THE INFLUENCING FACTORS OF RISK MANAGEMENT OF WECHAT PAY IN CHINA

MENG WEIQI

6417195801

AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER'S DEGREE OF BUSINESS ADMINISTRATION GRADUATE SCHOOL OF BUSINESS SIAM UNIVERSITY 2023

THE INFLUENCING FACTORS OF RISK MANAGEMENT OF

WECHAT PAY IN CHINA

MENG WEIQI

This Independent Study has been Approved as a Partial Fulfillment of the
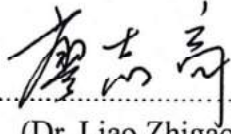Requirement of an International Master of Business Administration

Advisor: ....
(Dr. Liao Zhigao)

Date: ....30.../...4.../..2024...

....
(Associate Professor Dr. Jomphong Mongkhonvanit)
Dean, Graduate School of Business Administration

Date.......15.../...5.../.2024...
Siam University, Bangkok, Thailand

Title:	The Influencing Factors of Risk Management of WeChat Pay in China
By:	Meng Weiqi
Degree:	Master of Business Administration
Major:	International Business Management

Advisor: ....

(Dr. Liao Zhigao)

Date: ....30..../.........4..../......2024.........

ABSTRACT

WeChat Pay allows users to make payments through the mobile app, including online purchases, money transfers, and bill payments, and also supports offline code-sweeping payments. The utilization of WeChat Pay not only offers convenience for individuals but also presents potential risks. It is crucial to comprehend these uncertainties and security issues in order to use WeChat Pay safely and safeguard financial rights and interests. This research aimed at examining the factors that influence the risk management of WeChat Pay in China.

The study had the following objectives: 1) To explore whether customer perception influences the risk management of WeChat Pay in China; 2) To explore whether technical reliability influences the risk management of WeChat Pay in China; 3) To explore whether social environment influences the risk management of WeChat Pay in China.

This study employed the quantitative research method, distributing a total of 400 questionnaires, resulting in 341 valid responses and a validity rate of 85.25%. The target population included consumers who have utilized WeChat Pays. Based on the risk management theory, risk identification theory, and information asymmetry theory, the study concluded the following: 1) Customer perception has a positive influence on risk management of WeChat Pay in China; 2) Technical reliability has a positive influence on risk management of WeChat Pay in China; 3) Social environment has a positive influence on risk management of WeChat Pay in China. The recommendations for the risk management of WeChat Pay in China include the following areas: 1) Enhancing consumer perception; 2) Improving technical reliability; 3) Enhancing social environment.

Keywords: influencing factors, risk management, wechat pay

ACKNOWLEDGEMENT

On the occasion of the completion of my master's thesis, I would like to extend my high respect and deep thanks to my teachers who have guided me, the leaders who care for me, those who care about me and all the people who have helped me in the process of studying for my master's degree.

This thesis is successfully completed under the careful guidance and kind care of the supervisor. Teacher profound knowledge contain rigorous doing scholarly research attitude, seeking truth from facts of scientific research style, confident work enthusiasm, the combination of theory and practice of scientific research thought and explore the innovative spirit, will deeply affect my future work, study and life, make me lifelong benefit, in this respect teacher sincere thanks!
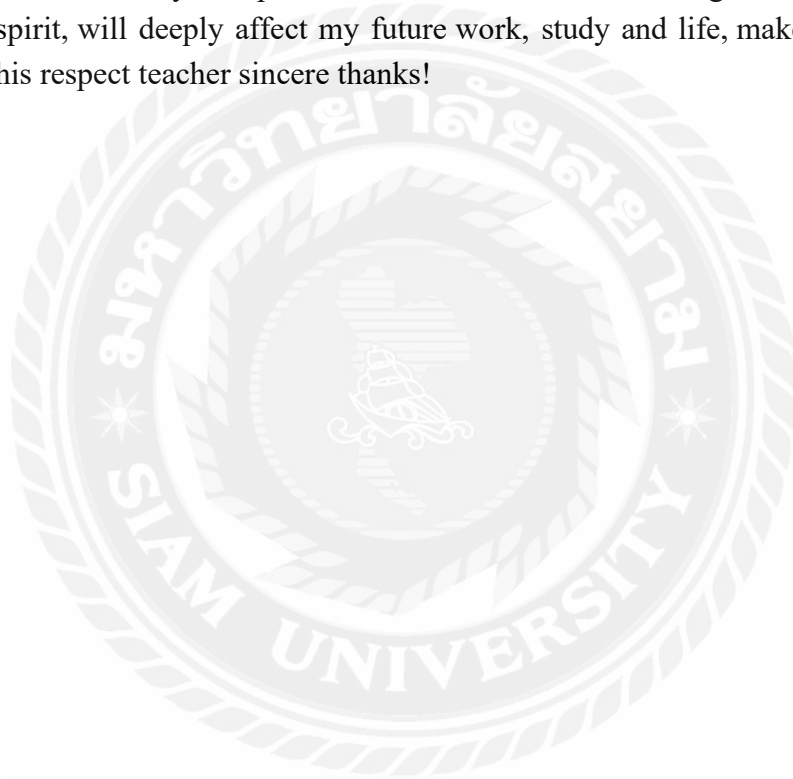
DECLARATION

I, Meng Weiqi, hereby certify that the work embodied in this independent study entitled "The Influencing Factors of Risk Management of WeChat Pay in China" result of original research and has not been submitted for a higher degree to any other university or institution.

Meng Weiqi

Meng Weiqi
Feb 1, 2024

CONTENTS

TABLE CONTENTS

FIGURE CONTENTS

Chapter 1 Introduction

1.1 Background of the Study

With the progress and development of the Internet era, mankind is moving towards a new digital era, and third-party payment is a product under the digital era, adding a lot of color to the development of the digital era. As an important part of e-commerce, third-party payment is the core application of e-commerce transactions, which links and guarantees online trading activities. In the era of "Internet+", third-party payment has increasingly occupied individuals' work and life. Since the 1990s until now, the third-party payment platform in China has been developing rapidly and the trend is rapid, and the transaction scale is also impressive in proportion to the development trend (Shi et al., 2017). As of 2019, China's third-party payment platform companies of all sizes have reached more than 300, of which 236 have obtained payment licenses. The cumulative number of companies that have received payment licenses but have canceled them has reached 35. The rapid development of third-party payment platforms has also attracted the attention of the Chinese government. Since 2017, the Chinese government has issued a series of annual regulations to banks and other payment institutions in China on the reasonable use of third-party payment platforms, further strengthening the country's prevention and control of risks in the payment institution industry (Yao & Li, 2022).

With the continuous development of the e-commerce market, the competitive pressure of payment is also more intense, so third-party payment will have many risky problems in the process of development. Starting from the beginning of 2019, due to the impact of the Chinese government's regulatory requirements, the transaction volume of online lending has declined severely, and the growth of the transaction scale of Internet finance has been greatly restricted. As a result, the business based on the original payment more used for online lending will begin to explore and innovate, tapping into the new demand for transformation, such as the Internet, cross-border, financial leasing, and so on. In the process of exploring new areas, risks exist all the time. If the risks cannot be dealt with in time, the safe and stable e-commerce market will be undermined and e-commerce will not be able to develop smoothly (Fan et al., 2020).

In 2013, Tencent launched WeChat Pay, which is a product jointly invested by Zaipay and WeChat, and its main service object is WeChat users, providing them with the service of mobile payment, which is innovative. WeChat Pay is extremely simple compared to traditional third-party payment methods in the transaction process, only need to scan the other party's QR code, and then enter the password, so it is very fast. It does not require the use of cash, which is convenient for the user's pocket, and does not require bank transfers, which is ideal for daily consumption (Huang, 2019). On

April 8, 2014, WeChat opened the official public number of WeChat Pay to provide customers with more convenient payment services. With the development of WeChat Pay, many companies have also opened public accounts on the WeChat platform and provided counseling to customers on their public numbers, which brings companies and customers closer together. WeChat Pay greatly facilitates users and makes it attractive to many users. So WeChat Pay has become one of the mainstream ways of mobile payment. The number of users of WeChat Pay exceeded 300 million in 2017, while Alipay only has 270 million, which shows that to a certain extent, WeChat Pay is more successful than Alipay. Although Tencent levied a handling fee on WeChat Pay's balance withdrawals in 2016, this did not have a negative impact, but instead boosted the WeChat platform to a certain extent, making WeChat transactions go up a level (Cao, 2019).

WeChat Pay is a highly integrated emerging industry that combines all parts of the product value chain, including telecommunications, finance, and buyers and sellers. The existence of cumbersome competitive and cooperative relationships between the various member parts of WeChat Pay is what makes the ecosystem of the mobile payment industry vibrant. With the rapid development of WeChat Pay, the attention and research interest in consumers'behavioral intention when making mobile payments and the perceived risk of mobile payment are increasing. Therefore, by analyzing the different dimensions of consumers'perceived risk in the WeChat Pay environment, we determine which factors affect their perceived risk and the relationship between each influencing factor and each risk dimension (Yao & Li, 2022).

1.2 Questions of the Study

Although the WeChat Pay brings great convenience to the lives of individuals, but also hard to be soberly aware of its uncertainty, the lack of a certain degree of security, and other factors. Given this, how to safely carry out WeChat Pay, while avoiding potential risks has become a modern problem that people have to focus on thinking about, and only in this way can WeChat Pay better serve people's lives, and minimize the risks brought by WeChat Pay, and maximize the protection of individuals'financial rights and interests. Therefore, the following issues are raised in the study:

(1) Does the customer perception influence the risk management of WeChat Pay in China?

(2) Does the technical reliability influence the risk management of WeChat Pay in China?

(3) Does the social environment influence the risk management of WeChat Pay in China?

1.3 Objectives of the Study

The mobile payment process is quite complex. Unlike traditional physical marketing, different marketing methods need to be developed for mobile payment to mitigate risks. Communication operators, commercial financial institutions, and third parties involved in WeChat Pay must create marketing programs to attract consumers and reduce their perceived risk. Ensuring technology and security in WeChat Pay is crucial for increasing consumer trust and the proportion of mobile payments. Each participant should employ various methods to improve technology and prevent technological risks in the mobile payment process. The mobile payment process is quite complex. Unlike traditional physical marketing, different marketing methods need to be developed for mobile payment to mitigate risks. Communication operators, commercial financial institutions, and third parties involved in WeChat Pay must create marketing programs to attract consumers and reduce their perceived risk. Ensuring technology and security in WeChat Pay is crucial for increasing consumer trust and the proportion of mobile payments. Each participant should employ various methods to improve technology and prevent technological risks in the mobile payment process. Therefore, combined with the above analysis, the purpose of this study is:

(1) To explore whether customer perception influences the risk management of WeChat Pay in China.

(2) To explore whether technical reliability influences the risk management of WeChat Pay in China.

(3) To explore whether social environment influences the risk management of WeChat Pay in China.

1.4 Scope of the Study

The scope of this study is focused on users who use WeChat Pay. The main objective of the study is to analyze user behavior, including payment habits, frequency, and amount, as well as the user's acceptance of risk management measures. The study aims to evaluate and elaborate on the risks associated with WeChat Pays (Huang, 2019; Yao & Li, 2022). Data collection is carried out through a questionnaire, which consists of two parts: basic user information and an investigation of the risk factors affecting WeChat Pay. This investigation is mainly related to risk identification and assessment, risk control and management, user behavior and risk correlation analysis, as well as the technical architecture and risk prevention of the WeChat Pay system. The ultimate goal is to discuss the payment system and risk factors, their impacts, and to provide a better solution for establishing a more efficient and effective payment system. The study seeks to deeply explore the risk factors and their impacts in the payment system and provide theoretical and practical references for the establishment of more effective risk management strategies. The survey period is from December 1, 2023, to March 1, 2024, with a duration of 4 months.

1.5 Significance of the Study

WeChat Pay has gained significant attention as an emerging payment method. While researchers have been exploring the theory of mobile payment and conducting preliminary studies, there is a lack of in-depth and systematic research on the consumer-perceived risk of mobile payment, particularly in terms of evaluating the perceived risk. This paper aims to explore the theoretical explanation of consumers' perceived risk when using WeChat Pay, the dimensional composition of WeChat Pay consumers' perceived risk, and the factors affecting it, with the goal of providing a reference for further in-depth research in the future (Cao, 2019; Fanetal., 2020). As society continues to progress and the pace of life accelerates, mobile commerce's share in various business activities will continue to increase. Mobile payment technology has become the core element of mobile commerce, providing online financial services for consumers anytime and anywhere, and is highly favored by the industry. However, consumers' natural fear, skepticism, and distrust of the emerging technology of WeChat Pay greatly affect their motivation to use it. In light of this, the analysis of the key factors affecting consumers' perceived risk and the formulation of countermeasures to reduce the chances of generating consumers' perceived risk will be provided, along with constructive suggestions for the future application and popularization of WeChat Pay (Huang, 2019; Shi et al., 2017).

1.6 Definition of Key Terms

Customer perception: refers to the level and manner in which a customer perceives a product, service or environment, including perception of risk, perception of safety, etc. In risk management, understanding the level of customer perceptions and preferences is critical to designing effective risk management strategies.

Technical Reliability: the ability of a technical system or product to operate normally under specific conditions, including system stability, security, availability, etc. In risk management, safeguarding technical reliability reduces the risk arising from technical failures.

Social environment: refers to the external environmental factors that affect the operation of an organization or system, including political, economic, cultural, legal and other factors. In risk management, it is necessary to consider the impact of the social environment on the organization or system and how to cope with the risks arising from changes in the social environment.

Risk management: is the process of identifying, assessing, controlling and monitoring risks to achieve the objectives of an organization or system. Risk management involves the perception and understanding of potential risks and taking appropriate measures to reduce the impact of risks on the organization or system.

1.7 Limitation of the Study

The study has a number of limitations that need to be taken into consideration. Firstly, the sample selection bias could potentially impact the generalizability of the findings to the larger population. Secondly, the reliability of the data is essential for accurate research outcomes, and incomplete or inaccurate data could lead to misleading conclusions. Thirdly, limitations in the research design and analytical methods could impact the depth of understanding of the research questions. Additionally, time constraints may prevent the thorough consideration of all relevant factors or the conduct of long-term observations, resulting in a lack of comprehensive understanding of the research population. Environmental factors, such as economic situation, policies, and regulations, may also influence the study's results. Lastly, subjective bias and the attitudes of individual researchers may impact the objectivity and fairness of the findings. It is important to acknowledge and address these limitations when interpreting and applying the research findings.

Chapter 2 Literature Review

2.1 Literature Review

2.1.1 Risk Management Theory

(1) The Content of Risk Management Theory

Enterprises inevitably face various risks in their survival and development processes. Therefore, they need to constantly reduce and guard against payment risks during their business operations. Enterprises should avoid taking risks in complex environments and actively identify potential risks in their business processes. They should also predict and assess risks in advance to maintain them at a low level and minimize economic losses. To address payment risks, enterprises should strive to minimize their occurrence rate and keep them within a tolerable range. The process of identifying and managing risks is complex and challenging, requiring accurate risk assessment and quantification of their impact. Risk management aims to minimize the negative impact of risks and ensure peaceful and beneficial development for the enterprise (Jankensggrd, 2016).

Risk management and control are typically classified into two methods: internal control and external control. Internal control involves the enterprise making internal adjustments to avoid risks, while external control involves the enterprise avoiding risks through the external environment, such as laws and regulations issued by external organizations. These external factors can limit the enterprise from generating new payment risks. The method of risk management by enterprises can be broken down into five steps (Dionne, 2022). Firstly, enterprises should identify the type of risk they are facing, such as credit risk, legal risk, and business risk, in the complex market environment and internal management of the enterprise. Then, enterprises must anticipate the impact of these risks on their business interests. In the second step, the enterprise evaluates the possibility of risk reduction and the potential loss these risks could cause to the enterprise. In the third step, it is important for the business to further quantify the risks. Risk management methods are commonly used by operators to assess the potential cost of risks, which helps in prioritizing them (Dionne, 2022; Hofmann & Scordis, 2020). In the fourth step, it is crucial for the business to effectively manage the risks, prioritizing rational countermeasures. Enterprises must exercise caution in managing risk as it can be complex and constantly changing. Quantifying risks can be

challenging, as some are measurable while others are not. In the fifth step, it is essential for the enterprise to quantify the risk. It is important to note that while risk management only addresses measurable risks and their impact, its significance should not be underestimated (Marotta & McShane, 2018).

(2) Customer Perception

Consumers are the main participants in trading activities, and perceived risk must be influenced by their cognition. Consumer cognition is mainly reflected in the consumer's attitude, shopping experience, and risk appetite meter. Consumers'attitudes have an impact on perceived risk to a certain extent. The negative effect of positive consumer attitudes on perceived risk is significant, while the positive effect of negative consumer attitudes on perceived risk is significant. If consumers are interested in a certain consumer behavior, they will collect relevant information, and the greater the amount of information, the smaller the perceived risk. The greater the interest, the greater the possibility of reducing the perceived risk. Similarly, for mobile payment, if consumers are averse to this payment method or refuse to waste time and energy to learn how to open this payment method, they will not pay much attention to this payment method, and they will be less aware of this payment method, which may generate a greater perceived risk. and vice versa, it will reduce the perceived risk (Meshal Saeed S et al., 2015).

Consumers'consumption experience also affects their perception of risk. In online shopping or TV shopping mode, consumers will increase the frequency of future purchases because of previous successful purchasing experiences, i.e., whether or not they have successful purchasing experiences will affect their perceived risk. In online shopping, consumers with sufficient online shopping experience can increase their knowledge of the Internet or a certain website, which is conducive to making the right consumer decision. These consumers with sufficient online shopping experience can quickly eliminate less credible sellers; thus, the possibility of decision-making errors is greatly reduced, the uncertainty factor in the perceived risk is reduced, and the perceived risk will be reduced as a result. On the contrary, the perceived risk for consumers with less online shopping experience is relatively higher. Based on the above research, this study suggests that whether or not a consumer has experience with mobile payments affects the likelihood of uncertainty in mobile payments and thus affects their perception of risk (Xu et al., 2007).

Consumers' different risk preferences also affect their perceived risk, with adventurous consumers believing that risk is rewarding, which may reduce their

perceived risk, and conservative and prudent consumers thinking carefully and thoroughly, which may increase their perceived risk. The uncertainty of the result and the loss caused by the result are the two aspects of the consumer's perceived risk, which is determined by the consumer's subjective feeling, so consumers with different risk attitudes perceive the uncertainty of the consumption result and the degree of loss caused by the result differently, which in turn generates different perceived risks. In the actual use of mobile payments, the perception of risk by risky consumers will be much smaller than that of conservative consumers (Hofmann & Scordis, 2020; Xu et al., 2007).

2.1.2 Theories of Risk Identification

(1) Definition of the Theory of Risk Identification

Effective risk identification is the first step in risk management. The main purpose of this identification method is to identify risks that actually exist but have not yet manifested themselves, and to utilize various analytical methods to identify them. Risk identification is not only the first step in risk management but also a very important part of risk management (Zhang et al., 2018). It not only identifies and categorizes the risks faced by a business, a family, or even an individual but also helps them to analyze the causes of the risk. Perceiving and analyzing risks are the two main components of risk identification. It is a period of not only determining the existence of a risk but also identifying the conditions under which the risk exists and the consequences that may result from its subsequent occurrence. In this paper, we analyze and classify the risks associated with the use of a third platform for payment by using risk identification theories and models (Zeb & Rashid, 2019).

(2) Technical Reliability

The progress of technology is the basis for the development of mobile payment technology, the higher the maturity of this technology, the higher the degree of use and popularization, and the more individuals will accept mobile payment. The essence of mobile payment and online shopping is similar, both need to use a third-party payment platform (such as WeChat Pay) to complete, so consumers in the use of mobile payment will be concerned about whether these payment platforms can provide effective protection of their privacy and the safe exchange of financial information, and whether the payment platform is designed to be user-friendly. The more mature the technical support provided by the payment platform, the safer the mobile payment process will be for consumers, and the perceived risk will naturally be reduced. Near-field payment is a special form of mobile payment, in which an encrypted chip is implanted into the SIM card of the consumer's cellphone to complete the transaction process through the magnetic field induction when it is close to the consumer, so the degree of security of

the implanted chip will directly affect whether the consumer will use near-field payment as a means of mobile payment. In addition, this study takes the security of the mobile terminal device itself as one of the measures of technology reliability, because the theft or hacking of the mobile terminal may cause the leakage of consumers' personal information and property information, which also affects the perceived risk of consumers (Metcalfet al., 2002).

2.1.3 Information Asymmetry Theory

(1) Definition of Information Asymmetry Theory

Information asymmetry theory refers to the ability and way of obtaining information and industry status of the two sides of the transaction are different, resulting in the buyer and seller in the actual process of the transaction of the information mastery is different. Information asymmetry inevitably makes the individual or merchant, the third party, or the bank have a different degree of understanding of information, which not only leads to the slow development of the third-party payment platform but also leads to consumers and merchants for the payment of information misunderstanding, leading to the three parties in the process of trading there are certain problems (Silva et al., 2010).

On the two sides of the trade, the more information a party has, the more initiative it will hold, and the more favorable to the development of the enterprise itself, in the actual consumer market, some consumers and merchants do not pay attention to information collection, that information collection is optional, the third party does not understand the full range of merchant information, in this context is easy to allow unscrupulous merchants to use the Internet to carry out money laundering, volume of money and other illegal profit-making behavior, to the Banks and third-party payment platforms are prone to serious losses, the bank's original advantages have no use of value, which is the development of the third-party payment platform caused a heavy blow. Information for the third-party payment platform is like its core, the third-party payment platform can only have stronger competitiveness if it owns and masters enough information. In this context, there is also information asymmetry (Schmidt,

Government intervention has a mitigating effect on the loss caused by information asymmetry among the three, and the government plays an important role in the market, which can solve the emergence of market imbalance and other problems. At present, the theory of information asymmetry is increasingly improved, and the development of information economics has brought a qualitative leap, the theory of information asymmetry, widely used in real practice, the application of the effect of good feedback. The theory can explain many economic phenomena in the market economy, which facilitates researchers to carry out further research and lays the foundation for subsequent theoretical research.

(2) Social Environment

The social environment dimension of perceived risk, the consumer as an individual in the whole environment of society, will inevitably be affected by the overall environment, so the consumer's social environment, is a factor that also affects the consumer's perception of risk. Exposure to and use of mobile payment is caused by the influence of factors in the surrounding environment. Such as the recommendation of friends, the advice of others around, etc., at the same time, consumers will use the experience, evaluation of the exchange, and diffusion of influence to more people, thus changing their views and affecting their intention to use. Consumers' purchasing behavior is easily influenced by their surrounding environment, such as friends' evaluations, opinions, and suggestions. Other factors in the social environment can also greatly affect the consumer's perception of risk, these factors specifically include the rules set, relevant policies, laws and regulations, etc. Within the framework established by these factors, consumers will develop a sense of trust and comfort due to the clarity of the rules. When there are clear rules and the purchasing behavior is protected by relevant laws and regulations, the trust of consumers when shopping will increase and the perceived risk will decrease (Taylor, Mulroy, et al., 2005). If consumers are aware of these guarantees in mobile payment countries, they will feel trust and their perceived risk will decrease. From the perspective that brand and reputation can reduce the perceived risk of consumers, this study will discuss whether the promotional factors of society have an impact on the perceived risk of consumers in the context of mobile payments. According to the theory of consumer behavior analysis, an individual's consumption behavior will be influenced by the surrounding environment, which intuitively means that a consumer's purchase intention will be influenced by the perceptions and attitudes of his/her friends or family members. This situation will be even more obvious in China, where the population density is high and the herd mentality is prominent (Taylor, Austin, et al., 2005).

2.2 Research Relevant

E-commerce in the Internet transactions in the scope of the European Union countries were the first to be studied, pointing out that the European Union, as a regulatory authority, unified provisions of the third-party enterprise business model and service object, and to the third-party payment enterprises to provide relevant services and facilities, such as the provision of e-money and so on. Enterprises replace the original offline mode of operation and realize the Internet payment method to create value through third-party payment (Soava et al., 2022). Payment institutions to improve the competitiveness of their products should start from the technical level, and do a good job in product development and real-time iterative updating of products. The trust between buyers and sellers plays a decisive role in the transaction of e-commerce

transactions. Scholars from the perspective of consumers consider the risk problems brought about by third-party payment, third-party payment is the product of the Internet era, and the product of the new era should be able to get a higher degree of consumer acceptance, to do an in-depth investigation and research. Encrypted processing of information plays a key role in the prevention of risk, which can effectively reduce the leakage of information data and reduce the risk. The latest research findings and risks faced by retail payment systems suggest that legal and regulatory policies should focus on the symmetry of information and externalities. The protection of user information on bank cards and other physical and virtual cards containing user information in the business network of the entire payment market (Abendin & Duan, 2021).

To maintain the stability of the economic market, the state has several requirements for enterprises that want to set up third-party payment, such as access conditions, scope of access, etc. These standards are the third-party payment market access system under state supervision. The qualification appraisal of the third-party payment enterprises by the state, to a certain extent, screening out false enterprises, making the economic market environment more open and fair, the third-party payment enterprises can be standardized development. As a new industry, third-party payment has a lot of uncertainty, whether there is an asymmetry between the regulatory needs of enterprises and the regulatory system given by the regulatory authorities needs to be constantly reflected by countries. Different countries differ in their identification of third-party payment enterprises (Zhang, Deng, et al., 2018).

Market Access and Supervision Regulation states that there are differences between the federal level and the states in the U.S. when regulating third-party payment companies (Foster et al., 2021; Zhang, Deng, et al., 2018). In recent years, non-bank payment organizations have ushered in an era of both opportunities and challenges,

with rapid development but also huge risks. Retail e-commerce platforms and other e-commerce platforms need to be monitored by regulators from time to time to keep the industry in a steady state. With the increase in the number of consumer groups, the recognition of third-party payments and other new Internet economic products is also under scrutiny. Consumers perceived risk and willingness to pay online were linked, through the research process, we learned that the greater the customer's perception of risk, the deeper the resistance to online payment, the two present a contradictory negative feedback effect, so the third-party platform if you want to grasp the customer, should take measures according to the causes of the risk, to reduce the consumer's resistance to the psychology. Meanwhile, when facing the panic brought about by third-party payment, citizens should look at it rationally in the light of the general environment of the financial industry and use third-party payment reasonably (Thamet al., 2019).

2.3 Conceptual Framework

According to the literature review, the influencing factors of risk management of WeChat Pay in China are multifaceted. By analyzing risk management theory, risk identification theory, information asymmetry theory, it is proposed that customer perception, technical reliability, social environment are the influencing factors of risk management of WeChat Pay in China. The model framework is shown in Figure 2.2
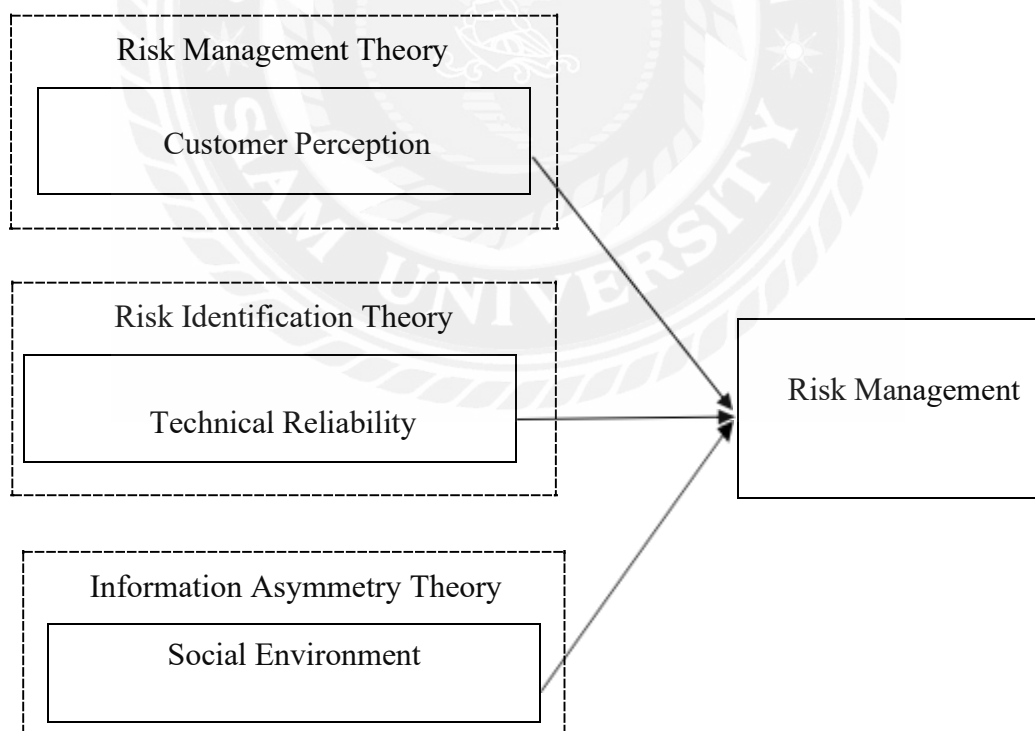

Figure 2.2 Conceptual Framework

Chapter 3 Research Methodology

3.1 Introduction

The study focuses on the elements impacting risk management of WeChat Pay in China. Customer perception, technological reliability, social environment, and risk management are some of the research variables provided during the process. Measurement questionnaires for each variable were created using traditional scales from the study literature. Each variable's reliability and validity were assessed, and correlation analysis can only be performed if both tests pass. Customer Perception has five measurement items. Technical Reliability has five measuring items. Social Environment has five measurement items. Risk Management has six measuring items. This study is based on risk management, risk identification, and information asymmetry theories. The test used a five-point Likert scale, with results ranging from 5 to 1, representing strongly agree, agree, neutral, disagree, and absolutely disagree.

3.2 Research Design

This study adopted the quantitative research. According to the risk management theory, risk identification theory, information asymmetry theory, the study mainly focuses on risk management, with a total of 21 questions in the questionnaire, which is based on a scale. The primary method of data collection in this study is through questionnaires, so the quality of the questionnaire design will be directly related to the measurement items whose overall correlation coefficient is less than 0.4, as well as the measurement items whose factor loading is less than 0.4, and finally the formal questionnaire itself. For the correctness and validity of the research conclusions, based on the design of the formal scale, the questionnaire of this study is mainly divided into two major parts: the first part is mainly to investigate the gender, age, and experience of using WeChat Pay, etc., and the second part is mainly used to investigate the dimensional variables and influencing factor variables of the perceived risks of using WeChat Pay by various. See Table 3.1.

Table 3.1 The Measurement Items

Variable	Measurement Item	NO.
Customer Perception	1. What do you know about the security of WeChat Pay?	Q1
	2. How much do you know about the privacy protection measures of WeChat Pay?	Q2
	3. How do you perceive the risk of WeChat Pay?	Q3

Variable	Measurement Item	NO.
	4. What potential risks do you think exist in using WeChat Pay?	Q4
	5. How would you evaluate WeChat Pay's measures to protect users' funds?	Q5
Technical Reliability	1. What is your perception of the stability of the WeChat Pay system?	Q6
	2. What is your perception of the reliability of the WeChat Pay system?	Q7
	3. How satisfied are you with the efficiency of WeChat Pay System in processing transactions?	Q8
	4. Do you think the WeChat Pay system performs well when processing large numbers of simultaneous transactions?	Q9
	5. What is your opinion on the frequency of system updates and maintenance of WeChat Pay System?	Q10
Social Environment	1. How do you think WeChat Pay has been affected by the social environment in your area?	Q11
	2. How do you think the local government supports the development of WeChat Pay?	Q12
	3. What do you think is the attitude of local merchants towards accepting WeChat Pay?	Q13
	4. Do you think it is socially acceptable to use WeChat Pay in your area?	Q14
	5. How do you think WeChat Pay is being promoted in your area?	Q15
Risk Management	1. What do you know about WeChat Pay's risk management measures?	Q16
	2. How do you think WeChat Pay performs in preventing fraud and fake transactions?	Q17
	3. What is your opinion of WeChat Pay's measures for account security?	Q18
	4. Do you think WeChat Pay's risk management measures are sufficient to protect users from wrongdoing?	Q19
	5. What do you think WeChat Pay can do to improve its risk management?	Q20
	6. Your dissatisfaction with the security aspects of using WeChat Pay.	Q21

3.3 Hypothesis

The independent variables in this study are the customer perception, technical reliability, and social environment. The dependent variable is risk management, and the model is constructed based on the analysis and the relationship between the variables. The relationship between variables is set through hypotheses. Therefore, hypotheses are formulated:

H1: The customer perception has a positive effect on risk management of WeChat Pay in China.

H2: The technical reliability has a positive effect on risk management of WeChat Pay in China.

H3: The social environment has a positive effect on risk management of WeChat Pay in China.

Combined with the above analysis, the hypothetical model of the influencing factors of risk management of WeChat Pay in China, and the interrelationships among the variables are confirmed. See figure 3.1.
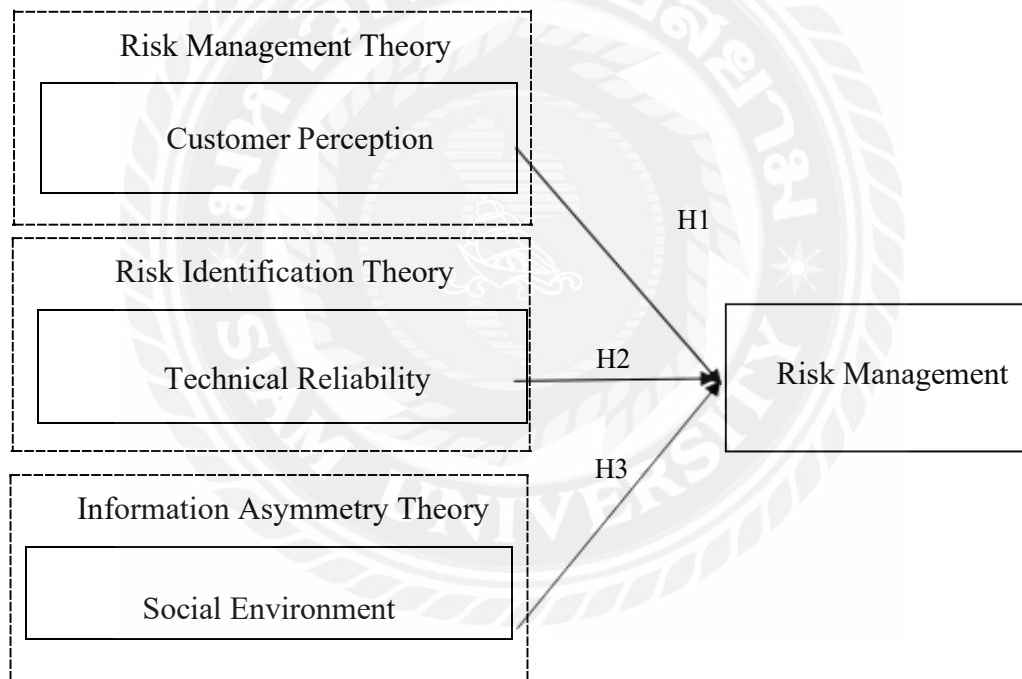

Figure 3.1 Hypotheses

3.4 Population and Sampling

The focus of this study is on consumers who have used WeChat Pays. The questionnaire for this study is distributed via a network. The network questionnaire dissemination primarily takes the form of email and the questionnaire's website. To assure the survey's scientificity and validity, the sampling method was used during the research procedure. The sample size was determined by combining the sample extraction reliability of 99.9%.

$$N = \frac{r^2 * \rho(1-\rho)}{\beta^2}$$

The calculation gives the sample size for this sample survey as 399.89, so the number of people to be sampled is 400.

3.5 Data Collection

This study covers customers who utilize WeChat Pay and has a large sample size. The questionnaire was distributed electronically, with a link to it sent via e-mail or the online survey platform. The obtained data was cleaned and structured, including ensuring that surveys were returned and that the data was complete and logical. The trial ran from November 30, 2023, to February 30, 2024. A total of 400 electronic questionnaires were distributed, with 341 valid questionnaires recovered at an 85.25% rate.

3.6 Data Analysis

3.6.1 Reliability

The questionnaire in this study is an adaptation of a mature questionnaire, which was partially adapted and integrated in this study, and the questionnaire itself was tested for reliability and validity. In empirical research, the results of empirical testing of the relationship between variables will be credible and accurate only if the quality of the data is higher, i.e., when the confidence and validity of the data are high. Therefore, in order to ensure the validity of model fit evaluation and hypothesis testing, the quality of the data should be tested before the empirical test of the relationship between variables, i.e., the reliability and validity tests should be conducted. Reliability is the extent to which the results of a measurement are consistent and stable. It specifically assesses the ability of a researcher to obtain consistent results when measuring similar phenomena or groups in different formats or at different times. The stability, reproducibility, and internal consistency of a scale determine its reliability. All

measurements contain both actual values and error values, and higher reliability indicates lower error values, leading to stable observed values that are not affected by variations in form or time. To ensure the validity of data analysis, this study will use Cronbach's alpha coefficients to assess the internal consistency of reliability. A higher alpha coefficient value for each latent variable indicates a greater reliability of the measured variable, reflecting a higher level of internal consistency within the scale.

The Cronbach's alpha coefficient of customer perception is 0.896, the Cronbach's alpha coefficient of technical reliability is 0.872, the Cronbach's alpha coefficient of social environment is 0.872, and the Cronbach's alpha coefficient of risk management is 0.873. All of them are in the range of 0.8~0.9, which indicates that the reliability of this paper's questionnaire is better, and then the validity can be further analyzed. This indicates that the reliability of the questionnaire of this survey study is very good, as shown in Table 3.2.

Table 3.2 Variable Reliability Test

Variable	Cronbach's Alpha	N of Items
Customer Perception	0.896	5
Technical Reliability	0.872	5
Social Environment	0.872	5
Risk Management	0.873	6

3.6.2 Validity

Validity analysis evaluates the relationship between a measurement and an external criterion. Validity is typically divided into content validity and construct validity. Construct validity can be further broken down into convergent validity and discriminant validity, both of which must be demonstrated for a measurement to be considered to have construct validity. Content validity refers to the ability of a measurement tool to encompass all items of a concept it aims to measure. A measurement instrument is deemed to have content validity if it can cover items that are representative of the concept it is measuring. The measurement variables in this study were obtained from a well-established scale, which was revised and designed with new question items based on the actual study and further adjusted in the pre-survey. Therefore, the measurement instrument used in this study has content validity.

Construct validity refers to the degree to which a measurement tool can measure a theoretical concept or trait, and is primarily assessed through convergent validity and discriminant validity. Convergent validity evaluates the extent to which different items in the same latent variable correlate with each other, while discriminant validity assesses the extent to which one variable differs from another. Exploratory factor analysis and validation factor analysis can be utilized to establish convergent and discriminant validity. Since this study refers to the developed scales but does not fully adhere to them when measuring the variables, exploratory factor analysis will be used to test the construct validity first, followed by validation factor analysis after the structural relationships are established.

In study, the Kaiser-Meyer-Olkin (KMO) sample measure and Bartlett's test of sphericity to evaluate the correlation between the question items. The KMO value is a key indicator of the data's suitability for factor analysis, with values above 0.9 considered very suitable, 0.8-0.9 as suitable, 0.7-0.8 as mediocre, 0.6-0.7 as not very suitable, 0.5-0.6 as unsuitable, and below 0.5 as very unsuitable. Bartlett's test of sphericity assesses whether the correlation matrix is an identity matrix. If not, the factor model is considered suitable. A significant p-value (usually less than 0.05) suggests that the correlation between the scale's variables is significant and suitable for factor analysis. In our study, the KMO value was 0.938, and Bartlett's test indicated a significant level of correlation between the indicators, with a p-value of .000, demonstrating suitability for factor analysis. Factor loading values greater than 0.5 indicate higher convergent validity, and a greater number of items with factor loading values above 0.5 show higher discriminant validity. In our analysis of the 21 items related to risk management and influencing factors of WeChat Pay, we conducted exploratory factor analysis using principal component analysis. We utilized SPSS as the statistical software and applied maximum variance orthogonal rotation to obtain the rotated factor matrix table.

Table 3.3 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.938
Bartlett's Test of Sphericity	Approx. Chi-Square	3957.974
	df	210
	Sig.	0.000

Table 3.4 Total Variance Explained

	Initial Eigenvalues	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings

Component	Total	% of Variance	Cumulative %	% of Variance	Cumulative %	% of Variance	Cumulative %
1	7.275	48.500	48.500	48.500	48.500	23.508	23.508
2	1.566	10.439	58.939	10.439	58.939	22.335	45.844
3	1.350	8.998	67.937	8.998	67.937	22.093	67.937
4	0.593	3.955	71.893				
5	0.567	3.777	75.669				
6	0.500	3.337	79.006				
7	0.465	3.099	82.105				
8	0.432	2.882	84.987				
9	0.401	2.676	87.662				
10	0.371	2.471	90.134				
11	0.340	2.264	92.398				
12	0.327	2.182	94.580				
13	0.307	2.047	96.627				
14	0.260	1.732	98.359				
15	0.246	1.641	100.000				

In order to examine the logic of the scale dimension setting, a factor analysis of the scale of factors impacting risk management of WeChat Pay in China was performed using principal component analysis. The study yielded components with Eigen roots higher than one, with the factors accounting for 67.937% of the total variance. Table 3.4 illustrates the findings of factor analysis following rotation using the maximum variance approach. The Rotated Component Matrixa calculation results reveal that each factor has strong question-item differentiation validity (see Table 3.5).

Table 3.5 Rotated Component Matrix

	1	2	3
Q1	0.818		
Q2	0.744		
Q3	0.803		
Q4	0.769		
Q5	0.760		
Q6			0.789
Q7			0.715
Q8			0.721
Q9			0.765
Q10			0.740
Q11		0.840	
Q12		0.733	
Q13		0.689	
Q14		0.746	
Q15		0.761	
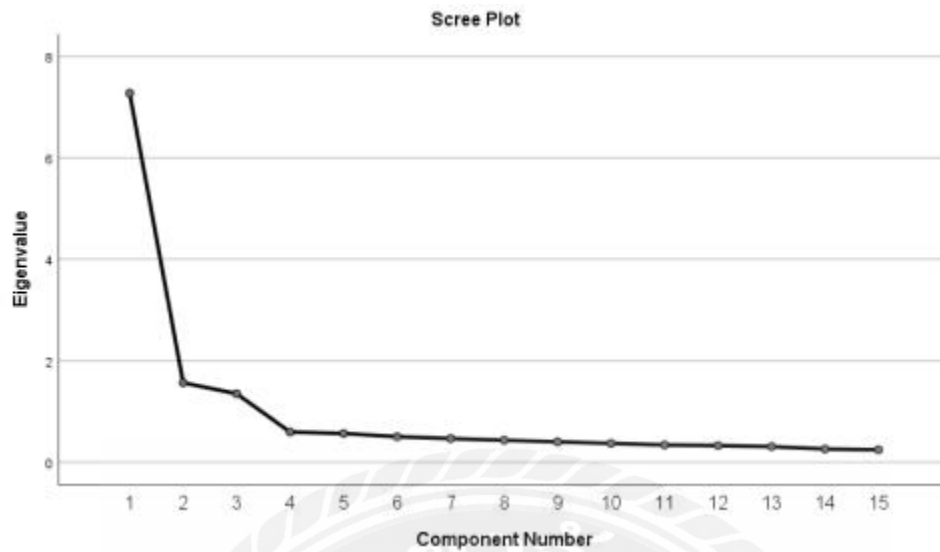
Figure 3.2 Scree Plot

The study's results showed that the rotated principal component matrix revealed that the first factor varied from 1 to 5 questions; the second factor ranged from 11 to 15 questions; and the third factor ranged from 6 to 10 questions. The three key aspects were identified as consumer perception, technological reliability, and social environment. Table 3.5 and Figure 3.2 show that three factors were extracted, and each variable has a high loading on one factor, while the loadings on the other common factors are low, indicating that each variable has better but differentiated validity.

Chapter 4 Findings

4.1 Introduction

The study collected the sum of 341 valid questionnaires, with an 85.25% validity rate. The acquired data were evaluated using descriptive statistics, and the results followed a normal distribution. The association was confirmed due to the unreasonable hypothesized relationship between the variables. Pearson correlation analysis was used to assess the relationship and significance of the variables. Finally, the analysis led to the study's results.

4.2 Description of Statistical Variables

The first part of the questionnaire serves as a sample for statistical purposes, mainly to ensure the authenticity and accuracy of the sample data. To ensure that the sample data is representative, the main demographic characteristics variables include gender, certification certificate, age, education level etc., see Table 4.1. The sample as a whole met the statistical requirements.

Table 4.1 Demographics

Item	Options	Frequency	Percent
GEN	Male	101	30.61
	Female	229	69.39
AGE	18-25	40	12.12
	26-30	75	22.73
	31-35	101	30.61
	36-40	97	29.39
	Over 40	17	5.15
EDU	Bachelor's degree	81	24.55
	Master degree	193	58.48
	Higher than the Master's degree	50	15.15

Descriptive statistics were analyzed for each question item for each variable. The main measurements were the maximum value, minimum value, mean and average of each question item and standard deviation of the variable. The analysis reveals that the maximum value of each question item is 5, the minimum value is 1

and the mean value is above 3.3. In order to better comprehend the overall distribution of the sample data acquired in this survey and whether there are any outliers, statistical analysis was performed on all items using SPSS. Table 4.2 shows a total of 341 samples with a mean distribution of 3.36–3.84 for all measurement questions. There are no missing values or outliers. It can be seen that the sample data acquired this time are appropriately dispersed, with the mean and standard deviation falling within the acceptable range. Descriptive statistical analysis revealed that the proportion of survey respondents was reasonable, and academic qualifications were evenly distributed. As a result, reliability and validity analysis, correlation analysis, and regression hypothesis testing mayall be performed.

Table 4.2 Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q1	341	1	5	3.47	1.189
Q2	341	1	5	3.52	1.182
Q3	341	1	5	3.52	1.167
Q4	341	1	5	3.36	1.082
Q5	341	1	5	3.47	1.099
Q6	341	1	5	3.48	1.126
Q7	341	1	5	3.60	1.051
Q8	341	1	5	3.59	1.156
Q9	341	1	5	3.67	1.190
Q10	341	1	5	3.49	1.195
Q11	341	1	5	3.62	1.353
Q12	341	1	5	3.59	1.187
Q13	341	1	5	3.39	1.086
Q14	341	1	5	3.55	1.035
Q15	341	1	5	3.67	1.106
Q16	341	1	5	3.82	1.097

Q17	341	1	5	3.73	1.075
Q18	341	1	5	3.77	1.146
Q19	341	1	5	3.70	1.154
Q20	341	1	5	3.82	1.104
Q21	341	1	5	3.84	1.053

4.3 Results of the Study

Correlation analysis is the process of examining two or more correlated elements of a variable in order to determine how tight the correlation is between the two elements. Correlation analysis requires a link or probability between the associated elements. In order to investigate the relationship between various groupings, Correlation analysis has unquestionably become the greatest approach to statistical analysis. The Pearson correlation coefficient (r), which ranges from -1 to 1, is used to determine whether a correlation exists between variables. The closer the r value is to 1 or -1, the greater the connection; closer to 0, the weaker the correlation. Table 4.3 shows that the correlation coefficient r values range from 0 to 1 and are highly correlated at the 0.01 level. The variables show a substantial connection ($P<0.01$).

Table 4.3 Correlation Between Variables (Pearson Correlation Matrix)

Correlations				
	Customer Perception	Technical Reliability	Social Environment	Risk Management
Customer Perception	1	.587**	.546**	.474**
		0.000	0.000	0.000
	341	341	341	341
Technical Reliability	.587**	1	.584**	.436**
	0.000		0.000	0.000
	341	341	341	341
Social	.546**	.584**	1	.464**

Environment	0.000	0.000		0.000
	341	341	341	341
Risk Management	.474**	.436**	.464**	1
	0.000	0.000	0.000	
	341	341	341	341

NOTE：*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation coefficient between the customer perception and risk management is 0.474, and P<0.01, indicating that there is a correlation between the customer perception and risk management, and it is a general correlation.

The Pearson correlation coefficient between the technical reliability and risk management is 0.436, and P<0.01, indicating that there is a correlation between the technical reliability and risk management, and it is a general correlation.

The Pearson correlation coefficient between the social environment and risk management is 0.464, and P<0.01, indicating that there is a correlation between the social environment and risk management, and it is a general correlation.

Therefore, according to the results of data analysis, the customer perception has a positive effect on risk management of WeChat Pay in China. Hypothesis H1 holds. The technical reliability has a positive effect on risk management of WeChat Pay in China. Hypothesis H2 holds. The social environment has a positive effect on risk management of WeChat Pay in China. Hypothesis H3 holds.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

This study collected an amount of 341 valid questionnaires, with an 85.25% validity rate. This chapter focuses on the elements that influence WeChat Pay risk management and suggests countermeasures. After combining risk management theory, risk identification theory, and information asymmetry theory to categorize the factors affecting WeChat Pay risk management, it identifies consumer cognition, technological reliability, and social environment as the most important factors influencing WeChat Pay risk management and elaborates on how they affect WeChat Pay risk management. Correlation analysis was then used to determine the degree to which each of these criteria influenced WeChat Pay risk management. The findings indicate that consumer cognition, technical reliability, and the social environment all have a substantial impact on WeChat Pay risk management, with the degree of influence being roughly equal. The research on the influencing elements in WeChat Pay risk management provides a solid foundation for countermeasures and management ideas.

5.1.1 The Customer Perception Has a Positive Effect on Risk Management of WeChat Pay in China

The Pearson correlation coefficient between the customer perception and risk management is 0.474, and P<0.01, indicating that there is a correlation between the customer perception and risk management, and it is a general correlation. This finding suggests that there is a correlation between customer perception and WeChat Pay risk management, specifically, the Pearson correlation coefficient between them is 0.474, while the p-value is less than 0.01, which means that this correlation is statistically significant. The Pearson correlation coefficient measures the degree of linear correlation between two variables, and its value ranges from -1 to 1. The 0.474 correlation coefficient indicates that there is some degree of positive correlation between customer perception and risk management, i.e., as customer perception increases, the level of risk management increases accordingly or viceversa. p-value of less than 0.01 means that we can reject the null hypothesis that there is no correlation between customer perception and risk management. Therefore, this study has good reasons to believe that there is indeed some correlation between customer perception and risk management of WeChat Pay. Finally, the research conclusion states that this correlation is a general correlation, which means that the relationship between customer

perception and risk management is not very strong, but it is not completely irrelevant either. This finding is an important guide to the practice of risk management in WeChat Pay and helps to develop more effective risk management strategies.

5.1.2 The Technical Reliability Has a Positive Effect On Risk Management of WeChat Pay in China

The Pearson correlation coefficient between the technical reliability and risk management is 0.436, and P<0.01, indicating that there is a correlation between the technical reliability and risk management, and it is a general correlation. The results of this study indicate that there is a degree of correlation between technical reliability and risk management. Specifically, the Pearson correlation coefficient is 0.436 while the p-value is less than 0.01, which means that this correlation is statistically significant. A correlation coefficient of 0.436 indicates that there is a positive correlation between technical reliability and risk management, i.e., an increase in technical reliability may lead to an increase in the level of risk management or viceversa. Ap-value of less than 0.01 indicates that we can reject the null hypothesis, i.e., there is no correlation between technical reliability and risk management. Effective management of technological risk is of great significance and helps to develop more effective risk management strategies.

5.1.3 The Social Environment Has a Positive Effect on Risk Management of WeChat Pay in China

The Pearson correlation coefficient between the social environment and risk management is 0.464, and P<0.01, indicating that there is a correlation between the social environment and risk management, and it is a general correlation. The results of this study indicate that there is a degree of correlation between social environment and risk management. Specifically, the Pearson correlation coefficient is 0.464 while the p-value is less than 0.01, which means that this correlation is statistically significant. A correlation coefficient of 0.464 indicates that there is a positive correlation between the social environment and risk management, i.e., changes in the social environment may affect changes in the level of risk management or viceversa. Ap-value of less than 0.01 indicates that we can reject the null hypothesis, i.e., there is no correlation between the social environment and risk management.

Table 5.1 Hypothesis Testing

NO.	Hypothesis	Result
H1	The customer perception has a positive effect on risk management of WeChat Pay in China.	Established
H2	The technical reliability has a positive effect on risk management of WeChat Pay in China.	Established
H3	The social environment has a positive effect on risk management of WeChat Pay in China.	Established

5.2 Recommendation

5.2.1 Enhancing Consumer Perception

When it comes to the positive correlation of consumer perceptions with the risk management of WeChat Pays, a series of detailed measures are needed to enhance the level of user awareness. First, to ensure that users understand how to use WeChat Pay correctly and to raise their awareness of potential risks, we need to provide clear, easy-to-understand user guides and security tips. These guides should cover how to set up payment passwords, how to verify transaction information, and how to recognize suspicious transactions, as well as provide relevant case studies and solutions. Second, in order to strengthen users' security awareness and skills, user education and training can be provided through a variety of means. This includes organizing online or offline training courses, seminars, or workshops, as well as producing educational videos or infographics to help users understand how to secure their accounts and identify and respond to wrongdoing.

Third, enhanced security awareness campaigns are essential. Publicity on WeChat Pay's security awareness is continuously strengthened through advertisements, brochures, social media, and other channels. This includes providing real-life cases, expert advice, and up-to-date security tips so that users can have a more comprehensive understanding of security issues. In addition, in order for users to receive timely help and feedback when they encounter problems, convenient customer service support and complaint feedback channels need to be established. These channels should include online customer service, telephone hotlines, email support, etc., so that users can contact the relevant personnel at any time to seek help or report problems. Finally, continuous improvement of the user experience is key to enhancing user perception and improving risk management capabilities. This includes continuously optimizing WeChat Pay's interface design, operation process, and function settings to ensure that users can easily and conveniently complete payment operations.

5.2.2 Improving Technical Reliability

Guaranteeing technology and security in mobile payment is an important means to increase the proportion of consumers paying by WeChat and to increase consumers' trust in WeChat Pay, and each participant in the field of mobile payment should adopt various means to improve the level of technology and prevent the technical risks arising from the process of mobile payment. First of all, the three operators in the field of mobile payment, including commercial banks, communication companies, and third parties, should coordinate the division of labor in mobile payment, emphasize the technical guarantee, improve awareness of security responsibility, and ensure that all aspects of the field of mobile payment meet the requirements to prevent and eliminate the technical problems of consumers, stores, and communication companies. Communication companies and operators must ensure the security of software and hardware in mobile payment and establish a sound security mechanism in each link to cope with possible technical problems in mobile payment.

Secondly, operators of communication companies should improve the security level of cellphones and other devices involved in the software used in mobile payment and carry out security monitoring of terminal equipment in mobile payment to ensure the security level of cellphones in mobile payment. At the sametime, operators should design software that can bind the user's cell phone and ID card, which can be used to help confirm the user's identity and improve the user's security level. The key to improving the level of mobile payment technology lies in the security of cell phone users and mobile payment banks. The operators of communication companies should ensure that the passwords used by cellphone users are absolutely safe and confidential to others when they are interfacing data with mobile payment banks, so as to prevent economic losses caused by technical failures. Finally, mobile operators should strengthen the exchange and cooperation with commercial banks and third parties to solve the problems in mobile payment, improve the technical level of mobile payment, improve the technical means in all aspects of the mobile payment field, and improve the security level of mobile payment. Through the development of mobile payment terminal equipment such as cell phones and password protection to prevent the technical risks that may arise in mobile payment.

5.2.3 Improving Social Environment

The risk management of WeChat Pay in China is profoundly affected by multiple socio-environmental factors. First, China's high level of technological penetration and continued growth in smartphone penetration and frequency of mobile payment use expose WeChat Pay to more users and transactions, but also imply more potential risks of cyber-attacks and fraudulent behavior. Second, China's unique cyber environment,

such as its large e-commerce market and online payment ecosystem, provides WeChat Pay with abundant business opportunities but also places higher demands on the stability and security of the payment system. Meanwhile, the Chinese government strictly regulates the payment industry and has introduced a series of regulations and policies to standardize the market order, protect users' rights and interests, and ensure the sound operation of the financial system, which poses challenges and opportunities of WeChat Pay's compliance and risk management. In addition, Chinese consumers have a high level of trust in mobile payments and are accustomed to using WeChat Pay for all kinds of consumer activities, which provides WeChat Pay with a broad market space but also requires WeChat Pay to continuously strengthen its technical security and improve its service quality and user experience in order to maintain user trust and recognition. To summarize, WeChat Pay needs to strengthen risk management in terms of technical security, network environment, government regulation, and social trust to adapt to the changing social environment and market demand and to ensure the sound operation of the payment system and the security of user data.

References

Abendin, S., & Duan, P. (2021). Global e-commerce talks at the WTO: Positions on selected issues of the united states, European union, china, and japan. *World Trade Review*, *20*(5), 1–18. https://doi.org/10.1017/s1474745621000094

Cao, L. (2019). Research on two decision models in third-party payment platform transaction. *Wireless Personal Communications*, *110*(1), 141–151. https://doi.org/10.1007/s11277-019-06716-0

Dionne, G. (2022). Risk management: History, definition, and critique. *Risk Management and Insurance Review*, *16*(2), 147–166.

Fan, X., Zhao, W., Zhang, T., & Yan, E. (2020). Mobile payment, third-party payment platform entry and information sharing in supply chains. *Annals of Operations Research*, *45*(45).https://doi.org/10.1007/s10479-020-03749-8

Foster, I., Kesselman, C., & Tuecke, S. (2021). The anatomy of the grid: Enabling scalable virtual organizations. *The International Journal of High Performance Computing Applications*, *15*(3), 200–222. https://doi.org/10.1177/109434200101500302

Hofmann, A., & Scordis, N. A. (2020). Challenges in applying risk management concepts in practice: A perspective. *Risk Management and Insurance Review*, *21*(2), 309–333.https://doi.org/10.1111/rmir.12106

Huang, R. (2019). Real money, real me: Life told by third-party mobile payment platforms. *European Journal of Life Writing*, *8*(56), DM100–DM117. https://doi.org/10.21827/ejlw.8.35552

Jankensggrd, Hh. (2016). A theory of enterprise risk management. *SSRN Electronic Journal*, *67*(4).https://doi.org/10.2139/ssrn.2753106

Marotta, A., & McShane, M. (2018). Integrating a proactive technique into a holistic cyber risk management approach. *Risk Management and Insurance Review*, *21*(3), 435–452.https://doi.org/10.1111/rmir.12109

Meshal Saeed S, A., Bander Sayaf Z, A., & Ahmed Saeed A, A. (2015). Does customer service matter? A customer perception of bank services in Islamic countries. *International Journal of Innovation and Economic Development*, *1*(2), 29–38.https://doi.org/10.18775/ijied.1849-7551-7020.2015.12.2004

Metcalf, B. S., Curnow, J. S. H., Evans, C., Voss, L. D., & Wilkin, T. J. (2002). Technical reliability of the CSA activity monitor: The early bird study. *Medicine & Science in Sports & Exercise*, *34*(9), 1533–1537.

https://doi.org/10.1097/00005768-200209000-00022

Schmidt, W. (2015). Supply chain disruptions and the role of information asymmetry. *Decision Sciences*, *46*(2), 465–475.https://doi.org/10.1111/deci.12133

Shi, J., Jin, L., Li, J., & Fang, Z. (2017, September 1). *A smart parking system based on nb-iot and third-party payment platform*. IEEE Explore. https://doi.org/10.1109/ISCIT.2017.8261235

Silva, P., Mota, J., Esliger, D., & Welk, G. (2010). Technical reliability assessment of the actigraph GT1M accelerometer. *Measurement in Physical Education and Exercise Science*, *14*(2), 79–91. https://doi.org/10.1080/10913671003715524

Soava, G., Mehedintu, A., & Sterpu, M. (2022). Analysis and forecast of the use of e-commerce in enterprises of the European union states. *Sustainability*, *14*(14), 8943.https://doi.org/10.3390/su14148943

Taylor, S., Austin, M. J., & Mulroy, E. A. (2005). Evaluating the social environment component of social work courses on human behavior and the social environment. *Journal of Human Behavior in the Social Environment*, *10*(3), 61–84. https://doi.org/10.1300/j137v10n03_03

Taylor, S., Mulroy, E. A., & Austin, M. J. (2005). Social work textbooks on human behavior and the social environment. *Journal of Human Behavior in the Social Environment*, *10*(3), 85–110.https://doi.org/10.1300/j137v10n03_04

Tham, K. W., Dastane, O., Johari, Z., & Ismail, N. B. (2019). Perceived risk factors affecting consumers' online shopping behaviour. *SSRN Electronic Journal*, *6*(4). https://doi.org/10.2139/ssrn.3498766

Xu, Y., Goedegebuure, R., & Van der Heijden, B. (2007). Customer perception, customer satisfaction, and customer loyalty within Chinese securities business. *Journal of Relationship Marketing*, *5*(4), 79–104. https://doi.org/10.1300/j366v05n04_06

Yao, Y., & Li, J. (2022). Operational risk assessment of third-party payment platforms: A case study of china. *Financial Innovation*, *8*(1). https://doi.org/10.1186/s40854-022-00332-x

Zeb, S., & Rashid, A. (2019). Systemic risk in financial institutions of BRICS: Measurement and identification of firm-specific determinants. *Risk Management*, *45*(2).https://doi.org/10.1057/s41283-018-00048-2

Zhang, M., Liu, S., Xia, X., Cui, Y., & Li, X. (2018). Identification of novel mutations and risk assessment of Han Chinese patients with autosomal dominant polycystic kidney disease. *Nephrology*, *6*(77). https://doi.org/10.1111/nep.13270

Zhang, Y., Deng, R., Liu, X., & Zheng, D. (2018). Outsourcing service fair payment based on block chain and its applications in cloud computing. *IEEE Transactions on Services Computing*, *44*(3), 1–1. https://doi.org/10.1109/tsc.2018.2864191

Appendix Questionnaire

Dear Sir/Madam,

Thankyou for your participation in this questionnaire survey. The survey will be conducted anonymously, and your relevant information will be kept confidential. Thankyou again for your cooperation.

Part Ⅰ :

1. Gender   Male   Female

2.Age A 18-34   B35-44   C45-54   D above 54

3. Education   1. Bachelor's degree   2. Master degree
            3. Higher than the Master's degree   4. Other

Part Ⅱ : Please judge to what extent you agree with the following statement, please choose the most appropriate option, and mark the corresponding number "√". The questionnaire used Likert scale, ranging from 1 to 5 in which 1 indicates strongly disagree (or strongly disagree), 2 indicates relatively disagree (or relatively disagree), 3 indicates neutral, 4 indicates relatively agree (or relatively agree), and 5 indicates strongly agree (or strongly agree)

Measuring item	1	2	3	4	5
Customer Perception					
1. What do you know about the security of WeChat Pay?					
2. How much do you know about the privacy protection measures of WeChat Pay?					
3. How do you perceive the risk of WeChat Pay?					
4. What potential risks do you think exist in using WeChat Pay?					
5. How would you evaluate WeChat Pay's measures to protect users' funds?					
Technical Reliability					
1. What is your perception of the stability of the WeChat Pay system?					
2. What is your perception of the reliability of the WeChat Pay system?					
3. How satisfied are you with the efficiency of WeChat Pay System in processing transactions?					
4. Do you think the WeChat Pay system performs well when processing large numbers of simultaneous transactions?					
5. What is your opinion on the frequency of system updates and maintenance of WeChat Pay System?					
Social Environment					
1. How do you think WeChat Pay has been affected by the social environment in your area?					
2. How do you think the local government supports the development of WeChat Pay?					

3. What do you think is the attitude of local merchants towards accepting WeChat Pay?					
4. Do you think it is socially acceptable to use WeChat Pay in your area?					
5. How do you think WeChat Pay is being promoted in your area?					

Risk Management					
1. What do you know about WeChat Pay's risk management measures?					
2. How do you think WeChat Pay performs in preventing fraud and fake transactions?					
3. What is your opinion of WeChat Pay's measures for account security?					
4. Do you think WeChat Pay's risk management measures are sufficient to protect users from wrongdoing?					
5. What do you think WeChat Pay can do to improve its risk management?					
6. Your dissatisfaction with the security aspects of using WeChat Pay.					