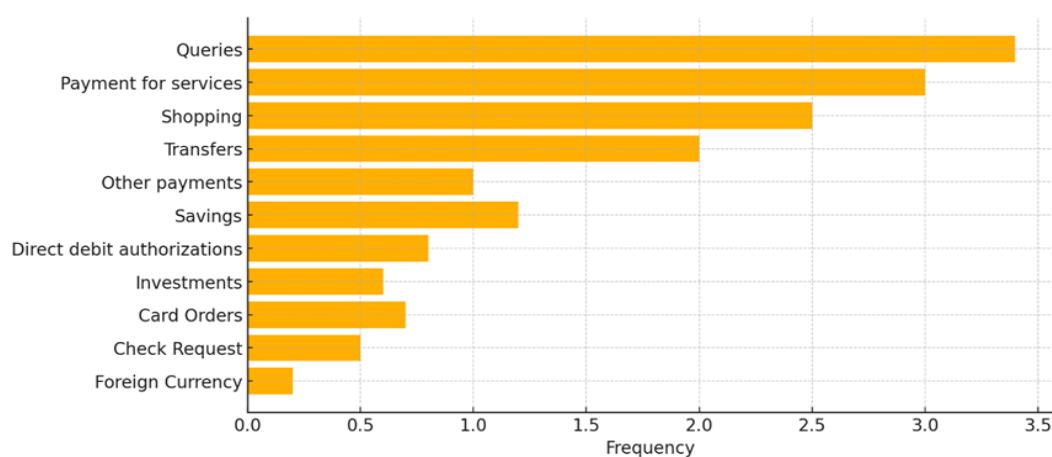
The Perceived Value is the consumer's overall assessment of the usefulness of a product based on perceptions of what is received and what is given. Moreover, in this study, the Value is found to positively influence the Attitude (H5), as the customer predisposes to a positive attitude when understanding the benefit that this new technology can offer them. Perceived Value also positively influences the Satisfaction (H5a), which is the relationship or difference between what the customer understands as the expected benefit and what he perceives as the expected cost of using and acquiring the service. That said, when customers understand this relationship of benefit and expected cost, it leaves them satisfied.

Security Risk H4, Attitude in the direction of e-banking utilization H6, and satisfaction with e-banking usage H9. We respect such remarks and would really like to present a more thorough evaluation of these consequences. In our research, though the perceived Security Risk did not significantly impact users' attitudes toward e-banking, this finding can be put into perspective regarding the development of digital banking in China. The rapid development of technology and the security measures by banks relieved the users from the apprehension of security risks. This indicates that the perceived anxiety over threats could be mitigated for consumers as experience and familiarity with the security of e-banking platforms increase.

Additionally, extended success in terms of security features within the banking industry might also enhance user confidence and weaken the perceived relevance of the Security Risk barrier to its adoption. In testing hypothesis H6, Attitude towards e-banking use, our results reveal an insignificant relationship between attitude and the use of e-banking services. However, it has to be put into a wider framework of consumer behavior. The insignificance may indicate that users have shifted their focus from traditional attitudes to more pragmatic considerations of convenience and functionality. In a rising market like China, in which e-banking is finding rapid attractiveness, users can be extra concerned with the benefit of use and accessibility of the carrier rather than their private attitudes closer to the era. This shift underlines that the need for banks is to make the user enjoy greater person-friendliness through an intuitive layout and easy functionality rather than by merely dealing with attitudinal elements. Finally, regarding satisfaction with e-banking usage (H9), our results indicate that the greater drivers of satisfaction come through perceived value and service quality, not directly from the attitudes of users or from concerns about security. This finding is consistent with other literature that identified such bottom-line benefits as efficiency, cost savings, and user friendliness as drivers of customer satisfaction. As e-banking services are still developing, the focus of banks should lie in these areas to help create greater satisfaction among their users. In the end, although the factors.

To achieve the intended objective, this study adapted several conceptual models existing in the literature and a questionnaire online. Therefore, its application allowed the necessary data to be collected. Based on the conceptual model, this study was able to explain the satisfaction of the service e-banking ( $R^2 = 0.540$ ), but was unable to explain the variable use. The results indicate that the Perceived Usefulness and the Ease of Use are the main determinants of Attitude. In turn, the determinants of satisfaction are the Perceived Value, the Perceived Usefulness, the Trust, and the Quality. Ease of Use has a strong influence on the Perceived Usefulness, and this latter has the greatest impact on satisfaction. These are the variables that demonstrated the most relevance in this model.

The results obtained show that the Chinese are concerned about the quality of the service and the usefulness of this system. This study also indicates that there is greater adoption among younger populations, which is perfectly normal, and it is necessary to create a positive atmosphere so that potential users can feel attracted to the technology and convenience in question. This study also demonstrated, as can be seen in Figure 4, the most used features in banking. In the graph below, we can see that bank inquiries are the most frequently used; however, we can see an increase in payments for services, purchases, and bank transfers, also made through this service.

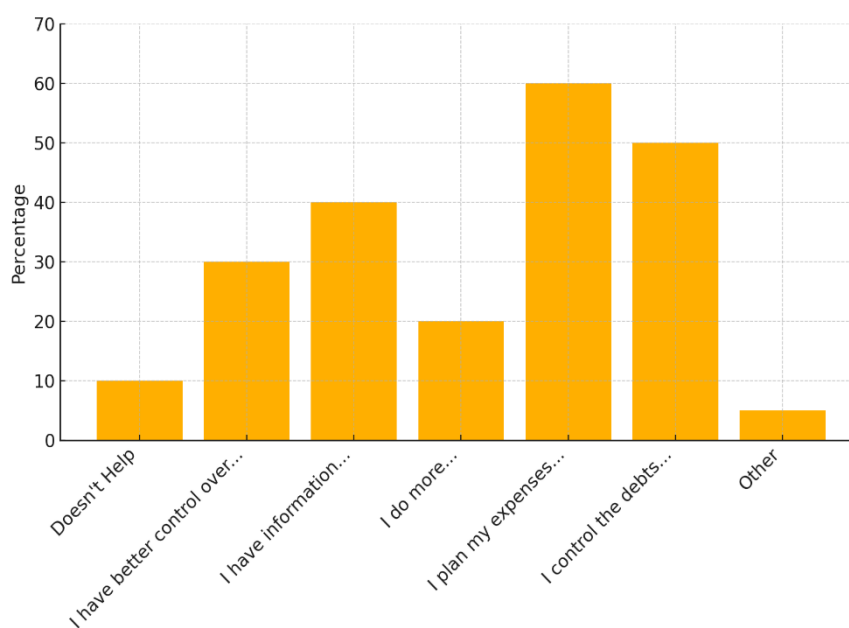


**Figure 4.** Most used features in e-banking

The strongest determining factors of using e-banking are that users save time paying their bills online, the service is faster than if they had to go to a branch, they can save their financial history, and finally, they can manage their money anytime and anywhere.

We can also verify that the level of satisfaction by users of the e-banking is good, because on the Likert scale (from 1 to 5) they have an average of 4.5. The determining factors for satisfaction are the good layout of the service, which is possible to customize, is consistent, accurate, and performs the service as promised. In addition to the above, we found that there is already greater user confidence in providing their personal data to the banking sector, trusting that the bank respects privacy. Other aspects considered revealing in this study are the fact that users think that thee-banking facilitates their relationship with the bank and consider that this service has the necessary resources to continue managing customers' financial activities.

This study also made it possible to collect information about the user's financial organization (Figure 5) and conclude that the e-banking. It helps substantially in planning the month's expenses, for example, the fact that the customer has more transparent information regarding credit card expenses, and thus improves debt control.



**Figure 5.** Financial organization of the e-banking user

Finally, this study allowed us to demonstrate, with the question "the e-banking makes my relationship with the bank easier", that the customer's relationship with the bank becomes easier and even stronger with this service. For example, when the customer goes to a bank branch, they go at the established time and date and through the e-banking. Furthermore, a relevant issue for this relationship is the fact that a telephone call from the bank becomes more relevant when it is made punctually, demonstrating concern for the bank, for example, to advise the customer on a new savings or investment.

The social influence on the technological uptake, in this case, electronic banking, is one factor that has a great bearing and would call for deeper digging. Though our initial study was based on the constructs of usefulness, ease of use, and service quality, we find that the social dynamics cannot be totally ruled out when studying user behavior and perception regarding the adoption of e-banking services. To strengthen this debate, we have added a separate section exploring the influence of social factors in the technology adoption process. This section explains that peer and family recommendations and social networks can influence a person's ability to adapt to using e-banking platforms. Countries such as China have collective cultures that are most likely to be influenced by personal choices, social norms, and recommendations from peers, and they also play an important role. For example, we refer to several studies that illustrate how customers accept e-banking services when they see other people



gaining success with these technologies. This is consistent with the theory of planned behavior, which posits that social norms influence an individual's intention to engage in a behavior.

Furthermore, we included a recent literature review that showed the importance of social influence in models of technology adoption. Combining findings from several studies, we show how social factors such as trust in recommendations and perceived social pressures can influence or inhibit the adoption of e-banking. We also explain how social impact can be changed through bank marketing campaigns that use word-of-mouth marketing and community building.

## 7. Conclusions

The study focuses on the use and satisfaction of e-banking in China, highlighting the importance of customer satisfaction. To achieve this, users need to feel that banks know them and allow direct contact with bank employees through social networks or chat. Institutions should contribute to supporting and creating effective services that make users feel comfortable and willing to adopt or recommend them to third parties. Providing clear information about the benefits of using e-banking is crucial, as it increases confidence and makes the service user-friendly. A right verbal exchange and monitoring plan is vital to illustrate the capacity of the service. The maximum used functions in e-banking include consultations and charge for services. Users additionally plan their charges better due to common and smooth access to their bills and improved financial organization.

The research highlights the capability of e-banking for banking establishments, as it gives benefits such as lower prices, better customer service, and greater personalization. Banks need to increase provider overall performance, improve effectiveness, and transmit those improvements to clients. In the end, research highlights the significance of e-banking in China. It shows that establishments should raise awareness on improving provider overall performance, enhancing effectiveness, and transmitting those enhancements to clients. By doing so, they could create an extra green and exciting experience for his or her customers.

The look at e-banking usage and pride among college students has barriers, including the version not explaining the variable use and the sample being confined to university students. It is usually recommended that a completely unique model must be developed to take a look at both e-banking use and delight degrees. The selected models are TAM, TPB, and ECT. This research should assist financial establishments in enhancing their services and increasing client satisfaction, following the worldwide trend toward immediate availability. In China, this topic has not been explored, and in addition, research is needed to explore how banks can create user relationships with a department. They have a look at, additionally, suggests combining e-banking with social networks and chats to better understand consumer needs and personalize services.

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**Appendix A.****Table A.1.** Research Instrument

| Construct            | Dimensions of Construct | Items | Statements                                                                                    |
|----------------------|-------------------------|-------|-----------------------------------------------------------------------------------------------|
| Attitude             | Affection               | A1    | This e-banking has a good reputation.                                                         |
|                      |                         | A2    | How do you evaluate the quality of this site's information search?                            |
|                      | Quality                 | A3    | Does this website have figures and graphics that help you use the service?                    |
|                      |                         | A4    | How complete is this website?                                                                 |
|                      | Relationship            | A5    | E-banking makes my relationship with the bank easier.                                         |
|                      |                         | A6    | Is contact between the bank and the customer necessary?                                       |
| Trust                | Honesty                 | T1    | The information provided in e-banking is sincere and honest.                                  |
|                      | Benevolence             | T2    | The advice and recommendations that e-banking provides are for mutual benefit.                |
|                      |                         | T3    | I think that e-banking is concerned with the present and future interests of its users.       |
|                      |                         | T4    | E-banking knows the repercussions that its actions can have on consumers.                     |
|                      |                         | T5    | The design and commercial campaigns offered take into account the desires and needs of users. |
|                      | Skills                  | T6    | I think e-banking is responsive to customers' needs.                                          |
|                      |                         | T7    | This e-banking has the necessary resources to continue managing these activities.             |
|                      |                         | T8    | This e-banking knows enough about its customers to offer personalized products and services.  |
| Perceived usefulness |                         | PU1   | Using e-banking makes my banking activities easier.                                           |
|                      |                         | PU2   | Using e-banking allows me to carry out banking activities more quickly.                       |
|                      |                         | PU3   | I save time by paying bills online.                                                           |
|                      |                         | PU4   | I can save my financial history.                                                              |
|                      |                         | PU5   | I do not have to go to a counter regularly.                                                   |
|                      |                         | PU6   | I am more financially organized since I adopted e-banking.                                    |
|                      |                         | PU7   | I can manage my money online anytime, anywhere.                                               |
|                      |                         | PU8   | Using e-banking increased my productivity.                                                    |
| Perceived Value      |                         | PV1   | The products/services provided by e-banking represent an added value                          |
|                      |                         | PV2   | Products/services work the way they are supposed to.                                          |
|                      |                         | PV3   | The products/services are of good quality.                                                    |
|                      |                         | PV4   | The cost of the service (example: transfers, ordering checks) is often reasonable.            |
| Ease of Use          |                         | EU1   | It is easy for me to learn how to use e-banking sites.                                        |
|                      |                         | EU2   | I find e-banking sites easy to use.                                                           |
|                      |                         | EU3   | Using e-banking sites does not require much mental effort.                                    |
|                      |                         | EU4   | The layout of the service is simple, which makes it easy to use.                              |
|                      |                         | EU5   | The e-banking information is well organized.                                                  |
|                      |                         | EU6   | The service provides relevant, easy-to-understand information in an appropriate format.       |
|                      |                         | EU7   | I have the necessary resources to use the service.                                            |

|              |             |     |                                                                                                                                                                             |
|--------------|-------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |             | EU8 | I discovered that the instructions on the website make it easy to obtain the information I want from e-banking.                                                             |
|              | Use         | U1  | I intend to use e-banking in the future.                                                                                                                                    |
|              |             | U2  | How often do you use each of the operations through e-banking (queries, payments for services, purchases, transfers, savings, investments, requesting checks, among others) |
| Risk         | Security    | RS1 | I worry about giving my card number or logging in to e-banking.                                                                                                             |
|              |             | RS2 | When I provide information to e-banking, I am afraid that it will be intercepted or modified by hackers.                                                                    |
|              | Performance | RP1 | It is not easy to find information about the financial characteristics (period, profit, among others) of the product/service or about any banking operation.                |
|              |             | RP2 | I am worried about not having advantages in the banking operations listed on the website.                                                                                   |
|              |             | RP3 | It is very likely that e-banking operations will not meet my expectations                                                                                                   |
| Satisfaction |             | S1  | I am satisfied with my decision to join e-banking                                                                                                                           |
|              |             | S2  | I am satisfied with my experience using the e-banking service.                                                                                                              |
|              |             | S3  | In the end, my negative experience outweighs my positive experience with this service.                                                                                      |
|              |             | S4  | Overall, I am satisfied with the e-banking service.                                                                                                                         |
|              |             | S5  | I am happy with the service's performance.                                                                                                                                  |
|              |             | S6  | I am satisfied with the service response time.                                                                                                                              |
| Quality      |             | Q1  | The layout of this e-banking always impresses me                                                                                                                            |
|              |             | Q2  | This layout suits my purposes                                                                                                                                               |

**Table A.2.** AVE, Reliability, and Reliability

| Constructs           | AVE  | Composite Reliability | Cronbach's Alpha |
|----------------------|------|-----------------------|------------------|
| Attitude             | 0.51 | 0.82                  | 0.73             |
| Trust                | 0.52 | 0.86                  | 0.85             |
| Ease of Use          | 0.64 | 0.92                  | 0.91             |
| Quality              | 0.67 | 0.84                  | 0.69             |
| Risk Performance     | 0.72 | 0.86                  | 0.78             |
| Risk Security        | 0.69 | 0.85                  | 0.67             |
| Satisfaction         | 0.70 | 0.91                  | 0.89             |
| Perceived Usefulness | 0.66 | 0.91                  | 0.88             |
| USE                  | 0.34 | 0.86                  | 0.87             |
| Perceived Value      | 0.71 | 0.88                  | 0.86             |

**Table A.3.** Square Root of AVE and Square of Variable Correlations Latent

|                      | Attitude | Trust  | Ease of Use | Quality | Risk Performance | Risk Security | Satisfaction | Perceived Usefulness | USE    | Perceived Value |
|----------------------|----------|--------|-------------|---------|------------------|---------------|--------------|----------------------|--------|-----------------|
| Attitude             | 0.7217   |        |             |         |                  |               |              |                      |        |                 |
| Trust                | 0.6739   | 0.7011 |             |         |                  |               |              |                      |        |                 |
| Ease of Use          | 0.6184   | 0.6071 | 0.8110      |         |                  |               |              |                      |        |                 |
| Quality              | 0.5077   | 0.5303 | 0.5277      | 0.8646  |                  |               |              |                      |        |                 |
| Risk Performance     | -0.392   | -0.384 | -0.391      | -0.242  | 0.8383           |               |              |                      |        |                 |
| Risk Security        | -0.099   | -0.086 | -0.079      | -0.052  | 0.2716           | 0.8450        |              |                      |        |                 |
| Satisfaction         | 0.5734   | 0.5351 | 0.6795      | 0.4396  | -0.402           | -0.14         | 0.8421       |                      |        |                 |
| Perceived Usefulness | 0.613    | 0.5023 | 0.7083      | 0.3688  | -0.383           | -0.064        | 0.6871       | 0.7224               |        |                 |
| USE                  | -0.291   | -0.18  | -0.268      | -0.259  | 0.0834           | -0.021        | -0.265       | -0.299               | 0.7341 |                 |
| Perceived Value      | 0.6148   | 0.6828 | 0.7255      | 0.5049  | -0.385           | -0.114        | 0.6361       | 0.7189               | -0.252 | 0.8253          |

**Table A.4.** Cross Loadings

|     | Attitude | Trust   | Ease of Use | Quality | Risk Performance | Risk Security | Satisfaction | Perceived Usefulness | Perceived Value | USE    |
|-----|----------|---------|-------------|---------|------------------|---------------|--------------|----------------------|-----------------|--------|
| A1  | 0.8797   | 0.559   | 0.5332      | 0.4543  | -0.3048          | -0.1019       | 0.507        | 0.5036               | 0.5232          | 0.1282 |
| A2  | 0.7851   | 0.4729  | 0.3862      | 0.3771  | -0.2862          | 0.0487        | 0.37         | 0.3951               | 0.4356          | 0.2786 |
| A3  | 0.8377   | 0.5933  | 0.5334      | 0.4814  | -0.3684          | -0.1232       | 0.4521       | 0.4665               | 0.4128          | 0.5228 |
| A4  | 0.7911   | 0.4941  | 0.5096      | 0.2975  | -0.3039          | -0.1277       | 0.4949       | 0.5845               | 0.5122          | 0.4122 |
| A5  | 0.2894   | 0.2534  | 0.1266      | 0.165   | -0.0497          | 0.0267        | 0.0967       | 0.1026               | 0.2543          | 0.1243 |
| A6  | 0.8279   | 0.2128  | 0.3572      | 0.4262  | -0.2653          | -0.0347       | 0.3232       | 0.3164               | 0.342           | 0.422  |
| T1  | 0.5492   | 0.6899  | 0.4656      | 0.3297  | -0.3346          | -0.1725       | 0.4155       | 0.4297               | 0.3828          | 0.1728 |
| T2  | 0.4152   | 0.7899  | 0.3998      | 0.2741  | -0.2806          | -0.0291       | 0.323        | 0.3414               | 0.3743          | 0.2143 |
| T3  | 0.4111   | 0.7875  | 0.3951      | 0.3543  | -0.1847          | 0.0239        | 0.2804       | 0.3298               | 0.4245          | 0.2135 |
| T4  | 0.3149   | 0.6195  | 0.2745      | 0.2792  | -0.1846          | -0.063        | 0.2113       | 0.2308               | 0.3453          | 0.3323 |
| T5  | 0.4279   | 0.8128  | 0.3972      | 0.4162  | -0.2753          | -0.0247       | 0.3132       | 0.3064               | 0.332           | 0.432  |
| T6  | 0.5077   | 0.7932  | 0.4847      | 0.4596  | -0.2567          | -0.0209       | 0.4069       | 0.3875               | 0.4294          | 0.4124 |
| T7  | 0.6129   | 0.8106  | 0.552       | 0.4423  | -0.3415          | -0.1044       | 0.5734       | 0.4461               | 0.3883          | 0.4133 |
| T8  | 0.3714   | 0.6253  | 0.2712      | 0.3638  | -0.2028          | -0.0212       | 0.2507       | 0.2045               | 0.3427          | 0.4227 |
| EU1 | 0.4956   | 0.4632  | 0.8529      | 0.3806  | -0.2902          | -0.0799       | 0.5855       | 0.627                | 0.4399          | 0.4211 |
| EU2 | 0.5041   | 0.4938  | 0.8592      | 0.4059  | -0.3546          | -0.079        | 0.6075       | 0.6471               | 0.4332          | 0.5232 |
| EU3 | 0.3959   | 0.4167  | 0.8164      | 0.3388  | -0.314           | -0.0929       | 0.5201       | 0.5742               | 0.5253          | 0.4253 |
| EU4 | 0.5368   | 0.4796  | 0.8354      | 0.5522  | -0.2842          | -0.0192       | 0.5416       | 0.57                 | 0.3696          | 0.4396 |
| EU5 | 0.5441   | 0.5506  | 0.8087      | 0.5154  | -0.3894          | -0.0121       | 0.496        | 0.5413               | 0.4319          | 0.4729 |
| EU6 | 0.5466   | 0.6023  | 0.8635      | 0.4735  | -0.3062          | -0.0545       | 0.5761       | 0.5717               | 0.5249          | 0.3549 |
| EU7 | 0.5271   | 0.4393  | 0.8055      | 0.3365  | -0.2963          | -0.1189       | 0.6133       | 0.6445               | 0.3295          | 0.4295 |
| EU8 | 0.4495   | 0.5065  | 0.7016      | 0.4327  | -0.3088          | -0.0496       | 0.4434       | 0.3731               | 0.3498          | 0.4298 |
| Q1  | 0.418    | 0.4475  | 0.3886      | 0.8011  | -0.141           | 0.0258        | 0.2639       | 0.2487               | 0.2536          | 0.3526 |
| Q2  | 0.4644   | 0.428   | 0.5091      | 0.9223  | -0.2548          | -0.087        | 0.4585       | 0.369                | 0.3519          | 0.3529 |
| RP1 | -0.2939  | -0.3196 | -0.3115     | -0.2174 | 0.8182           | 0.2064        | -0.3385      | -0.2538              | 0.2104          | 0.2514 |
| RP2 | -0.2947  | -0.3011 | -0.2892     | -0.1766 | 0.8184           | 0.2119        | -0.2759      | -0.3078              | 0.3018          | 0.428  |
| RP3 | -0.3834  | -0.3429 | -0.3724     | -0.2137 | 0.8633           | 0.2583        | -0.386       | -0.3852              | 0.2678          | 0.3528 |

|     |         |         |         |         |         |         |         |         |        |         |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|
| RS1 | -0.0303 | 0.0184  | 0.0247  | 0.0116  | 0.1645  | 0.6937  | -0.0818 | -0.007  | 0.1229 | -0.0629 |
| RS2 | -0.107  | -0.1058 | -0.0992 | -0.0642 | 0.272   | 0.9465  | -0.1404 | -0.0734 | 0.226  | 0.146   |
| S1  | 0.5269  | 0.465   | 0.6496  | 0.3379  | -0.3787 | -0.104  | 0.8912  | 0.6763  | 0.3644 | 0.3454  |
| S2  | 0.5377  | 0.5119  | 0.6397  | 0.4112  | -0.3529 | -0.1186 | 0.9255  | 0.6576  | 0.4209 | 0.4819  |
| S3  | 0.1155  | 0.1447  | 0.1553  | 0.0788  | 0.0464  | 0.0124  | 0.2988  | 0.1803  | 0.3363 | 0.1463  |
| S4  | 0.5474  | 0.5141  | 0.5816  | 0.3918  | -0.3858 | -0.117  | 0.9463  | 0.6115  | 0.2234 | 0.4124  |
| S5  | 0.5284  | 0.4886  | 0.6346  | 0.4453  | -0.3456 | -0.1654 | 0.925   | 0.5907  | 0.3035 | 0.3915  |
| S6  | 0.4913  | 0.4666  | 0.6077  | 0.4375  | -0.4197 | -0.1487 | 0.8869  | 0.6033  | 0.4195 | 0.5215  |
| PU1 | 0.5267  | 0.406   | 0.5919  | 0.2774  | -0.3462 | -0.1302 | 0.6107  | 0.8555  | 0.3278 | 0.5118  |
| PU2 | 0.5456  | 0.4303  | 0.6064  | 0.2742  | -0.3255 | -0.1198 | 0.6327  | 0.8686  | 0.3011 | 0.4511  |
| PU3 | 0.432   | 0.2963  | 0.5223  | 0.1912  | -0.2899 | -0.0693 | 0.5336  | 0.8361  | 0.5041 | 0.4341  |
| PU4 | 0.5036  | 0.4344  | 0.5925  | 0.3757  | -0.3446 | -0.0151 | 0.5785  | 0.7993  | 0.2497 | 0.4527  |
| PU5 | 0.539   | 0.3815  | 0.5882  | 0.2634  | -0.2836 | -0.0115 | 0.5544  | 0.8315  | 0.4102 | 0.5002  |
| PU6 | 0.4355  | 0.4039  | 0.4701  | 0.3291  | -0.2213 | 0.0245  | 0.4018  | 0.6579  | 0.3122 | 0.3922  |
| PU7 | 0.4223  | 0.4048  | 0.5459  | 0.2892  | -0.3653 | -0.0468 | 0.5307  | 0.7993  | 0.4365 | 0.4505  |
| PU8 | 0.3452  | 0.3505  | 0.4291  | 0.3048  | -0.1423 | 0.0098  | 0.3327  | 0.5295  | 0.4175 | 0.5045  |
| PV1 | 0.4411  | 0.536   | 0.6113  | 0.3992  | -0.2966 | -0.1319 | 0.5627  | 0.6677  | 0.8332 | 0.3721  |
| PV2 | 0.59    | 0.6588  | 0.671   | 0.5094  | -0.3577 | -0.1038 | 0.6096  | 0.6552  | 0.9427 | 0.4016  |
| PV3 | 0.5883  | 0.6099  | 0.6577  | 0.4914  | -0.3996 | -0.0805 | 0.5653  | 0.6115  | 0.9216 | 0.336   |
| PV4 | 0.3772  | 0.4184  | 0.4178  | 0.1982  | -0.1763 | -0.0548 | 0.3087  | 0.4078  | 0.6974 | 0.4288  |
| U1  | 0.3265  | 0.423   | 0.4715  | 0.3721  | -0.2452 | -0.1412 | 0.4127  | 0.3625  | 0.4608 | 0.8555  |
| U2  | 0.4547  | 0.4412  | 0.5134  | 0.2442  | -0.3145 | -0.1365 | 0.3316  | 0.4532  | 0.4520 | 0.8722  |