

Factors Influencing Customer Behavioral Intention of Mobile Money: A Case Study in Vietnam

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ABSTRACT

This study explores the factors influencing the behavioural intention of Mobile Money services in Vietnam. To address the research problem, the author has combined the UTAUT2 model [1] with the Push-Pull-Mooring model [2]. The data collection was conducted from March to July 2024 across three regions of Vietnam: the North, Central, and South. The collection methods included both direct surveys and online surveys via Google Forms, distributed through social networks such as Facebook and Zalo. A total of 1,784 participants responded, of which 1,576 valid responses were obtained. Among them, 369 respondents had never heard of Mobile Money, while 1,180 were already aware of the service.

Key findings are:

- (i) The study develops a research model regarding factors influencing the behavioural intention of Mobile Money services in the context of Vietnam, which consists of three groups of factors. The pull factor is reflected in Performance expectancy, Effort expectancy, facilitating conditions, and transaction trends. The push factor is represented by perceived costs and perceived risks, while the mooring factor is reflected in social influence and trust.
- (ii) The push factor has the strongest negative impact on consumer intentions to use the service, while the pull factors positively affect the behavioural intention. Mooring factor has both a positive impact on intention and play a moderating role in the relationship

between the pull and push factor and the behavioural intention of MM service.

KEYWORDS: *Fintech, network provider, mobile finance, mobile money, mobile payment, telco account.*

1. INTRODUCTION

Mobile Money is a fintech application that uses mobile phones to provide financial services, allowing users to access financial systems via mobile networks [3]. It is particularly effective in rural areas with limited bank branches, offering a cheaper and safer alternative to cash [4]. MM is widely adopted in low-income countries due to its accessibility, reaching far more users than ATMs or bank branches [15]. Despite its benefits, MM faces several challenges.

MM services were launched in Vietnam in late 2021 during the COVID-19 pandemic. The restrictions on direct contact accelerated the growth of mobile financial services, with MM selected by the government as a key tool for creating a cashless economy. MM services have been widely deployed across all localities in Vietnam, especially in remote areas and local markets with the 4.0 market model. Despite widespread deployment, especially in remote areas, challenges remain in its implementation. Understanding the factors that influence behavioral intention toward MM is crucial for developing effective strategies.

This study aims to (i) develop a model of factors influencing the behavioral intention of MM services in Vietnam, and (ii) analyze

their impact to support decision-making for stakeholders.

2. LITERATURE REVIEW

In research on consumer intentions and behaviors toward using mobile money services, studies often rely on technology acceptance and use theories such as TAM, TRA, TPB, UTAUT, IDT, and others. Authors use the original theories for analysis or extend them to suit specific contexts. Tobbin (2011) [6] combined TAM with the Diffusion of Innovations (DOI) theory; Sayid (2012) [7] added perceived security, perceived risk, and social influence factors; Osei-Assibey (2015) [8] combined TAM with IDT; Chauhan (2015) [9] incorporated trust into TAM; Ezeh et al. (2017) [10] extended TAM by adding four variables: perceived reliability, information about MM, perceived financial cost, and perceived expressiveness; Narteh et al. (2017) [11] combined the Technology Acceptance Model (TAM) with the Diffusion of Innovation Model (DIM). Mugambe (2017) [12] applied the UTAUT2 model to examine MM services among small and medium-sized enterprises (SMEs) in Uganda, finding significant links between social influence and users' intentions and behaviors, while other factors like habit, facilitating conditions, effort expectancy were less impactful. Penney (2021) [13] merged UTAUT2 with perceived trust and risk, discovering that performance expectancy, effort expectancy, social influence, and perceived risk significantly influenced user behavior in Ghana, while facilitating conditions and hedonic motivation had minimal effects. Wu et al. (2022) [14] integrated UTAUT with the Push-Pull-Mooring (PPM) theory to investigate DCEP adoption in China, revealing that perceived fairness, habit, social influence, and national identity significantly impacted its usage among Chinese users.

While many studies on MM adoption have been conducted in Africa and parts of Asia, research in Southeast Asia, especially Vietnam, remains limited. MM offers advantages like high accessibility without

needing a bank account, internet, or smartphone, making it an effective tool for financial inclusion. To better understand MM adoption in developing countries like Vietnam, a comprehensive research model that integrates various factors is needed. This study aims to address this gap.

3. MATERIALS & METHODS

The UTAUT2 model, an extension of UTAUT [15], is one of the most comprehensive frameworks for explaining technology users' intentions and behaviors [14]. It was chosen for this study because: (1) in Vietnam, the shift from cash usage to Mobile Money depends on various factors like risk and complexity. Additionally, (2) UTAUT2 is well-suited for environments with many consumers, making it appropriate for examining MM services in Vietnam [16]. The Push-Pull-Mooring (PPM) model was built based on the laws of migration [2]. The PPM model was developed to explain human migration [17, 18, 19, 20]. The PPM model has been used to explain users' switching intentions in various fields such as finance, management, marketing, and other areas [21]. The application of these factors is flexible depending on the context: Chang et al. (2014) [20] studied the factors influencing users' switching behavior on social networking sites; Zhou (2016) [19] examined users' switching between mobile phone stores; Li et al. (2017) [22] researched consumer behavior switching from e-commerce to social commerce; Sun et al. (2021) [21] explored factors influencing the use of blockchain-based lending systems by SMEs; Wu et al. (2022) [14] investigated the acceptance of DCEP services (similar to MM) by Chinese consumers. The PPM model can help enhance the effectiveness of empirical research.

In Vietnam, Mobile Money (MM) is issued by telecommunications companies under the supervision of regulatory authorities, launched in November 2021 during the COVID-19 pandemic. While mobile banking and e-wallets were already popular, MM is a new service. Cash usage remains high in

Vietnam, and changing this habit depends on various factors. The transition to MM is similar to switching from existing payment methods to MM services, making the Push-Pull-Mooring (PPM) model suitable for this study.

The combined UTAUT2 and PPM model is used in this research to explore the push and pull factors that affect the use of MM services in countries with contexts similar to

Vietnam. This combination has been found in studies on mobile payments at physical stores in Indonesia [23] and DCEP (a service similar to MM) in China by Wu et al. (2022) [14]. However, the study by Wu et al. (2022) [14] only mentioned factors such as fairness, habit, social influence, perceived risk, and ethnic identity. The chosen research model combining UTAUT2 and PPM includes the following factors (Figure 1).

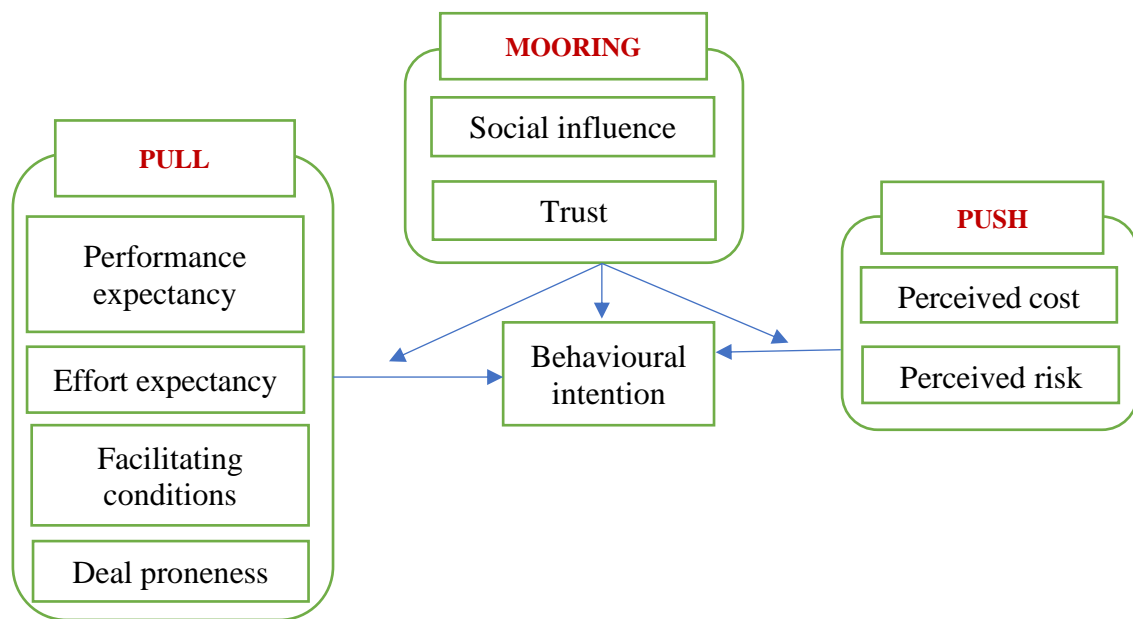


Figure 1: Research Model

3.1. Pull factors

Pull factors lead to customer satisfaction with new products or services -MM services. This group of factors includes performance expectancy, effort expectancy, facilitating conditions, and deal proneness. The study proposes the following hypothesis:

H1. The pull factor has a positive impact on the behavioural intention of MM services.

3.1.1. Performance expectancy (HQKV)

According to Venkatesh et al. (2003) [15], performance expectancy is understood as individuals' belief that using a technological system will help them achieve higher work efficiency. Studies in both developed and developing countries have found that performance expectancy is a crucial factor significantly affecting the adoption of various

MM services [7, 24]. Other studies have also shown that performance expectancy significantly affects consumers' intention to use MM in Ghana [11, 12], India [9], and Somalia [7]. When customers believe that MM can support them in their daily activities, their behavioural intention of MM will increase [6]. However, there are also studies showing that performance expectancy does not play a significant role in the acceptance of MM services, such as in Nigeria [10]. In the context of Vietnam, the study proposes the following hypothesis:

H1.1. The pull factor is reflected through performance expectancy.

3.1.2. Effort expectancy (NLKV)

According to Venkatesh et al. (2003) [15], effort expectancy refers to the ease with which

individuals engage and use a technological system. The ease or difficulty of engaging with a technological system may include registration procedures, payment processes, customer service access, or the minimum steps required to complete a transaction [6]. Effort expectancy positively impacts consumers' behavior in using MM in Ghana [6, 11,12], Nigeria [10], and Indonesia [25]. Conversely, effort expectancy has been shown to have no or negligible impact on the behavioural intention of mobile financial services in India [9] and France [24]. Vietnam is a developing country with many similarities to Indonesia; thus, the study proposes the following hypothesis:

H1.2. The pull factor is reflected through effort expectancy.

3.1.3. Facilitating conditions (DKTL)

According to Venkatesh et al. (2003) [15], facilitating conditions are defined as an individual's belief that organizational support and facilities will help them use the system easily. Facilitating conditions indicate the availability and accessibility of resources that encourage the adoption of a specific behavior [12]. Consumers are provided with a sense of psychological control, influencing their willingness to adopt a specific behavior. If users lack the necessary operational skills and financial resources, they will not adopt MM [12]. To maintain regular operations with MM, customers also need timely and regular support from agents.

Customers provided with facilitating conditions are more likely to use specific technological services, such as MM. While many studies emphasize the significant role of facilitating conditions in influencing consumers' intention and behavior in using services, others argue that this factor has a negligible impact on using MM services or mobile financial services, such as Ammar & Ahmed (2016) [28] and Baptista & Oliveira (2015) [29]. In this study, the author proposes the following hypothesis:

H1.3. The pull factor is reflected through facilitating conditions.

3.1.4. Deal proneness (XHGD)

According to Wang et al. (2019) [30], Park et al. (2019) [31], and Handarkho & Harjoseputro (2019) [23], deal proneness in the economic context are also factors that attract customer attention, prompting them to switch from old payment systems to new ones. The study by Park et al. (2019) [31] aligns with Handarkho & Harjoseputro (2019) [23], suggesting that monetary benefits like discounts or exclusive transactions will strengthen user motivation to adopt the service, especially early adopters. Promotions will enhance positive emotions and allow users to find ways to achieve them, promoting the adoption of new technologies. In this study, the author proposes the following hypothesis:

H1.4. The pull factor is reflected through deal proneness.

3.2. Mooring factors

According to Moon (1995) [18] as cited in Zhou (2016) [19], mooring factors reflect social and cultural elements that can either hinder or facilitate migration. When mooring factors are present, users may either switch immediately or not at all, even if the push and pull forces are strong [19, 17]. In this study, mooring factors refer to two aspects that affect the intention to use MM services: individual factors, specifically consumer trust, and social factors (social influence). The study proposes the hypothesis:

H2. Mooring factor has a positive impact on the behavioural intention of MM services.

3.2.1. Social influence (AHXH)

According to Vankatesh et al. (2003) [15], social influence is the effect of others on an individual's perception, which significantly impacts their use of a new system. According to Slade et al. (2015) [34], individuals who do not use MM often seek reassurance from important others. These influences can come from reference groups, family, friends, colleagues, and influential leaders [35, 36]. Information and encouragement about a product or service provided by those around plays a crucial role in shaping customers'

perceptions and their intention towards technology [36].

In this study, the author proposes the hypothesis:

H2.1. Mooring factor is represented through Social Influence.

3.2.2. Trust (NT)

Trust is the belief that the integrity, ability, and benevolence of a person or organization can be relied upon [37, 38]. Trust causes the trusted party (the MM user) to believe that the trusted party (the MM service provider) will not act opportunistically [9]. If the provider breaches or seems to breach the user's trust, it can negatively impact the acceptance of the service [9].

Trust positively impacts the behavioural intention of MM services in Ghana [13], Nigeria [10], and India [9]. It also positively affects the acceptance and use of other financial services such as MB in Ghana [38], Jordan [36], MP services in China [39, 40], Finland [41], and the UK [24, 34]. In the context of studying a new service like MM in Vietnam, the trust factor in the model is appropriate. In this study, the author proposes the hypothesis:

H2.2. Mooring factor is represented through Trust.

3.3. Push factors

As analyzed above, push factors according to the original theory include negative factors related to the starting point, pushing an individual away from their original place of residence. When applied to products and services, push factors are utilized flexibly in two research directions: First, factors that lead to dissatisfaction with existing products or services may cause customers to switch to other products or services [19, 42]. Second, factors that lead to dissatisfaction with new products or services [14, 21, 23].

In this study, the push factors are understood as the factors leading to customer dissatisfaction with MM services. According to Narteh (2017) [11] and Luarn (2005) [43], perceived costs are factors that negatively affect the behavioural intention of mobile

financial services. According to Lu et al. (2011) [65], perceived risk is considered a major barrier to the adoption of mobile services. Therefore, Perceived Cost and Perceived Risk are chosen as push factors representing elements leading to consumer dissatisfaction with MM services. In this study, the author proposes the hypothesis:

H3. Push factor has a negative impact on the behavioural intention of MM services.

3.3.1. Perceived cost (GTCP)

Perceived cost is understood as the extent to which a person believes that using mobile banking will incur expenses [43]. Numerous studies have shown that perceived cost affects users' intention to use mobile services [35]. Perceived cost has been demonstrated to affect mobile Internet usage [44]; the acceptance of SMS services [40]; the intention to continue using mobile data services [45]; users' attitudes towards digital multimedia broadcasting [46]; and the intention to use 3G services [47]. However, Tiwari (2020) [48] argues that there is no evidence showing that perceived cost affects the use of MM or MB. Perceived costs associated with using MM services include: costs for mobile devices, registration costs, joining costs, and transaction costs. This is also consistent with Chang et al. (2014) [20], which states that the costs of switching to a new service include: sunk costs, setup costs, and ongoing costs.

In the context of Vietnam, other mobile financial services such as MB and e-wallets are also well-developed, providing consumers with multiple choices. If the benefits are similar, consumers are likely to choose the service with lower costs. In this study, the author proposes the hypothesis:

H3.1. Push factor is reflected through Perceived Cost.

3.3.2. Perceived risk (RR)

According to Tobbin (2010) [49], perceived risk is understood as the customer's view of the potential negative outcomes from using a service. When customers perceive any potential loss due to the uncertainty of using a

service, their perception of risk increases, leading to a tendency to use the service less [34]. Expected losses may relate to any adverse outcomes for customers, such as financial loss, privacy violations, dissatisfaction with performance, psychological stress, waiting times, and long queues [11]. According to Featherman and Pavlou (2003) [50], perceived risk when adopting electronic services includes seven aspects: performance risk, financial risk, time risk, psychological risk, social risk, privacy risk, and overall risk.

In Vietnam, rapid technological advancements have raised concerns about potential risks in using technology services, particularly financial technology. MM is relatively new and less familiar compared to mobile banking or e-wallets. Therefore, users may be hesitant to adopt new technology due to concerns about ease of use (performance risk), time consumption (time risk), financial loss (financial risk), or exposure of personal information (privacy risk). Thus, in this study, the author proposes the hypothesis:

H3.2. Push factor is reflected through Perceived Risk.

3.4. Behavioural intention

Behavioural intention has been addressed in many previous studies on technology acceptance and use. According to Ajzen and Fishbein (1980) [51], behavioural intention is described as a statement that one will perform the action as stated. According to Davis (1985) [52], behavioural intention is the extent to which a person has planned to perform or not perform a specific behavior in the future. This concept was refined in a study by Davis et al. (1989) [53], where behavioural intention is defined as a person's readiness to accept and use technology. In this study, behavioural intention is understood as a person's readiness to accept and use MM services.

4. STATISTICAL METHODS

4.1. Questionnaire development

The research hypotheses were tested using a survey questionnaire divided into three parts:

the first part gathered general demographic information, the second part assessed current usage or non-usage of MM services, and the third part measured variables in the research model.

The factors in the study primarily relied on the UTAUT2 model by Venkatesh et al. (2012) [1], with basic scales constructed from theories of technology acceptance and use. Additionally, qualitative research results led to the inclusion of supplementary indicators to better fit the context of Vietnam. The scales for Performance expectancy, Effort expectancy, Facilitating conditions, and Social influence are primarily based on the UTATU2 theory by Venkatesh et al. (2012) [1] and Alalwan et al. (2017) [36]; Trust is based on the theories of Gefen et al. (2003) [37], Penney et al. (2021) [13], Chauhan (2015) [9], and Alalwan et al. (2017) [36]; Deal Proneness is based on the theory of Handarkho and Harjoseputro (2019) [23]; Perceived Risk is based on the theory of Featherman and Pavlou (2003) [50]; Perceived Cost is based on the theories of Luarn (2005) [43] and Tiwari (2020) [48]. The questions are answered using a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

The questionnaire was developed based on in-depth interviews with 5 financial experts and service providers, as well as 10 MM users. It was later sent to experts and users for content and language adjustments.

4.2. Data collection and sample

Sample Size: To determine the sample size for the study, various methods have been used depending on the research purpose. In this study, the sample size method proposed by Comrey & Lee (1992) [54] is employed, which suggests a minimum sample size of 500. This sample size also aligns with the sampling principles of Okororie and Otuonyea (2015) [55] and can be used for applying statistical formulas according to Hair et al. (1998) [56]. It is suitable for exploratory factor analysis (EFA) as per Hair et al. (2010) [57], Bollen (1989) [58] and can be used for regression analysis according to

Tabachnick and Fidell (2007) [59]. Additionally, this sample size ensures it can be used for structural equation modeling (SEM) according to Hoetler (1983) [60].

Sample Selection: The sample includes individuals aged 15 and above (since 15-year-olds can obtain a citizen ID card and are eligible to open a MM account), residing in Vietnam, and using mobile devices across all three regions: North, Central, and South. This includes individuals who have, are currently using, or have not used the MM service. The sample is divided into three regions 1, 2, and 3 to match the socio-economic characteristics of each area, particularly in remote, island, mountainous regions where internet access is limited.

Research Sample: The survey was conducted from March 2024 to July 2024 using two methods: social media platforms (Facebook, Zalo) and face-to-face interviews. A total of 1,784 participants responded to the survey, of which 1,576 responses were valid, including 369 respondents who were not aware of MM and 1,180 who were aware of the service. The survey was widely distributed across all three regions of Vietnam, with 49% male and 51% female respondents. The distribution by region was as follows: Region 1 accounted for 30.5% (including remote, challenging

areas, border regions, and islands), Region 2 for 38.3% (rural Vietnam excluding Region 1), and Region 3 for 31.2% (urban areas). The majority of respondents were aged 18 to 40 (60.9%), which is representative of Vietnam's golden demographic period [61]. Thus, the survey sample is well-representative for studying the behavioural intention of MM services in Vietnam.

4.3. Data Analysis Method

After cleaning the data, the study used SPSS software for descriptive statistics, exploratory factor analysis (EFA), reliability assessment. Additionally, confirmatory factor analysis (CFA) and structural equation modeling (SEM) were conducted using AMOS software.

5. RESULT

5.1. Reliability Test

According to the reliability analysis results, after removing unsuitable variables, all variables have Cronbach's Alpha values greater than 0.6 and less than 0.95 [57]. The item-total correlation coefficients are above 0.3, and the Cronbach's Alpha values if any items are deleted are lower than the overall Cronbach's Alpha. This indicates that the measurement scales in the model are reliable for further analysis (Table 1).

Table 1. Reliability Test

Constructs	Measurement Items	Cronbach's α
Performance expectancy	HQKV1, HQKV3, HQKV4	0.925
Effort expectancy	NLKV1, NLKV2, NLKV4	0.78
Facilitating conditions	DKTL1, DKTL2, DKTL3, DKTL4	0.834
Deal proneness	XHGD1, XHGD2, XHGD3	0.871
Social influence	AHXH1, AHXH2, AHXH3	0.867
Trust	NT1, NT2, NT3, NT4, NT5	0.906
Perceived Cost	CPCN1, CPCN2, CPCN3	0.845
Perceived Risk	RR1, RR2, RR3, RR4, RR5, RR6, RR7	0.951
Behavioural intention	YD1, YD2, YD3	0.766

Source: Primary data analysis results

5.2. Exploratory Factor Analysis Results

After conducting the reliability test, items with factor loadings below the recommended threshold of 0.6 (Hair et al., 2010) [57] were removed during the data analysis process. The results of the EFA analysis show that the indices meet the conditions set by Hair et al.

(2010) [57]. The model converged on 9 factors, which together explain 67.567% of the variance in the observed variables included in the model. These factors ensure the representativeness of the research data (Table 2).

5.3. Results of Confirmatory Factor Analysis

The CFA model for first-order variables - measuring the factors reflecting Push, Pull and Mooring effects

In confirmatory factor analysis (CFA), a model is considered reasonable and fit when it meets

the following conditions: Chi-square/df falls within the range of 2.00 to 5.00, Sig < 0.05 [57], TLI, CFI, GFI ≥ 0.9 (Bentler and Bonett, 1980) [62], RMSEA ≤ 0.08 (if ≤ 0.05 is considered very good, according to Steiger (1990) [63]. To assess the convergent validity

Table 2. EFA Results for Measuring Instrument Validity of the Model

Observed variables	Component								
	1	2	3	4	5	6	7	8	9
RR4	0.894								
RR2	0.871								
RR5	0.857								
RR3	0.855								
RR6	0.843								
RR7	0.841								
RR1	0.840								
NT5		0.877							
NT2		0.862							
NT1		0.808							
NT3		0.793							
NT4		0.726							
HQKV4			0.928						
HQKV3			0.915						
HQKV1			0.842						
DKTL3				0.819					
DKTL1				0.740					
DKTL2				0.736					
DKTL4				0.718					
XHGD2					0.983				
XHGD3					0.941				
XHGD1					0.585				
AHXH2						0.932			
AHXH1						0.866			
AHXH3						0.676			
CPCN3							0.948		
CPCN2							0.880		
CPCN1							0.542		
NLKV4								0.797	
NLKV1								0.736	
NLKV2								0.655	
YD1									0.809
YD3									0.725
YD2									0.626
Eigenvalues	7.638	4.838	3.260	2.883	1.732	1.576	1.445	1.296	1.136
Extracted variance	21.585	34.931	43.763	51.249	55.288	58.922	62.257	65.228	67.567
KMO =	0.874				Sig =	0.000			

Source: Primary data analysis results

of the scale, Hair et al. (2010) [57] proposed the criteria: CR ≥ 0.7, AVE ≥ 0.5, and to determine discriminant validity, MSV must be less than AVE.

The results from Table 3 show that all indicators are within acceptable limits, indicating a good model with no significant differences between

the theoretical model and the actual model. With Sig = 0.000, the model is considered significant, and the first-order constructs are well-reflected through the observed variables. The scales reflecting the factors achieve convergent validity and discriminant validity, meeting the necessary conditions for further analysis steps.

Table 3. CFA results for the First-order variable model

Latent Construct	Number of variables	Composite reliability (CR)	Average variance extracted (AVE)	Model fitness
RR	7	0.951	0.737	Chi-square/df = 3.723 GFI=0.912 CFI=0.948 TLI=0.942 RMSEA=0.048 PCLOSE=0.915
NT	5	0.907	0.662	
HQKV	3	0.926	0.806	
AHXH	3	0.871	0.694	
DKTL	4	0.844	0.575	
NLKV	3	0.782	0.546	
CPCN	3	0.856	0.668	
XHGD	3	0.887	0.729	
YD	3	0.768	0.525	

Source: Primary data analysis results

CFA Model for Second-Order constructs - Measuring factors reflecting behavioural intention.

The analysis results of the second-order constructs also show that the model is

consistent with the research data, with the second-order constructs being well-reflected through the first-order constructs (Table 4).

Table 4. CFA analysis results for the Second-Order construct model

Second Order	First order	Number of variables	Standardized regression coefficients	P	Model fitness
PULL	HQKV	3	0.197	***	Chi-square/df = 3.723 GFI=0.912 CFI=0.948 TLI=0.942 RMSEA=0.048 PCLOSE=0.915
	NLKV	3	0.602	***	
	DKTL	4	0.805	***	
	XHGD	3	0.405	***	
MOORING	AHXH	3	0.682	***	
	NT	5	0.712	***	
PUSH	CPCN	3	0.600	***	
	RR	7	0.399	***	

Source: Primary data analysis results

5.4. Hypothesis Testing

Structural Equation Modeling (SEM)

From the structural model analysis results: Chi-square/df = 3.814 < 5; GFI = 0.91; TLI = 0.946; CFI = 0.94 > 0.9; RMSEA = 0.048

< 0.06, PCLOSE = 0.79 > 0.05. All indicators fall within the acceptable range, indicating that the model is a good fit with the survey data.

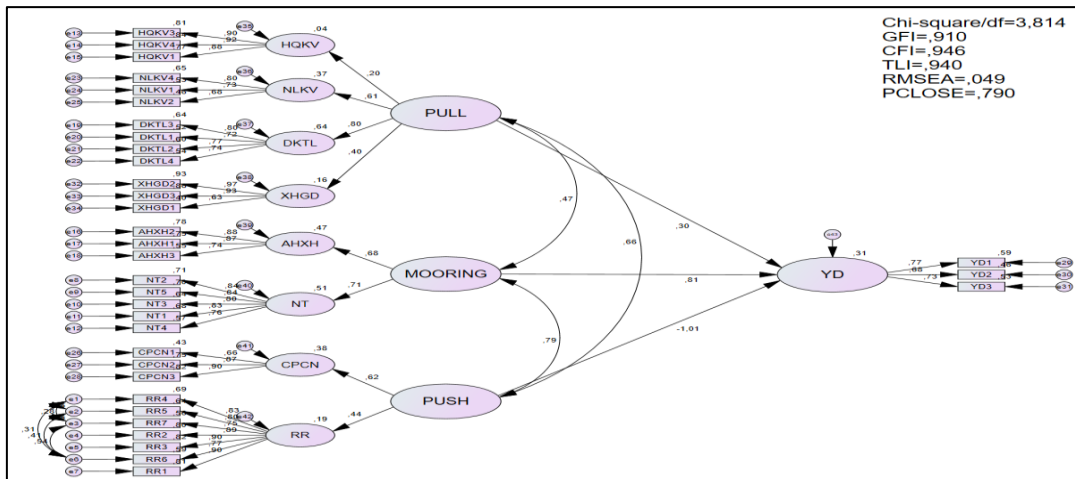


Figure 2. Structural Equation Modeling

Source: Primary data analysis results

The p-value of most independent variables is less than 0.05, except for the p-value of PULL, which is 0.089 (greater than 0.05 but still less than 0.1), and is therefore

acceptable. Thus, the second-order variables are well reflected through the first-order variables (Table 5).

Table 5. Structural Equation Model Coefficients

Hypothesis				Standardized regression coefficients	Pvalue	Result
H1	YD	<---	PULL	0.302	0.089	Yes
H2	YD	<---	MOORING	0.807	0.004	Yes
H3	YD	<---	PUSH	-1.006	0.015	Yes

Source: Primary data analysis results

The results of the structural equation modeling analysis show that the impact of the push factor on the behavioural intention (YD) is the largest, with a standardized regression coefficient of -1.006 and a negative effect. The other two groups of factors, pull and mooring, have a positive effect on YD, with standardized regression coefficients of 0.302 and 0.807, respectively. Testing the impact of the mooring factor (MOORING) on the relationship between the pull factor (PULL) and the behavioural

intention, as well as the push factor (PUSH) and the behavioural intention.

The analysis results show that the P-values for all variables are <0.05, indicating statistical significance, and hypotheses H4 and H5 are accepted. Thus, there is a positive impact of the mooring factors on the relationship between the pull factors and the behavioural intention of the service, and a negative impact on the relationship between the push factors and the behavioural intention of the service (Table 6).

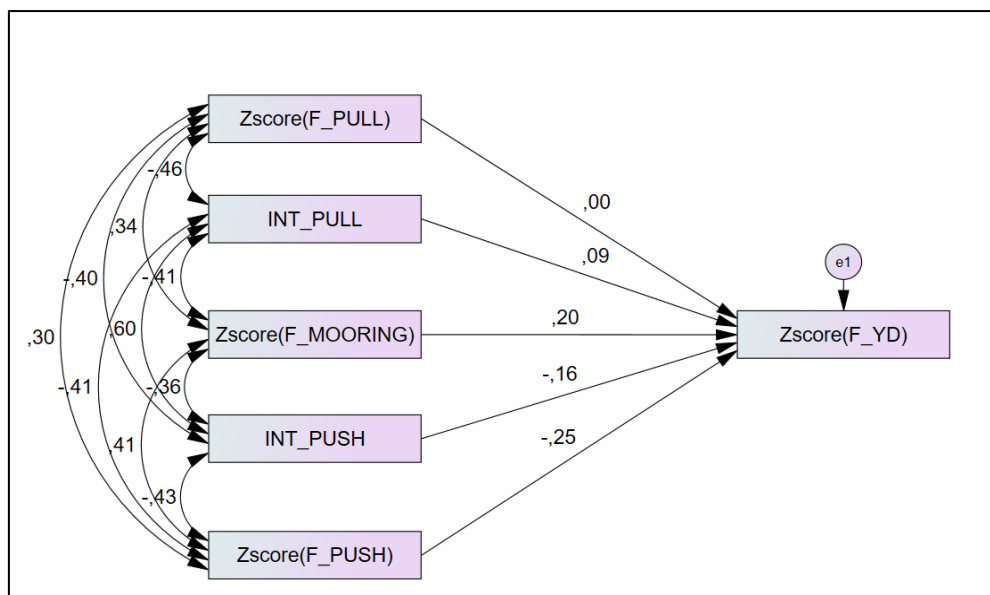


Figure 3. Structural Equation Model (SEM) with Moderating Variables

Source: Primary data analysis results

Table 6. Standardized Regression Coefficients of Moderating Variables

Hypothesis				Standardized regression coefficients	P value	Result
H4	ZF_YD	<---	INT_PULL	0,087	0,022	Yes
H5	ZF_YD	<---	INT_PUSH	-0,157	***	Yes

Source: Primary data analysis results

6. DISCUSSION

6.1. Discussion of Pull Factors

Pull Factor has a positive influence, encouraging consumers to have a higher intention to use MM services. The stronger the pull factors, the more likely users are to intend to use the service, and conversely, the weaker the pull factors, the less likely users are to intend to use the service. The research results show that the pull factor is well represented by:

Firstly, the pull factor is reflected through Performance expectancy (HOKV).

Results from the SEM model indicate that hypothesis H1.1 is accepted. This finding aligns with the research by Penney et al. (2021) [13], Narteh et al. (2017) [11], Chauhan (2015) [9], Sayid (2012) [7], and Tobbin (2011) [6]. The higher the Performance expectancy, the stronger the pull factor, and vice versa. Performance expectancy refers to customers' belief that using MM services will enhance their work efficiency.

Mobile Money (MM) in Vietnam also gained traction during the COVID-19 pandemic. During this time, the social insurance agencies were overwhelmed, and traditional banks could not provide sufficient support. MM demonstrated its value by facilitating salary payments for social insurance beneficiaries and policies for unemployed workers, among others. People also used MM for paying school fees, utilities, and online shopping. As a result, MM has filled gaps that the traditional financial system has not yet reached. However, MM has so far been primarily focused on payment services, while other financial services such as credit, savings, and insurance remain underdeveloped.

Secondly, the pull factor is reflected through Effort expectancy (NLKV).

Results from the SEM model show that the hypothesis H1.2 is accepted, the pull factor is reflected through Effort expectancy. This is consistent with the findings of Karjaluoto et al. (2020) [64], Ammar & Ahmed (2016) [28], and Indrawati et al. (2018) [25]. The higher the Effort expectancy, the stronger the

pull factor, and vice versa. According to statistical research results, among the three MM services in Vietnam, the Viettel Money application has the highest user rate (82.4%) among those surveyed. In practice, Viettel Money has also invested the most in improving its products and services. The statistics also show that Viettel Money offers the most diverse range of services among the three services.

Thirdly, the pull factor is reflected through facilitating conditions (DKTL).

Results from the SEM model show that the hypothesis H1.3 is accepted, the pull factor is reflected through facilitating conditions. This is consistent with the research results of Kiconco et al. (2020) [17] and Penney et al. (2021) [13]. The higher the facilitating conditions, the stronger the pull factor, and vice versa.

Users will only use MM services if the devices and technology they have are compatible. Vietnam is in a favorable position for MM usage due to the widespread mobile network coverage (4G covers 99.8% of the population) and a smartphone penetration rate of 84% [66]. However, only about 75% of those surveyed are aware of MM, 47.7% have registered, and 89.2% of registrants actually use the service. This results in only 31.2% of respondents using MM, and 42% of those who know about it. One reason for the low adoption rate is the lack of enthusiasm from agents, as their commissions are low. After launching the service, many agents do not provide thorough guidance, leading to user unawareness, lack of timely support, and eventually, users losing interest and discontinuing the service.

Fourthly, the pull factor is reflected through deal proneness (XHGD).

Results from the SEM model show that the pull factor is reflected through deal proneness, and hypothesis H1.4 is accepted. This is consistent with the research of Wang et al. (2019) [30], Park et al. (2019) [31], and Handarkho and Harjoseputro (2019) [23]. The higher the deal proneness, the stronger the pull factor, and vice versa.

Users are highly attracted to the incentives offered by MM services. In areas where mobile financial services are saturated, promotions and cashback programs effectively retain users. Many people use MM services mainly for mobile top-ups due to the cashback rewards.

6.2. Discussion of Mooring Factors

Mooring Factor both positively impacts the behavioural intention of MM services and moderate the relationship between pull and push factor in relation to the behavioural intention of MM services in Vietnam. The mooring factor group is represented by social influence and trust.

Furthermore, the mooring factor positively influences the relationship between pull factors and behavioural intention, while it negatively influences the relationship between push factors and behavioural intention. The mooring factor is specifically reflected as follows:

First, the mooring factor is reflected through social influence.

Results from the SEM model indicate that the hypothesis H2.1 is accepted and the mooring factor is reflected through social influence. This is consistent with the findings of Zhou (2016) [19], Wu et al. (2022) [14], Kwateng et al. (2018) [38], Narteh et al. (2017) [11], and Mugambe (2017) [12]. The stronger the social influence, the stronger the mooring factor.

A user's willingness to use a service is strongly influenced by recommendations from trusted sources like family, friends, and colleagues... In Vietnam, despite the service being in the pilot phase, people are likely to use it if they receive positive recommendations. Conversely, negative feedback may lead them to reject the service.

Second, the mooring factor is reflected through trust.

Results from the SEM model show that the hypothesis H2.2 is accepted and the mooring factor is reflected through trust, and. This aligns with the research findings of Penney (2021) [13], Ezeh (2017) [10], Chauhan (2015) [9], Zhao & Kurnia (2017) [39], and

Lu et al. (2011) [65]. The higher the level of trust, the stronger the Mooring factor becomes, encouraging users to continue using the service despite challenges.

From the above analysis, it is evident that when users have strong trust and social influence, the mooring factor is more effectively reflected. The Mooring factor not only directly enhance behavioral intention but also moderate the impact of push and pull factors on it. Even with some service limitations or strong push factors, users are likely to adopt MM when they trust the service or receive recommendations from family and friends.

6.3. Discussion of Push Factors

Push Factor has a negative influence. When consumers perceive high costs and risks associated with using the service, their behavioural intention of the service decreases. This result is consistent with the studies of Wu et al. (2022) [14] on DECP services in China and Handarkho and Harjoseputro (2019) [23] on mobile payments. This is also the group with the strongest impact on the behavioural intention among the three factor groups. This helps explain why, despite a large number of MM accounts being opened, many people in Vietnam are still unaware of or do not use this service. Push factor is represented by:

Firstly, the Push factor is reflected through Perceived Cost

The results from the SEM model show that the hypothesis H2.1 is accepted and the Push factor is reflected through Perceived Cost. This is consistent with the research findings of Lu et al. (2011) [65] and Luarn (2005) [43]. The higher the Perceived Cost, the stronger the Push factor. For example, Viettel Money charges a fee for transfers if the customer exceeds 50 million VND per month without upgrading their account or if there are no transactions for over 6 months. Mobifone Money charges 2,500 VND per transaction for transfers to non-affiliated banks. Thus, if users perceive the cost of using MM as high, they are likely to be less

inclined to use the service, pushing their behavioural intention it further away.

Secondly, The Push Factor Reflected Through Perceived Risk

From the SEM model results, the hypothesis H2.2 is accepted and the Push factor is reflected through Perceived Risk. This finding is consistent with research by Slade et al. (2015) [34], Lu et al. (2011) [65], Tobbin (2011) [6]. The higher the perceived risk, the stronger the reflection of the Push factor. As perceived risk increases, users are more likely to feel pushed away from the service, leading to a decrease in their behavioural intention of the service, and vice versa.

The research results indicate that Perceived Risk is well reflected through 7 observed variables from RR1 to RR7, with aspects including: system risk, privacy risk, financial risk, time risk, psychological risk, and other risks.

(1) System risk refers to the possibility of malfunctions that prevent the service from operating as intended, failing to meet customer expectations. Since MM is still in its pilot phase, many system issues require upgrades. In practice, users are currently facing quite a few problems.

(2) The three providers - Viettel, Vinaphone and Mobifone - maintain high standards for customer information security, including two-layer security technology, 3DS security, international PCI DSS standards, and GeoTrust standards. However, there is a significant gap concerning how providers monitor and manage customer data after collection, leading to consumer reluctance to share personal information. If customer data is not securely protected, it may cause inconvenience for users and reduce their behavioral intention to use MM services.

(3) The advancement of technology has led to increasingly sophisticated cybercrime and fraud in various forms, causing significant financial losses even for knowledgeable individuals. This trend heightens public anxiety about new financial services. Interestingly, residents of Ho Chi Minh City, Vietnam's most industrially developed city,

share a common fear of fraud, leading them to avoid electronic payments, including MM services.

(4) Users also express dissatisfaction due to the time spent learning how to use a new service or dealing with system errors that cause delays. As a result, they may continue using cash or existing banking applications.

(5) Every product or service has its advantages and disadvantages. MM services are related to finance and involve users' money, so it is reasonable for users to feel anxious if the service does not meet their expectations. In reality, MM services are still in the pilot phase and face many technical issues that need to be resolved. Additionally, the increasing prevalence of cybercrime contributes to user anxiety. This is also something that providers need to address promptly.

6.4. Policy recommendations

The study proposes several policy recommendations as follows:

For regulatory authorities: To support Vietnam's financial inclusion strategy, the government should enhance the legal framework for MM, expedite KYC processes, and use AI tools like the "Cloud Security Portal" to monitor unregistered users and prevent fraudulent SIM activity. Building a robust digital infrastructure will boost user trust and minimize risks. Promoting financial literacy and electronic payments can reduce cash reliance, and long-term human resource development should be prioritized through partnerships with advanced countries.

For MM service providers: Besides product benefits, users are concerned about costs and security. Providers should focus on practical, user-friendly products, improve security systems, and partner with diverse services to enhance value, reduce costs, and build trust through communication. Given MM's rapid evolution, continuous service reassessment is critical.

For partners: Collaboration with MM providers can offer partners many benefits,

including payroll, tuition, utility bill processing, and sales of products or services.

7. CONCLUSION

The study combines the UTAUT2 theory by Venkatesh and the Push-Pull-Mooring (PPM) model by Ravenstein to clarify three groups of factors affecting the behavioral intention to use MM services in Vietnam. The Push factors, including perceived cost and perceived risk, have the strongest negative influence on consumer intention. The Pull factors, including Performance expectancy, Effort expectancy, facilitating conditions and deal proneness, positively impact behavioral intention. The Mooring factors, which includes social influence and trust, also plays a moderating role between the Pull and Push factors and behavioral intention. The proposed model provides a foundation for future studies on technology acceptance.

A limitation of the study is its focus solely on Vietnamese consumers. Future research should expand to include other developing countries and explore the relationship between cultural factors, ethnic identity, and behavioral intention. Additionally, the study addresses only behavioral intention without covering actual usage behavior, leaving a gap for future research.

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