Adoption Intention of Fintech Services for Bank Users: An Empirical Examination with an Extended Technology Acceptance Model

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Abstract: Along with the development of Fintech, many scholars have studied how information technology is applied to financial services with a focus on extended methods for application. Few scholars have studied the influence mechanism behind the adoption of Fintech services. This paper proposes an improved technology acceptance model (TAM) that incorporates user innovativeness, government support, brand image, and perceived risk as determinants of trust to investigate how users adopt Fintech services. We designed a questionnaire, sent it to active customers of the Hefei Science and Technology Rural Commercial Bank, and obtained 387 eligible responses. We analyzed the data with a structural equation model (SEM) to test the hypotheses, including the relationships of all latent variables. The results reveal that users' trust in Fintech services has a very significant influence on users' attitudes for adoption. In addition, perceived ease of use and perceived risk does not affect users' attitudes toward the adoption regarding Fintech services. This study contributes to the literature of the adoption of Fintech services by providing a more comprehensive view of the determinants of users' attitudes by combining trust of Fintech services with TAM.

Keywords: technology acceptance model; Fintech services; adoption

1. Introduction

Fintech is a digital technology with block chain, big data, and intelligent investment consulting at its core and is widely used in the financial field. According to the data of the American consulting firm Accenture, from 2010 to 2016, global Fintech investment increased from 12.2 billion dollars to 153.1 billion dollars, an increase of nearly 12 times. The number of global Fintech companies increased from approximately 800 before April 2015 to more than 2000 in December 2016, with Fintech investment reaching $23.2 billion in 2016, up 21.5 percent year-on-year [1]. From a competitor's perspective, unlike banks that offer consumers three key financial services (i.e., deposit, payment, and lending), some Fintech companies are more focused on providing customers with a better user experience as a niche. As the traditional financial service company, banks understand the importance of user experiences, and some of them have begun to improve their core competitiveness and market share by acquiring or cooperating with Fintech companies. For example, Banco Bilbao Vizcaya

Argentaria has acquired the company *Simple* that mainly focuses on online banking business in the United States and enjoys high user satisfaction [2].

The developmental history of the banking industry has been responsible for most of the innovative development in the financial field. From the first application of physical media technology containing information or value in the early 15th century to the use of simulation technology in the 19th century, the banking field broke through the previous limitations on the use of physical media to enable the market to move within a regional scope. From the middle of the 20th century to the financial crisis in 2007, the application of digital information and communication technology opened the digital financial technology era, supporting the formation of transnational electronic networks, the launch of interface standards, and the development of standard software. In the digital stage, the spread of information and communication technologies has increased the outsourcing processes and activities of banks, but the degree of vertical integration is still very high. In addition, the number of bank employees keeps increasing, while the number of banking institutions keeps decreasing. Meanwhile, banks spend more on digital information and communication technology than other companies in the financial industry. The high investment in information and communication technology is not consistent with the digital transformation of the banking business process and business model. The inefficiency induced by this situation has also led to the development of Fintech banking business as is manifested currently [3].

The purpose of using Fintech for banking is to improve the user experience and banking efficiency. The existing research is mainly about Fintech strategy and risk for banking from the supply side. Zavolokina et al. studied the "peer to peer" collaboration model between Indonesian banks and Fintech companies [4]. Chang et al. analyzed how Indonesian banks changed business processes in the context of Fintech and competed with Fintech companies. On the demand side, unlike the millennials who make up the majority of users of Fintech companies, the parents and grandparents of millennials are the dominant customers of the banks, according to Moody's [5]. Therefore, we need to consider the influence of the adoption of Fintech services from the demand side. From a static point of view, studying the impact factors of Fintech adoption by bank users can help provide them with better services and strengthen the contact between banks and users. It can provide new insights and a more complete understanding of adoption attention for Fintech services [6,7]. From a dynamic point of view, millennials are currently less financially capable than their elders, thus this generation is not currently a major user of banks. However, as time goes on, the financial capacity of millennials will gradually strengthen, and they will become the main users. Therefore, the study of the influence behind the adoption of Fintech services by bank consumers will help the banks to meet the demand of the millennial generation in the future.

Based on the above analysis, this paper studies the influence and relationship of the adoption behavior of bank users and conducts in-depth research and discussion on it through a technology acceptance model (TAM). The innovative contributions of this paper are as follows:

- Most existing research mainly studies the application model from the supply side of Fintech services to improve the efficiency and user experience of banks—that is to say, scholars' concern about how and what kind of Fintech services are provided. Even if someone studies the adoption problems, they focus on a specific Fintech service, such as mobile banking or internet banking service, but the existing research rarely pays attention to a more empirical extension of previous studies in TAM applied in Fintech from the demand side.
- This paper comprehensively and concretely analyzes the influencing factors and their relationship with the adoption of Fintech services, and it extends the applicability of traditional TAM models as we consider more factors influencing the users' adoption.
- The research results provide valuable information for the adjustment of bank marketing strategies and the implementation of strategic goals. How to change users' behavioral intentions through the adjustment of influencing factors when providing users with financial and technological products is of great significance for the development of banks in the digital age.

This paper applies the technology acceptance model to study the influence behind the adoption of Fintech services by users. The remainder of this paper is organized as follows. In the next section, some relevant literature is reviewed, and a conceptual framework and some hypotheses are introduced in detail, along with some reasons for their adoption. Section 3 introduces the data analysis and results, followed by the discussion and conclusions of this paper in Section 4. Finally, Section 5 concludes with limitations and suggestions for future work.

2. Literature Review and Conceptual Framework

2.1. Fintech

The correlation of technological development and finance innovation has been extensively studied from different perspectives by domestic and foreign scholars. Since "Financial Deepening" was first proposed by McKinnon and Shaw in 1973, Sci-tech finance has developed rapidly [8]. Unlike the concept of providing financial services for scientific and technological enterprises, Fintech can be defined as some new tools that use emerging information technologies, such as big data, Internet of Things, and cloud computing, to broaden financial service areas [9]. Keke Gai et al. described Fintech as a financial technology section in one company that would improve service quality and management efficiency by using a new generation of information technology [10]. Therefore, it might improve the efficiency and scope of financial services through the application of technology in the banking domain. Along with the sustainable development of Fintech, there are many technological breakthroughs in this field, such as big data [11], cloud computing [12], Internet of Things [13], and data analytic techniques [14]. Du et al. divided the main issues of security and privacy of Fintech into four dimensions—data-oriented, facility and equipment, applications, and service models [15]. Arner et al. explained the dissimilarities between traditional financial services and Fintech and that Fintech is not a simple combination of information technology and financial services but an application of technology to traditional services to broaden their scope [16]. In this paper, Fintech is defined as innovative financial services using new technology tools, such as big data, cloud computing, and mobile technology.

2.2. Hypotheses Development for the Proposed Model

TAM was originally intended to make up for the defects of the theory of reasoned action (TRA) in 1986. It was proposed from the perspective of behavioral science, integrating expectation theory and self-efficacy theory, and is mainly used to study the behavioral intentions of individuals to use technology [17]. The TAM model divides the factors affecting individual behavioral attitudes into perceived usefulness and perceived ease of use, which have a significant impact on the adoption of new technology [18].

Because the TAM does a good job explaining the difference in consumer willingness to adopt information technology and can be improved and specified according to the analysis problem, it has become one of the most widely used models in the field of information technology adoption research [19]. For Fintech services, the essence of them is to apply the new generation of information technology tools to financial innovation, thus the TAM has a strong adaptability in this paper. Although the TAM is widely used for technical adoption in areas such as e-commerce mobile payment, the uniqueness of Fintech services (e.g., privacy and security challenges, government encouragement, etc.) results in a significant difference between the TAM and the information technology adoption of traditional e-commerce in the application process [20].

2.2.1. Perceived Usefulness

In the TAM, perceived usefulness is a factor widely used in the process of information system adoption and is defined as the degree to which a consumer using this new technology would improve the work efficiency of that consumer [17]. In this study, perceived usefulness refers to the fact that

users choose to adopt the service if they think the application of Fintech can have a positive impact [21]. A large number of empirical studies on the adoption of information technology in the past decade have shown that perceived usefulness can have a positive impact on users' intentions [22–25]. Chang et al. regarded Chinese banking institutions as research objects, and the results show that the most important advantage of Fintech lies in the in-depth mining of user data and the construction of a user knowledge map [26]. Carlin et al. analyzed the determinants of millennials' adoption of Fintech, and the results show that life expectancy and financial knowledge attainment have important influences on the behavioral intentions of Fintech adoption [27]. Thus, in light of the previous studies, the following hypothesis was developed:

Hypothesis 1 (H1): *Users' perceived usefulness (PU) has a positive impact on their attitudes (ATT) related to the adoption of Fintech services.*

2.2.2. Perceived Ease of Use

Perceived ease of use is another important factor in the TAM, which is defined as the degree of effort involved in using this new technology [17]. In this study, perceived ease of use refers to the degree to which consumers feel relaxed and make efforts in the process of trying to learn to use Fintech services. Fintech services provide better services and customer experiences for bank customers, which can well make up for the bank's business weakness to meet the personalized needs of customers, and Fintech's ease of use is the core element that determines its adoption by users [28,29]. In the research field of banking, many scholars have demonstrated a significant correlation between perceived ease of use and new technology adoption attitudes [30,31]. Riquelme et al. considered that perceived usefulness significantly affects users' attitudes and willingness to adopt Fintech when users use complex information systems to conduct financial transactions through portable mobile devices. If users think that Fintech services are convenient, friendly, and easy to operate, then users are more inclined to adopt them [32]. Taylor et al. compared the TAM, TPB (theory of planned behavior), and DTPB (decomposed theory of planned behavior) models during the use of a computer resource center and found that perceived ease-of-use had positive effects on perceived usefulness [33]. According to the above analysis, the following hypotheses were developed:

Hypothesis 2 (H2): *Users' perceived ease of use (PEU) has a positive impact on their attitudes (ATT) related to the adoption of Fintech services.*

Hypothesis 3 (H3): *Users' perceived ease of use (PEU) has a positive impact on perceived usefulness (PU) related to the use of Fintech services.*

2.2.3. Attitudes

Attitude refers to the user's subjective judgments and personal tendencies related to something, and behavior intention is defined as the strength of one's intention to perform a specific behavior [34]. In the study of TAM, it is found that a positive attitude toward new technology is the premise of intentions to adopt this technology [22,35]. The traditional TAM holds that there is a significantly positive correlation between users' attitudes toward a certain technology and their adoption intentions, which has been widely confirmed in the research of the banking field [36–38]. Thus, we posit the following hypothesis:

Hypothesis 4 (H4): *Users' attitudes (ATT) and intentions (INT) toward the adoption of Fintech services for a better experience are positively correlated.*

2.2.4. Trust

Trust has always been a focus of research on the issue of adoption and is often used as another important basis to attract users besides PU and PEU. In the application scenario of Fintech, the role of trust is more important due to the big and high-dimensional data involved in the service. Therefore, it is of great significance to study how trust affects the attitudes of potential users and their willingness to adopt, as well as which factors can affect trust. Trust is an interdisciplinary concept that has been studied by scholars in sociology, management, organizational behavior, and other fields [39–41]. This study believes that trust refers to users' overall perceived utility of objects. Kesharwani et al. discovered that users' trust can induce behaviors, and trust is formed by their inherent characteristics [42]. Due to the inherent characteristics of Fintech, its adoption has certain inherent risks, and researchers have found that trust is closely related to brand image and perceived risks [43]. A user's cognition of bank brands and perception of service risk will have a significant impact on trust of banks. In addition, many scholars have confirmed that users' trust of services plays an important role in adoption decision-making in the context of Fintech. In other words, the more the user trusts the service provider, the more willing the user will be to use the service, and the easier it is to promote behavior [44,45]. Hanafizadeh et al. found some evidence of indirect effects between trust and the adoption of Fintech services [46]. Therefore, we had reasons to make the following hypothesis:

Hypothesis 5 (H5): *Users' trust (TRU) of Fintech services has a significant impact on their attitudes (ATT) toward the adoption of Fintech services.*

2.2.5. Brand Image

This paper holds that brand image (BI) is an intangible asset with economic value, which shows its difference with abstract and distinctive identifiable concepts, thus producing a comprehensive reflection of positive effects on users. The brand effect of service providers has an important influence on the provision of reliable services to users, and it plays a positive role in promoting users' achievements of their intended purposes [47]. Sang et al. found that one of the reasons for adopting the government administration information system (GAIS) is higher brand image among peers [48]. A large number of studies on Fintech show that brand has an important influence on users' perceptions of quality [49], value [50], and their satisfaction [51].

In the context of the application of Fintech, users' perceptions of the brand has been conceptualized and seen as a precondition for organizational trust [52]. In the process of receiving Fintech services, users need to provide much private personal information. Semuel et al. proposed that a good brand image can improve user trust because it effectively reduces risk [53]. According to psychological research results, a good brand image can generate trust among users [54]. Therefore, brand image is the guarantee of products and services, which enables users to clearly define the service orientation of the enterprise, helps enterprises and users build a solid relationship, improves user recognition and satisfaction, and ultimately affects customer recognition and builds trust [55]. Based on the above literature analysis, we made the following hypotheses:

Hypothesis 6 (H6): *Brand image (BI) has a significant impact on users' attitudes (ATT) toward the adoption of Fintech services.*

Hypothesis 7 (H7): *Brand image (BI) has a significant impact on users' trust (TRU) of Fintech services.*

2.2.6. Perceived Risk

Perceived risk is a form of lack of trust, and most scholars believe that perceived risk is the main factor that negatively affects adoption of technology [42,56]. In this paper, perceived risk refers to

the financial and privacy risk that users perceive when they choose Fintech services. Financial risk refers to the property damage caused by consumers' concerns about product yield rate or other carelessness, and privacy risk refers to the risk that personal data, transaction data, and other privacy information are disclosed when consumers choose internet financial products. Khedmatgozar et al. believed that the degree of risk perception is the most important factor affecting the adoption of e-services [57]. Bansal et al. insisted that users are most worried about the misuse of personal information when using Fintech services, which will lead to more serious consequences. Based on these considerations, perceived risks arising from the use of Fintech can significantly affect users' willingness to use technology for purchase or consumption [58].

Fintech services usually involve technologies such as big data, the Internet of Things, and cloud computing, thus there are some potential risks for users in receiving the service [59]. In addition, when banks provide financial services to users through technological means, bank customers usually need to provide their private information to complete the comprehensive evaluation of services, which will reduce users' trust in services of banks [60]. Kim et al. found that perceived risk would affect users' trust [61]. Thus, the following hypothesis was developed:

Hypothesis 8 (H8): *Perceived risk (PR) will negatively influence users' attitudes (ATT) toward the adoption of Fintech services.*

Hypothesis 9 (H9): *Perceived risk (PR) will negatively influence users' trust (TRU) of Fintech services.*

2.2.7. Government Support

Government support is one of the biggest drivers of Fintech adoption [62]. Because the government has good credibility, it can increase the credibility and reliability of products or services by improving the publicity of the application of technology in financial innovation and investing in infrastructure such as communication network construction, thus making Fintech services more acceptable to potential consumers. Kiwanuka et al. found that government support has a positive influence on technological adoption and continuous use intention, and the research results have a realistic guiding significance for the government to formulate relevant policies [63]. By integrating relevant antecedents into the TAM model, Marakarkandy et al. helped study the influencing factors of online banking adoption, and finally found that government support is crucial to the trust of online banking products [64]. Based on the above literature analysis, we made the following hypotheses:

Hypothesis 10 (H10): *Government support (GS) has a significant impact on users' attitudes (ATT) toward the adoption of Fintech services.*

Hypothesis 11 (H11): *Government support (GS) has a significant impact on users' trust (TRU) of Fintech services.*

2.2.8. User Innovativeness

In this paper, user innovativeness is defined as the degree of early adoption of a certain innovation by individuals; that is, the degree of inclination of individuals to try new products, new technologies, or services. When individuals are highly innovative, they can bear the high degree of uncertainty and have a more positive intention to use the innovation. In other words, they are less likely to perceive risks and more receptive to technological innovation [65]. Adeiza et al. held that innovation is a basic feature of human beings, which reflects the degree of interest of users in a new field [66]. In the research on the adoption behavior of mobile payment users, Kim et al. believes that, since most people have insufficient professional knowledge of a wide range of mobile services, their individual innovation

plays an important positive role in their intention of use, which has also been verified by empirical research [67]. Thus, the following hypotheses were developed:

Hypothesis 12 (H12): *User innovativeness (UI) has a significant impact on users' attitudes (ATT) toward the adoption of Fintech services.*

Hypothesis 13 (H13): *User innovativeness (UI) has a significant impact on users' trust (TRU) of Fintech services.*

The model proposed in this paper is based on the existing research, and the research framework formed by adjusting items according to the research background of Fintech services is shown in the following Figure 1. The arrows below represent the relationships between the influencing factors, and the symbols "+" and "-" respectively denote the positive and negative impact between two factors.
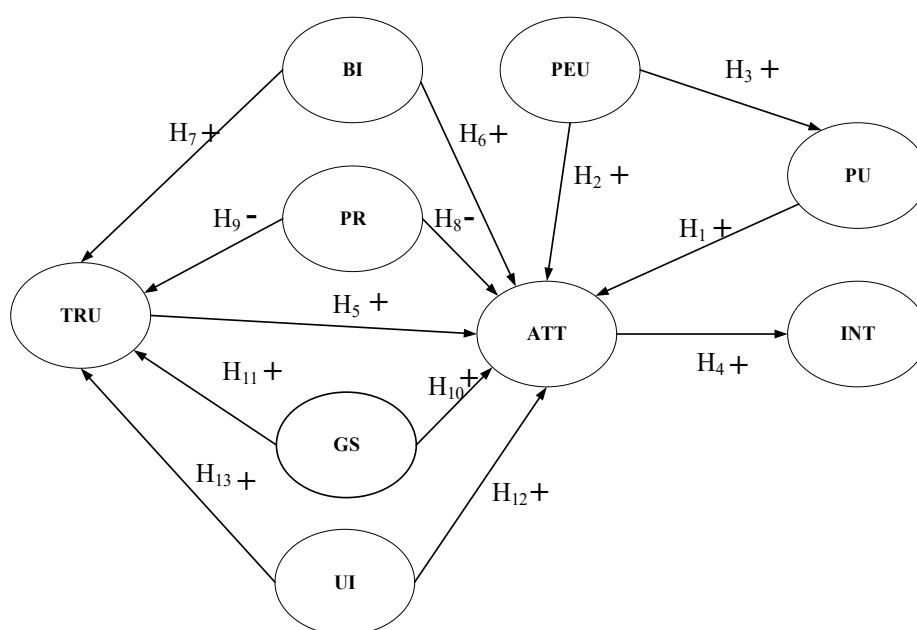

Figure 1. Conceptual model.

3. Methodology

3.1. Data Collection

The purpose of this study was to analyze the key factors influencing the adoption of Fintech services through empirical research and to analyze the behavioral intentions of users. Therefore, active customers of Hefei Science and Technology Rural Commercial Bank were selected as the survey subjects in this study. The survey subjects were randomly selected customers who had used the online banking, mobile banking, and other Fintech services of the bank. This questionnaire was prepared through a website named "wjx.cn" and was sent to users through WeChat by employees of each branch. When the questionnaire was distributed to survey subjects, they were instructed by staff to fill in the questionnaire through on-site or WeChat consultation. The definition of Fintech services, purpose and potential risks of the survey, and some other items were explained in the attached document before the questionnaire. In the questionnaire, Fintech services were defined as innovative financial services using new technology tools, such as big data, cloud computing, and mobile technology, and included online banking, mobile banking, online personal loan, online insurance, and other Fintech services in Hefei Science and Technology Rural Commercial Bank. There were 31 items divided into two parts, which were measured by a five-point Likert-scale. The first part was the basic information and the

second part was the survey of Fintech services. A total of 587 responses were collected in this study. After preliminary screening, invalid questionnaires with insufficient response times and random filling were rejected, and 387 valid responses were included for an effective response rate of 65.93%.

In this paper, the sample data were analyzed statistically using SmartPLS 3.0. The descriptive statistical results of 387 questionnaires that analyzed the demographic characteristics of the respondents, such as gender, age, education level, monthly disposable income, and the use of Fintech services or products, are shown in Table 1. As for the age distribution, people aged 26–35 years old (56.07%) accounted for the highest proportion, and new technologies and lifestyles are always first accepted by these consumers. Thus, this sampling was reasonable. As for use frequency, frequent users (68.73%) accounted for a relatively high proportion, which indicates that the popularizing rate of Fintech services is relatively high at present, and the study of the factors affecting their adoption is of great practical significance to the successful implementation of Fintech strategies in banks.

Table 1. Sample characteristics.

Demographic Variable and Category		Frequency	Percentage
Gender	Male	182	47.03
	Female	205	52.97
Age	18–25	52	13.44
	26–35	217	56.07
	36–45	61	15.76
	46–55	52	13.44
	$\geq$56	5	1.29
Employ status	Student	11	2.84
	Civil service/institution staff	47	12.14
	Business management personnel	64	16.54
	Employee	200	51.68
	Self-employed	21	5.43
	Other	44	11.37
Education	Less than diploma	35	9.04
	Diploma	79	20.41
	Bachelor	223	57.36
	Master or more	51	13.18
Income (¥)	Less than 2000	51	13.18
	2000–6000	210	54.26
	6001–10000	75	19.38
	More than 10000	51	13.18
Fintech service usage	Never	8	2.07
	Occasionally	67	17.31
	Usually	266	68.73
	Frequently in everyday	46	11.89

3.2. Instrument Development

In the design of the questionnaire, this paper made full reference to the problems of domestic and foreign scholars in relevant research and made appropriate expansions and adjustments according to the characteristics of Fintech services studied in this paper, as shown in Table 2. PU was adopted

from Lockett et al. and Huh et al. [68,69]; PEU was adopted from Cheng et al. and Wang et al. [70,71]; TRU was adopted from Chong et al. and Sanchez et al. [62,72]; BI was adopted from Ha et al. and Ruparelia et al. [73,74]; PR, GS, UI, ATT, and INT were adopted from Marakarkandy et al., Grabner-Kr et al., Zhang et al., and Patel et al. [19,64,75,76]. The scale consisted of nine latent variables as external influencing factors, and each variable was composed of two to six measurement variables. The item of each measurement variable was expressed by a five-point Linkert-scale. Respondents were required to express their attitudes according to their true meaning. The options were strongly disagree, disagree, uncertain, agree, and strongly agree. In this paper, the structural equation model was used for data processing and analysis. SEM is a statistical method to deal with the relationship between multiple variables based on the covariance matrix of variables by multiple regression analysis, path analysis, and confirmatory factor analysis. This method can explain the causal relationship between independent variables and dependent variables and is widely used in the fields of economic psychology and behavioral science. PLS is a parameter estimation method of SEM, which does not need a sufficient theoretical basis to support validation and explanatory research and is suitable for exploratory research and model tests [77]. Therefore, this paper used SmartPLS3.0 to study the parameter estimation of SEM.

Table 2. Measurement instruments.

Latent Variables	Measurement Items	Sources
Perceived usefulness (PU)	Using Fintech can meet my service needs. Fintech services can save time. Fintech services can improve efficiency. Overall, Fintech services are useful to me.	Lockett et al. [68] and Huh et al. [69]
Perceived ease of use (PEU)	It is easy to use Fintech services. I think the operation interface of Fintech is friendly and understandable. It is easy to have the equipment to use Fintech services (cellphone, APP, WIFI, et al.).	Cheng et al. [71] and Wang et al. [70]
Trust (TRU)	I believe Fintech services keep my personal information safe. Overall I believe Fintech services are trustable.	Chong et al. [62] and Sanchez et al. [72]
Brand image (BI)	This bank can provide good services and products. I think I prefer to accept the services provided by familiar brands. The bank has a good reputation.	Ha et al. [73] and Ruparelia et al. [74]
Perceived risk (PR)	I believe that the money is easy to be stolen by using Fintech services. I believe personal privacy will be disclosed by using Fintech services. Overall, I feel Fintech services are risky.	Marakarkandy et al. [64] and Grabner et al. [75]
Government support (GS)	I believe the government supports and improve the use of Fintech services. I believe the government has introduced favorable legislation and regulations for Fintech services. I believe the government is active in setting up all kinds of infrastructure such as the infrastructure telecom network, which has a positive role in promoting Fintech services.	Marakarkandy et al. [64]
User innovativeness (UI)	When I hear about a new product, I look for ways to try it Among my peers, I am usually the first one to try a new product.	Zhang et al. [19]
Attitude (ATT)	I believe using Fintech services is a good idea. Using Fintech services is a pleasant experience. I am interested in Fintech services.	Grabner et al. [75]
Intention (INT)	If I have used Fintech services, I am willing to continue using them. I would like to use Fintech services soon. I will recommend Fintech services to my friends.	Marakarkandy et al. [64] and Patel et al. [76]

4. Results

4.1. Scale Validity and Reliability

Confirmatory factor analysis was used to test the model, including tests of internal consistency reliability, convergent validity, and discriminant validity. Reliability refers to the degree of consistency or stability of the measurement results, which reflects reliability of the questionnaire items. In this paper, composite reliability (CR) and Cronbach's alpha were used to test the internal consistency of the data. As suggested by Fornell and Larcker, the CR of the sample is required to be larger than 0.7, and Cronbach's alpha to be larger than 0.8 [78]. As shown in Table 3, the CR and Cronbach's alpha of all latent variables were all larger than the critical values, which indicates that the model has a good internal consistency.

Table 3. Reliability and validity measures.

Constructs	Item	λ	AVE	CR	Cronbach's Alpha
PU	PU1	0.725	0.680	0.894	0.840
	PU2	0.878			
	PU3	0.801			
	PU4	0.883			
PEU	PEU1	0.860	0.755	0.902	0.837
	PEU2	0.886			
	PEU3	0.859			
BI	BI1	0.906	0.812	0.928	0.884
	BI2	0.904			
	BI3	0.893			
PR	PR1	0.809	0.767	0.908	0.851
	PR2	0.928			
	PR3	0.886			
GS	GS1	0.840	0.713	0.882	0.799
	GS2	0.809			
	GS3	0.883			
UI	UI1	0.922	0.844	0.915	0.815
	UI2	0.916			
TRU	TRU1	0.889	0.827	0.905	0.793
	TRU2	0.930			
ATT	ATT1	0.914	0.830	0.936	0.897
	ATT2	0.902			
	ATT3	0.916			
INT	INT1	0.884	0.737	0.894	0.822
	INT2	0.816			
	INT3	0.874			

λ, Standardized Factor Loadings; CR, composite reliability; AVE, average variance extracted.

Validity means the degree to which the model fits the survey data, including convergent validity and discriminant validity. The convergent validity reflects the correlation degree of multiple indicators for a variable, which is measured by the average variance extracted (AVE) [79] of the latent variable, the CR [80], and the loading of corresponding measurable variables [81]. AVE values of the sample are required to be larger than 0.5, and the loadings of measurable variable to be larger than 0.7. Then, as shown in Table 3, all the evidence below supports the convergent validity of all constructs. Discriminant validity refers to there being no correlation between each variable; that is to say, the measures of each variable can be distinguished from others. It is supported if the AVE is greater than the square of interscale correlation in this model. Then, as shown in Table 4, the AVE was greater

than the squared interscale correlation in all cases, which indicates that the discriminant validity of each variable is good.

Table 4. Discriminant validity of constructs.

Construct	PU	PEU	BI	PR	GS	UI	TRU	ATT	INT
PU	0.824	-	-	-	-	-	-	-	-
PEU	0.741	0.869	-	-	-	-	-	-	-
BI	0.425	0.421	0.901	-	-	-	-	-	-
PR	−0.205	−0.168	−0.244	0.876	-	-	-	-	-
GS	0.504	0.508	0.502	−0.184	0.844	-	-	-	-
UI	0.294	0.355	0.41	−0.136	0.507	0.919	-	-	-
TRU	0.453	0.49	0.541	−0.369	0.567	0.486	0.909	-	-
ATT	0.583	0.58	0.569	−0.221	0.71	0.617	0.607	0.911	-
INT	0.518	0.547	0.582	−0.234	0.591	0.552	0.572	0.793	0.858

4.2. Structural Equation Model: Hypotheses Testing

Structural Equation Modeling is a statistical method to explore variable relations by using the covariance matrix of the variables. In addition, it is an important tool for multivariate data analysis. After the validity and reliability analysis, this section conducted an empirical study of the adoption model of Fintech services based on the analysis of the sample data and used the sample data and structural equation model to test the hypothesis. Standardized path coefficient (β) and t value were obtained by SmartPLS 3.0 using SEM model, which were used to test the hypotheses proposed in this paper. In general, if $t > 1.96$, the coefficient test is significant at the $p < 0.05$ confidence level. If $t > 2.58$, the coefficient test is significant at the $p < 0.01$ confidence level. If $t > 3.1$, the coefficient test is significant at the $p < 0.001$ confidence level. The test results of the hypotheses are shown in Figure 2 below.
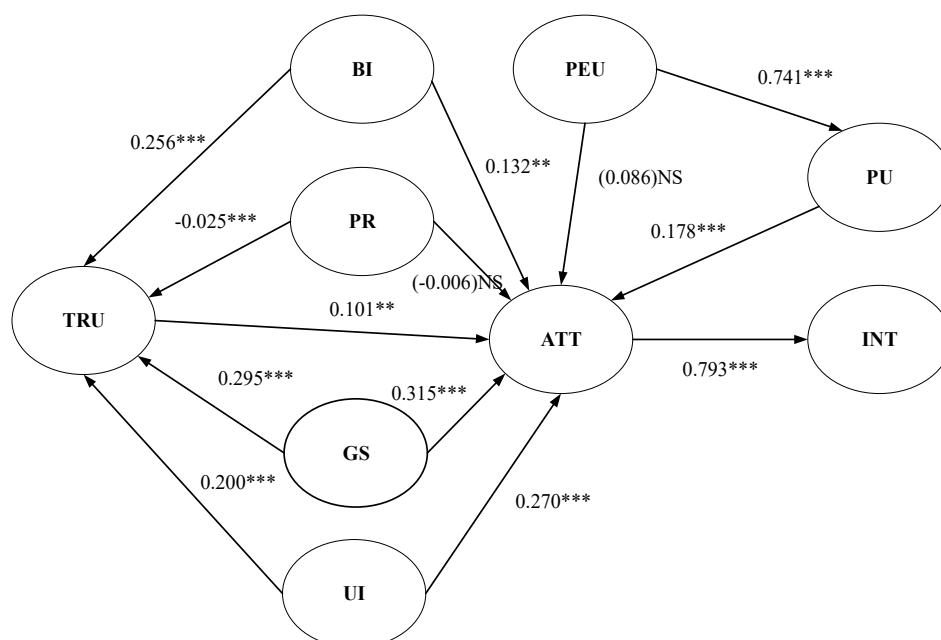

Figure 2. Structural results of the proposed model (*, $p < 0.05$; **, $p < 0.01$; ***, $p < 0.001$).

As shown in the above figure, the results show that PU ($\beta = 0.178$, $t = 3.339$), BI ($\beta = 0.132$, $t = 2.852$), TRU ($\beta = 0.101$, $t = 2.122$), GS ($\beta = 0.315$, $t = 5.584$), and UI ($\beta = 0.270$, $t = 6.322$) all had a positive significant impact on ATT. As the threshold of t value for hypothesis testing [17], their t values were larger than 1.96, thus hypotheses H1, H6, H5, H10, and H12 were supported. BI ($\beta = 0.256$,

t = 4.925), PR (β = -0.025, t = 6.251), GS (β = 0.295, t = 5.625), and UI (β = 0.200, t = 4.669) had significant influences on TRU, and their t values were all greater than 1.96, thus supporting H7, H9, H11, and H13. The t value of PEU for PU was greater than 1.96, and the former (β = 0.741, t = 18.397) had a significant impact on the latter, thus hypothesis H3 was supported. TRU played a significant intermediary role in the relationship between BI, GS, and UI. Since ATT (β = 0.793, t = 25.410) had a significant effect on INT, the t value of ATT for INT was greater than 1.96, indicating the significance of H4. However, PEU (β = 0.086, t = 1.306) and PR (β = -0.006, t = 0.204) had no significant influences on ATT, and the t value of PEU and PR for ATT was less than 1.96, thus hypotheses H2 and H8 were not supported.

5. Discussion and Conclusions

This paper discusses the potential reasons for the adoption and use of Fintech services by bank users and how the Fintech services affects the interaction and behavior between consumers and banking institutions. Consistent with the research results of Sikdar et al., this paper finds that PU, trust, and UI have positive influences on INT for the adoption of Fintech services [56]. However, unlike the research of Marakarkandy et al., the research results of this paper show that GS is an important predictive factor for the adoption of Fintech services [64]. According to the research results of Kesharwani et al., this paper also provides additional evidence that PEU, PR, and the impact of service reception are not significantly correlated [42]. In addition, the significant relationship between BI and ATT is consistent with the findings of Zhang et al.

Based on the TAM, this paper constructs a user adoption model for Fintech services, which mainly considers the role of TRU and its determinants and uses empirical data for verification. The hypothesis test results of this model show that the popularity of the internet and intelligent terminal equipment may have an effect on users' demands for Fintech services. In the interaction of users and banks, risk, privacy, usefulness, perceived ease of use, user innovativeness, and government support are playing increasingly important roles. Banks need to determine Fintech service strategies based on user preferences and factors affecting service adoption. Through empirical research in this paper, it is found that:

First, brand image, government support, and user innovation have significantly positive impacts on the adoption of Fintech services. These impacts are not only direct effects but can also have indirect impacts on trust in services, while trust will have a positive impact on the adoption of the service.

Second, perceived risk can affect users' attitudes through their trust of Fintech services. The mechanism is that perceived risk has a significantly negative impact on trust, while trust actively guides users to engage with Fintech services. This shows that users' perceived risk of Fintech services has a substantial role in reducing the level of trust in services. Financial institutions providing Fintech services need to adopt measures to reduce the perceived risk to users to strengthen trust in products and services, thereby increasing users' willingness to employ the services.

Third, perceived ease of use has no significant impact on a user's adoption of Fintech services. This is similar to the results of previous studies. Some scholars believe that in the early stage of technology or service adoption, perceived ease of use often does not have a significant impact on adoption behavior because users are unfamiliar with it or have no opportunity to use it [82]. This reflects the fact that current Chinese development of Fintech services is still in its primary stage, and many bank users have no experience with actually using Fintech services.

In summary, consumers use a new technology or service under the influence of government support, user innovativeness, and brand image. Then, they weigh the benefits and potential risks, which ultimately affect their adoption attitude. Therefore, our findings provide a consumer assessment and empirical framework for banks to adopt new, user-centered services.

6. Limitations and Future Directions

By integrating the trust of Fintech services into the TAM, this paper attempts to use the elements of service trust to explain and predict the adoption of Fintech services by bank users. A more refined and

comprehensive view of the determinants of behavioral intention is provided, and finally, the model is validated by empirical research. However, the influencing factors of our research have certain limitations. We have not studied psychological factors, such as social influences. At the same time, we should also analyze risks from multiple dimensions, such as financial risks, privacy risks, and cyber security risks. A comprehensive and effective assessment will help us better analyze the adoption model of Fintech services.

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