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Fintech firms and banks: a challenge or opportunity

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ABSTRACT

In view of the fact that Financial technology (Fintech) industry has been rapidly growing in recent years, traditional banks have to respond in an active way to avoid market share dilution and keep revenue growth. It is crucial to investigate the relationship between fintech firms and traditional banks. This thesis aims to clarify whether fintech firms are challenges or opportunities for traditional banks. Furthermore, this research provides a basic view of recent trend in Fintech and examines the comparative advantages of Fintech over traditional banks. In addition, the internal and external risks related to development of Fintech for traditional banks are discussed. The study uses a survey methodology, collects 112 valid responses from Wenzhou-Kean University students, and conducts multiple correlation and regression analysis to investigate the relationship between customer satisfaction and three factors of mobile banking which are usefulness, ease of use, and safety. The results of hypothesis testing demonstrate that these three factors all have a significant impact on customer satisfaction with a positive relationship. The findings present that ease of use is the most important factor in influencing customer satisfaction and provide practical recommendations for banks to improve mobile banking by focusing on important factors, including ease of use, usefulness, and safety.

Key words: Fintech; Traditional Banking; Customer Satisfaction; Usefulness; Ease of Use; Safety

1. INTRODUCTION

The Financial Stability Board defines FinTech as financial innovation that causes new business models and that is driven by emerging technologies such as big data, cloud computing, and artificial intelligence (Navaretti, Calzolari, & Pozzolo, 2017). It has been widely recognized that financial technology (FinTech) has been expanding rapidly in financial markets and inevitably FinTech has aroused hot discussion among the public for the past years. After the financial crisis of 2008, the government imposed stricter regulation in banking, while the free environment sufficiently allowed FinTech firms to grow at an abnormal speed.

FinTech firms have some comparative advantages over traditional banks, and they make use of these advantages to capture the market share, which leads to increase in competition and lowers the profit margin of banks. The huge technological advance constitutes a disruptive force in the financial markets and changes customers' behaviors. In response to this FinTech revolution, the public holds different opinions in the relationship between FinTech companies and banks. Some people regard FinTech as a challenge and argue that FinTech will replace traditional banks in the near future, while others see it as an opportunity for banks. Hence, it is vital to discuss the relationship between FinTech firms and banks and clarify the impact of FinTech on the future of banks.

This thesis aims to identify the opportunities and risks of FinTech for banks and tries to answer whether the development of fintech is a challenge or an opportunity for banks. This thesis is organized as follows: it provides a basic view of the recent trend of FinTech, examines the comparative advantages of FinTech over traditional banks, clarifies the main risks related to the development of fintech for traditional banks, and investigates the factors which can influence customer satisfaction in mobile banking as well as provides practical recommendations to banks regarding mobile banking services.

This thesis uses a survey research design to collect original data from available mobile banking customers who are Wenzhou-Kean University college students. Multiple correlation and regression

analysis will be used to investigate and clarify the relationship between factors of mobile banking services and customer satisfaction. In the model, three independent variables - usefulness, ease of use, and safety - are investigated to test the hypotheses regarding whether there is significant relationship between those factors and customer satisfaction.

2. LITERATURE REVIEW

2.1 Recent Trends in FinTech

In recent years, FinTech has been growing rapidly and playing an indispensable role in accelerating the national economy. It is forecasted that the FinTech segment will grow at an average annual rate of 40 percent in the coming years (Ya-Ning Li, 2019). The rising of FinTech started from 2008 has been disrupting and influenced the banking industry. In turn, banks have to figure out the strategy to survive in the financial revolution (Ozaee & Sohrabi, 2017).

Historically, most FinTech companies remained and developed locally. For example, Ant Financial, the largest FinTech in the world, attracts its customers mainly from inside China. However, the trend of globalization in FinTech companies becomes popular and mature. More and more FinTech ventures, such as Branch and Tala, seek to embrace global markets instead of local markets in order to grow rapidly (Lazarow, 2019). This corresponds to the findings in the 2018 FinTech 100, a report conducted by Accenture annually, announces the world's leading FinTech innovators in 2018. The findings from this report show that global competition continues to expand and Chinese FinTech companies continue to dominate the FinTech industry (Blackman, 2018).

2.1.1 Investment in FinTech

An important aspect when analyzing recent trend in FinTech is how active FinTech industry behaves in capital market. The investors with business acumen are at the forefront of the FinTech trend and try to capture the great opportunity of winning capital gains with the prospect of FinTech growth trend. It has been estimated that the global investment in FinTech has been increasing tremendously (Románova & Kudinska, 2016). The same claim is made by Rafiq that the global investment in FinTech has rose rapidly in 2017 (Rafiq, 2018). Recent statistics show that the amount of financing for FinTech firms achieved 87.75 billion Yuan (RMB) in 2018 (Ya-Ning Li, 2019). Furthermore, Chinese established companies, such as Alibaba and JD.com, are actively involved in fundraising activity for

further development in FinTech (Wozniak, 2016).

2.1.2 Major areas of FinTech Application

Numerous studies focus on clarifying major areas of FinTech and the range of services provided by FinTech. Typically, FinTech involves peer-to-peer lending and insurance, payments, virtual currencies, wealth management, and crowd funding (Ya-Ning Li, 2019). Navaretti, Calzolari, and Pozzolo (2017) summarized the main areas of FinTech into three fields: payments, funds management, and insurance. Furthermore, in the study by Alistair Milne (2016), payment and finance management fall again into the major areas of FinTech, and other three major areas pointed out by Milne are capital markets technology, data analytics, bank credit and corporate financial information.

It is quite obvious to notice that payment and investment management frequently appear in the major areas of FinTech determined in different studies. Based on the value of investment in FinTech companies, the most investment-attractive services are finance and investment as well as payments (Románova & Kudinska, 2016). Furthermore, according to the report the 2018 FinTech 100, it shows that payments and wealth management companies dominate the FinTech100 (Blackman, 2018).

2.2 Comparative Advantages of FinTech

There are comparative advantages of FinTech compared to traditional banking, and this section will discuss four main comparative advantages of FinTech.

2.2.1 Low Cost

With the help of software-based and automated services, the current services cost will be significantly reduced (Castejón Teruel, 2018). The financial products will be highly standardized and data-based, which allows providing services at a lower cost (Románova & Kudinska, 2016). The cost of search will decrease, because data can be accessed and process in real time and this enable

financial markets to run more efficiently and smoothly with less time gap (Navaretti, Calzolari, & Pozzolo, 2017).

Another big factor causing lower cost of FinTech over traditional banks is its genuine characteristic that FinTech businesses are fully internet-based (Románova & Kudinska, 2016). That is to say, huge physical distribution expenses that traditional banks need to pay is ignorable for FinTech firms (Castejón Teruel, 2018).

2.2.2 Low Risk

Technological advancements enable information to be transferred in a cheaper and more stable way (Navaretti, Calzolari, & Pozzolo, 2017). Users normally consider security as their priority when they deal with their money. FinTech, utilizing big data and cloud computing, is able to detect fraudulent deals and unnormal behaviors in order to guarantee the safety of users' assets (Castejón Teruel, 2018). Besides, FinTech companies match parties directly, and this can avoid maturity risk and default risk (Románova & Kudinska, 2016).

2.2.3 Wide Coverage of Users

FinTech is easy-to-access and it can cover customers who banks fails to attract or are not interest in, such as small businesses, retail customers, and people who are unbanked. The needs of small businesses can be satisfied with innovative FinTech products and small businesses can benefit from financial products which banks do not offer (Morrison, 2016). With a disintermediated model, FinTech can cover specific need of retail investors. For example, P2P lending platforms can be easily accessible to individuals and retail customers can get an alternative to loans from the platforms to solve their financing need (Castejón Teruel, 2018). Long-tail customers might be ignored by traditional banks, but FinTech firms concentrate on attracting them by offering innovate and tailored financial products and services (Ya-Ning Li, 2019).

2.2.4 Convenience and Customer Focus

FinTech enable transactions to be settled electronically and allow people to access to financial products conveniently through their mobile phones (Morrison, 2016). Customers can easily interact with mobile applications at any time and place where various financial products are offered by FinTech firms. There is no need for customers to enter into a branch. Most of tedious processes can be completed online automatically and intellectually in a short time (Castejón Teruel, 2018).

To compete with traditional banks, many FinTech firms differentiate themselves from banks by providing focused financial products for a specific need of customers (Cabell, 2019). The customer-oriented culture and value proposition is pursued by FinTech firms and they strive to provide more personalized financial products to customers (Castejón Teruel, 2018).

2.3 Risks Related to Development of FinTech

Due to the above-mentioned advantages of FinTech, traditional banks are faced with threatens from development of FinTech companies (Strypa & Kondrat, 2018). It is necessary to clarify and analyze the risks encountered by banks.

In light of the comparative advantages and rapid development of FinTech companies, the competition in financial services increases which lead to dilution of banks' market share and decrease in revenues (Románova & Kudinska, 2016). Similar claim is made by Temelkov that decrease in customer base causes decrease in profits (Temelkov, 2018). Furthermore, the competition might not be limited to FinTech companies. Internet giants such as Google and Apple are targeting at the field of FinTech and they are potential with advanced technology and tremendous database (Vives, 2017).

In addition to the risks from development of FinTech, there are risks brought by cooperation between banks and FinTech firms. If banks and FinTech companies chose to collaborate, they will be

faced with risks such as cultural fit, cybersecurity issues, uncertainty of investment, and technical complication in integrating FinTech functions (Temelkov, 2018).

2.4 Factors of Mobile Banking Influencing Customer Satisfaction

One typical application of technology used by banks is mobile banking. To provide practical recommendations to banks regarding mobile banking services, it is crucial to clarify what factors will influence customer satisfaction in mobile banking services and what is the current satisfaction and expectations of customers in mobile banking services.

In the survey done by Kahandawa and Wijayanayake, they claim that customers care about whether the application is useful and easy to use (Kahandawa & Wijayanayake, 2014). Gomachab concludes that the overall satisfaction of consumers will be influenced by factors such as convenience, reliability, and cost effectiveness (Gomachab, 2018). Besides, in the finding of Sonwalkar and Ekta Rokade, customers regard safety as priority and they also care about how easy it is to use the mobile banking applications (Sonwalkar & Rokade, 2016).

3. METHODOLOGY & DATA

This section mainly discusses what kind of data will be used and how to get the dataset. In addition to data, the target population will be clarified.

3.1 DISCUSSION OF DATASET AND SAMPLE:

3.1.1 Discussion and Explanation of Dataset:

The thesis used a survey instrument to collect primary data from respondents in order to investigate factors that affect customer satisfaction regarding mobile banking services of traditional banks, as well as to find out what is the current satisfaction and expectations of customers in mobile banking services. There are overall 112 valid responses collected from the respondents.

The questionnaire is shown in Appendix A and it comprises of four parts: The first part collects demographic profile about respondents' personal information, such as gender, college year. The second part investigates how respondents think of fintech compared to traditional banking and how they fintech applications. In the third part, the frequency of using mobile banking and what services of mobile banking are used are explored. The last part deals with respondents' attitudes towards factors of mobile banking and customer satisfaction with mobile banking services by using five-point attitudinal Likert scale to numerically measure variables.

The online questionnaire is developed by a platform called Sojump and it can be conveniently shared through social media like QQ or Wechat. With strong numerical analysis tool, Sojump helps to collect and analyze the responses of questionnaires. Besides, the platform stores the original feedback of respondents in the database and can be repeatedly used for data analysis and results interpretation.

The survey instrument uses multiple-item method and each variable has its own measures which have been adopted and validated by previous researchers. The measures are shown in Appendix B.

3.2 Discussion of Sample:

The study is carried out in Wenzhou-Kean University (WKU), and the sample respondents of the survey are mobile banking customers, mainly focusing on WKU students who are available mobile banking customers. In addition, simple random sampling method is used in the thesis to make the results more valid and less biased. The researcher intends to involve at least 100 respondents to make the result interpretation more accurate.

3.2 DISCUSSION OF METHODOLOGY & MODEL:

This section will discuss what type of statistical method the research plan to use in the data analysis. In addition to method, factors influencing customer satisfaction with mobile banking services that the research plans to use in the survey will be clarified. Besides, hypotheses used to determine the statistical significance of the impact of factors on customer satisfaction with mobile banking will be illustrated.

3.2.1 Discussion and Explanation of Methodology:

In this thesis, multiple correlation and regression analysis is used to investigate and clarify the relationship between factors of mobile banking services and customer satisfaction. Hypothesis testing is conducted based on the regression results. Similarly, correlation analysis is performed to check the intensity of relationship between factors of mobile banking and customer satisfaction.

The study uses descriptive statistics to answer research questions and describe responses. Besides, Excel and SPSS software will be used for data processing to conduct quantitative analysis.

3.2.2 Discussion and Explanation of Model and Hypotheses:

In multiple correlation and regression model, based on the discussions in literature review, three main factors influencing customer satisfaction with mobile banking services are decided to be used and

these three factors are usefulness, ease of use, and safety. Hence, independent variables are usefulness, ease of use, and safety, and depend variable is customer satisfaction. The regression equation in the regression analysis is developed as follow:

$$Satisfaction = \alpha + \beta_1 Usefulness + \beta_2 Ease\ of\ Use + \beta_3 Safety + \varepsilon$$

In the regression analysis, three null hypotheses are set as below:

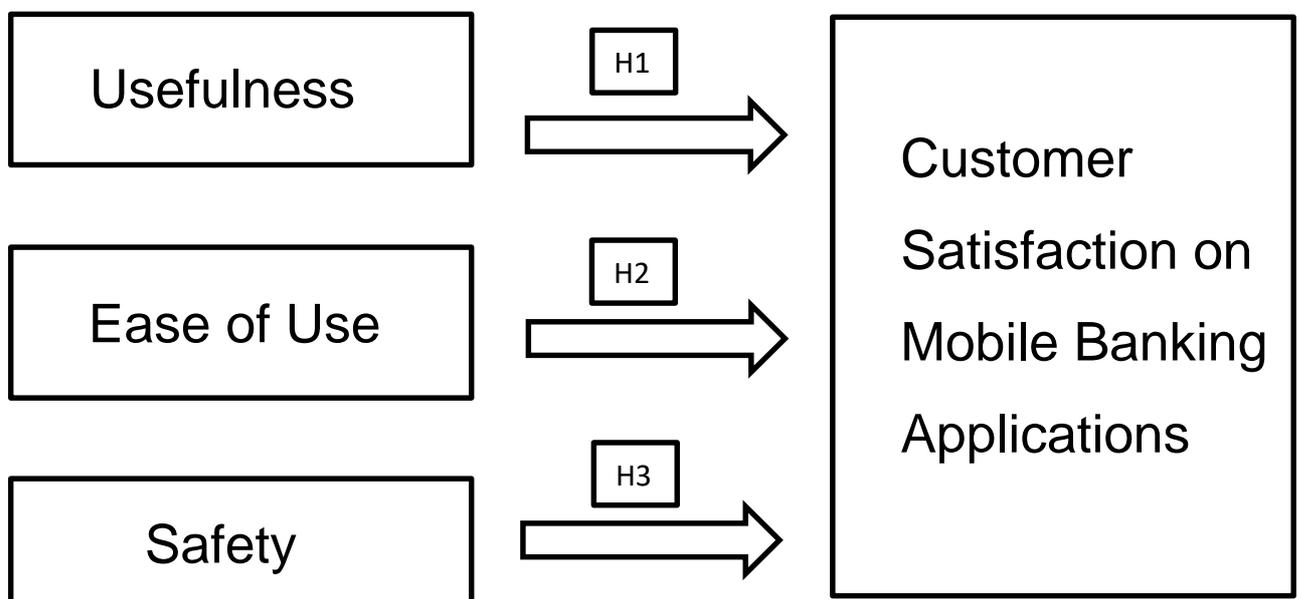
H_{01} : Usefulness of mobile banking applications has no impact on customer satisfaction.

H_{02} : Ease of use of mobile banking application has no impact on customer satisfaction.

H_{03} : Safety of mobile banking application has no impact on customer satisfaction.

The level of significance used for the hypotheses testing is set at 0.1. The conceptual framework presented below visually shows the factors that will be tested in the study, which are usefulness, ease of use, safety, and customer satisfaction.

Fig. 1. Conceptual Framework



4. ANALYSIS AND FINDINGS

This section discusses the analyses and shows the findings drawn from the dataset collected from mainly Wenzhou-Kean University students through online questionnaire. The findings are shown below:

Research Question 1:

What is the recent trend of Fintech?

As have been stated earlier in the literature review, Fintech industry has been growing rapidly in various aspects and playing an increasingly crucial role in the financial markets. Many researchers pay their attention to Fintech and try to clarify major areas of Fintech, which normally include crowdfunding, blockchain and cryptocurrency, mobile payments, wealth management, peer-to-peer lending, and insurance (Románova & Kudinska, 2016). In the survey, respondents are asked to present their usage in these fintech applications, and the results are shown in Table 1 below:

Table 1 Descriptive Statistics of Fintech Applications Usage

Fintech Applications	Frequency	%
Crowdfunding platforms	23	20.54
Blockchain and Cryptocurrency	8	7.14
Mobile Payments	106	94.64
Wealth Management	27	24.11
Peer-to-peer Lending	5	4.46
Insurance	31	27.68
Total	112	

There are overall 112 valid responses of this specific question, among whom 20.54% declare that they use crowdfunding platforms. As for Blockchain and cryptocurrency, only 7.14% respondents say that they use. It is suggested that only a few students have started to use cryptocurrency. 94.64% of

respondents indicate that they have used mobile payments, and this result is consistent with the highest investment in payment. While 25% approximately announce that they have used Fintech applications of wealth management and insurance, only 5% approximately mention that they have used peer-to-peer lending.

Research Question 2:

What are the comparative advantages of fintech over traditional banks?

In the literature review, we have discussed four main comparative advantages of Fintech based on numerous studies by the previous researchers. In the survey, the researcher plans to explore the public’s view specifically on the comparative advantages of fintech over traditional banks, which are convenience and efficiency, customization, safety, and wide coverage of users. Table 2 below shows the results.

Table 2 Descriptive Statistics of Comparative Advantages

Comparative Advantages	Frequency	%
Convenient & Efficient	100	89.29
Customized Products	53	47.32
Safe and Secure	36	32.14
Wide Coverage of Users	60	53.57
Total	112	

The results show that 89.29% of the respondents agree that convenience and efficiency have become the comparative advantages of Fintech firm over traditional banking, and that is probably the main reason why there are more users in Fintech applications. Approximately half of the respondents declare that customized products provided by Fintech firms attract customers from traditional banking. It is suggested that higher customization leads to more users. When it comes to safety, the

percentage drops and 32.14% respondents agree that safety is one of the comparative advantages over traditional banking. It is concluded that most people still think that traditional banking is safer and more secure than Fintech applications. 53.57% of the respondents insist that wide coverage of users is one comparative advantage of Fintech, since Fintech is easy-to-access and it can cover customers who do not satisfy the requirement of banks.

Research Question 3:

What are the main risks related to development of fintech for traditional banks?

In addition to above-mentioned advantages of Fintech, traditional banks are faced with risks caused by rapid growing of Fintech firms. The risks can be classified into external risks and internal risks.

In order to further examine external risks resulted from Fintech, questions regarding what options will be chose dealing with payment and financial transactions are asked in the survey. The results show that over 95% of respondents attempt to choose mobile payments, such as Alipay and Wechat Pay, to conduct payments and financial transactions. It is suggested that, compared to credit or debit cards, Alipay and Wechat pay takes the dominant role in payments and financial transactions. Furthermore, the technology giants, such as Alibaba and Tencent, spend a lot of expenses and resources to capture the market and encourage customers to use mobile payments. This phenomenon regarding less usage of credit card definitely will dilute banks' market share and also decrease banks' revenues to some extent.

The internal risk comes from banks itself which endeavor to develop financial innovations, and these banks will encounter risks in developing Fintech applications. One typical example is mobile banking. In the survey, one question in relation with what applications in mobile banking are customers using is asked to investigate what services in mobile banking would customers normally use. The results are shown in Table 3 below.

Table 3 Descriptive Statistics of Usage in Mobile Banking Services

Mobile Banking Services	Frequency	%
Account Services	91	81.25
Remittance and Payment	73	65.18
Wealth Management	19	16.96
Credit Card	33	29.46
Deposits and Loans	26	23.21
Daily Expense Payment	32	28.57
Total	112	

Among mobile banking services, account services are mostly used by customers, because 81.25% respondents assert that they get used to using account services to check transaction history and account balance. The second popular service is remittance and payment. 65.18% respondents say that they will use mobile banking to satisfy their need for remittance and payment. Wealth management is the most unpopular service suggested by the result, and only 16.96% respondents say that they tend to manage their wealth through mobile banking. Approximately 25% respondents mention that they will use services including credit card, deposits and loans, and daily expense payment. From the results, it is suggested that banks should explore the reasons why there is low percentage in services, such as wealth management and credit card, and banks need to find out solutions to improve the services in order to better satisfy customers' needs. These are the internal risks banks need to manage.

Research Question 4:

What factors of mobile banking can influence customer satisfaction?

This section focuses on clarifying what factors of mobile banking influence customer satisfaction and what is the relationship between customer satisfaction and factors of mobile banking which are usefulness, ease of use, and safety. Multiple correlation and regression model will be used to quantitatively analyze the original dataset. Besides, hypotheses will be tested in this section. The interpretation of results is shown as follows.

A. Descriptive Statistics

The survey is conducted efficiently in Wenzhou-Kean University and the result is based on the answers of 112 respondents, among which female accounts for 58% and male accounts for 42%. As for the respondents' year level in college, the corresponding percentages from freshman to senior are 14.3%, 18.8%, 15.2%, and 51.8%. Half of the respondents are seniors, and the rest of the respondents quite equally come from other year levels. The result regarding the respondents' frequency in using mobile banking shows that 25.0% students occasionally use mobile banking, while 18.8% students tend to use mobile banking everyday. 33% of the students present that they use mobile banking 3-4 times a month and the rest 23.2% students say that they use mobile banking 1-2 times a week. The sample demographic statistics is displayed in Table 4 below.

Based on the result of descriptive Statistics of the variables, the mean score of each variable varies from 3.64-3.90. Safety has the highest mean score of 3.93 and standard deviation of 0.651. Customer satisfaction, the dependent variable, has the lowest mean score of 3.64 and standard deviation of 0.774. The results of descriptive statistics are shown in the Table 5 below.

Table 4 Demographic statistics of Sample Demographic Profile

Characteristics	Frequency	%
Gender		
Female	65	58
Male	47	42
Year Level in College		
Freshman	16	14.3
Sophomore	21	18.8
Junior	17	15.2
Senior	58	51.8
Frequency using Mobile banking		
Occasionally use	26	23.2
1-2 times a week	39	33.0
3-4 times a month	21	18.8
Everyday		
Total	112	100.00

Table 5 Descriptive Statistics of Factors

Variable	Mean	Minimum	Maximum	Standard Deviation	Variance
Usefulness	3.90	2	5	.657	.432
Ease of Use	3.68	1	5	.812	.660
Safety	3.93	2	5	.651	.423
Satisfaction	3.64	1	5	.774	.598

B. Validity Test

Since the validity of the instrument is crucial for data collection, the researcher plans to use SPSS to test validity of the questionnaire by using Pearson Product Moment Correlations. After correlating the scores of items of one variable with the total score of the variable, the results show that since the significance value is $0.000 < 0.05$, multi-items of each variable are significantly correlated with each variable. Hence, it is concluded that the instrument is valid.

C. Reliability Test

Since each factor is assigned four to five measures as shown in Appendix B, the survey asks four to five questions for each variable. To test and ensure the internal consistency, reliability will be tested by calculating the Cronbach's alpha. According to George and Mallery (2003), if the Cronbach's alpha is greater than 0.7, it is acceptable. The value of Cronbach's alpha of each factor ranges from 0.807 to 0.920, which exceed the acceptable level. Hence, the results indicate that the measurement of each variable is reliable.

D. Multicollinearity Test

In order to determine whether there is strong similarity between the independent variables, multicollinearity test will be conducted by obtaining the VIF value using SPSS. Based on the collinearity statistics, the VIF values of usefulness, ease of use, and safety range from 1.608 to 2.128, which are between 1 to 10. It can be concluded that there is no multicollinearity problem.

D. Correlation Analysis

Based on the results of correlations shown in Table 6, three variables all have a statistically significant linear relationship with customer satisfaction with all p-values smaller than 0.05. Usefulness has a strong positive relationship with customer satisfaction ($r=0.610$) and this positive result implies that more useful of the mobile banking, higher customer satisfaction. The results also show that there is a very strong positive relationship between ease of use and customer satisfaction ($r=0.800$), which indicates that customers care much about ease of use of the mobile banking. Additionally, there is a moderate positive relationship between safety and customer satisfaction ($r=0.440$) and it suggests that customers prefer mobile banking with high rankings in safety.

Table 6 Correlations

Factors of Mobile Banking	Pearson Correlation (r)	Significance (2-tailed)
Usefulness	0.610	0.000
Ease of Use	0.800	0.000
Safety	0.440	0.000

E. Regression Analysis

The study used multiple regression model to test the hypotheses and investigate the relationship between factors of mobile banking and customer satisfaction. The hypothesis testing is conducted based on the regression results. The value of R square is 0.685, which indicates that 68.5% of customer satisfaction can be explained by these three variables - usefulness, ease of use, and safety.

The regression coefficients are shown in Table 7.

Table 7 Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	
(Constant)	.001	.289		.998
Usefulness	.174	.093	.148	.064
Ease of Use	.641	.063	.673	.000
Safety	.152	.081	.128	.065

Usefulness: The first hypothesis to be tested in the study is that there is no significant relationship between usefulness of mobile banking application and customer satisfaction. Since usefulness has a coefficient of 0.174 and p-value is $0.064 < 0.01$, we reject the first null hypothesis and conclude that usefulness of mobile banking application has a significant impact on customer satisfaction.

Ease of Use: The regression results show that ease of use has a coefficient of 0.641 and p-value is $0.000 < 0.01$, so it is suggested that ease of use is the most important factor influencing customer satisfaction among three factors. The results lead to rejecting the null hypothesis and concluding that ease of use of mobile banking application has a significant impact on customer satisfaction.

Safety: Based on the coefficient value 0.152 and p-value $0.065 < 0.01$, it can be concluded that the null hypothesis is rejected and that safety of mobile banking application has a significant impact on customer satisfaction.

Regression Equation: In light of the coefficients of each factor, the regression equation of the model can be obtained as follow:

$$Satisfaction = 0.001 + 0.174Usefulness + 0.641Ease\ of\ Use + 0.152Safety + \epsilon$$

The results of the regression model are consistent with those of Kahandawa and Wijayanayake (2014) that there is a positive relationship between customer satisfaction factors of mobile banking, such as usefulness and ease of use. Besides, my results are also consistent with the study conducted by Gomachab (2018). It revealed that reliability and convenience are factors positively influencing customer satisfaction and that security level can increase the usage rate of mobile banking.

The study has contributed to the existing literature through collecting primary data from available mobile banking customers, mainly Wenzhou-Kean University undergraduate students. Since the findings of the thesis are based on the new dataset, the responses received provide original contribution and the results are valuable.

This thesis is limited to data availability. That is to say, the survey is expected to cover more students from different universities even across various cities. Besides, the respondents only cover university students. Because the usage frequency and attitude towards mobile banking vary alongside age, the survey results can statistically be improved and become much more informative by covering respondents in different age groups. The findings can be corroborated by more data availability.

5. CONCLUSIONS

In light of the rapid growing of Fintech industry, traditional banks are faced with threats and opportunities simultaneously. It is vital to clarify the relationship between fintech firms and traditional banks. In this thesis, the researcher firstly provided a basic explanation of recent trend in Fintech and revealed that mobile payment has been highly accepted and used by the public. Secondly, the results suggest that convenience and efficiency is the main comparative advantage compared to traditional banking, while safety is the least important comparative advantage over banks. Thirdly, the study presented the internal and external risks related to development of Fintech for traditional banks. The external risks come from Fintech firms and some technology giants, mainly in payments area. The internal risks originate when banks are developing Fintech innovations by themselves. In the last part, the study used a survey methodology and collected original data from 112 Wenzhou-Kean University students to clarify the relationship between customer satisfaction and three factors of mobile banking which are usefulness, ease of use, and safety. Multiple correlation and regression model was used to analyze the dataset. The results revealed the frequency of respondents' usage in various mobile banking services and pointed out that ease of use is the most important factor in influencing customer satisfaction. Additionally, the regression result of the study showed that 68.5% of customer satisfaction can be explained by these three variables. The result of hypothesis testing demonstrated that there is a positive relationship between customer satisfaction and factors that are usefulness, ease of use, and safety. The results provided practical suggestions to traditional banks. Customers' expectations of mobile banking can be inferred from the results and traditional banks with mobile banking can further develop and improve the overall quality of mobile banking services by mainly focusing on ease of use.

This thesis may not have covered all the factors which influence customer satisfaction, so it is suggested that further research can explore more factors of mobile banking that can have a impact on customer satisfaction, and the model can extend to include more variables. Measurements of each variable can be extended more than 5 to describe the variable more accurately.

Furthermore, based on the analysis of recent trend in Fintech, traditional banks are expected to respond increasing competition from Fintech firms. Hence, further research is recommended to provide suggestions to commercial banks to enhance financial innovations and reduce the risks coming from the growing of Fintech firms.

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Appendix A. Research Instrument - Questionnaire

Fintech Firms and Banking: A Challenge or Opportunity?

We are currently conducting a study to clarify the correlation between several factors of mobile banking applications and customer satisfaction. We will greatly appreciate your assistance by means of answering the survey instrument. The result of the study will be used to examine customers' satisfaction of current mobile banking services and clarify what factors will influence customer satisfaction in order to provide recommendations to banking to improve the mobile banking services.

Rest assured that your identity will be kept strictly confidential. Also, answers and responses obtained will be held confidential and strictly for academic purposes.

Thank you very much for your kind support and cooperation.

1. What is your gender?

- a. Female b. Male

2. What is your year level in college year?

- a. Freshman b. Sophomore
 c. Junior d. Senior

3. Have you ever used the following fintech applications?

- a. Crowdfunding Platforms
 b. Blockchain and Cryptocurrency (e.g. Bitcoin)
 c. Mobile Payments (e.g. Alipay, WeChat pay)
 d. Wealth Management (e.g. Stock-trading)
 e. Peer-To-Peer Lending (P2P)
 f. Insurance
 g. Others

4. What are the comparative advantages of Fintech firms compared to traditional banks?

- a. Convenient and efficient
 b. Customized Products
 c. Safe and Secure
 d. Wide coverage of users (e.g. small businesses, retail customers, and people who are unbanked)
 e. Others

5. Which of the following options do you use for payment?

- a. Cash

- b. Credit / Debit Card
- c. Mobile Payments (e.g. Alipay, WeChat pay)
- d. Cryptocurrency (e.g. Bitcoin)
- e. Others

6. Which of the following options do you use for financial transactions?

- a. Cash
- b. Credit / Debit Card
- c. Mobile Payments (e.g. Alipay, WeChat pay)
- d. Cryptocurrency (e.g. Bitcoin)
- e. Others

7. How often do you use mobile banking applications?

- a. Occasionally use
- b. 3-4 times a month
- c. 1-2 times a week
- d. Everyday

8. What services do you use in mobile banking?

- a. Account Services (e.g. check transaction history and account balance)
- b. Remittance and Mobile Payment
- c. Wealth Management
- d. Credit Card
- e. Deposits and Loans
- f. Life Payment (e.g. payments for movie, telephones, and oil)
- g. Others

Direction: Please indicate your attitudes by clicking the appropriate response.

Usefulness	Strongly disagree	Disagree	Agree	Strongly agree
1. Mobile banking will provide accurate information				
2. Mobile banking will provide relevant information about transactions				
3. Mobile banking will provide timely information about transactions				
4. Mobile banking services meet my needs				

Ease of use	Strongly disagree	Disagree	Agree	Strongly agree
1. I could use mobile banking at anytime, anywhere I want				
2. Visual graphics of mobile banking are user friendly				
3. The presentation style of mobile banking is easy to understand				
4. Mobile banking is easy to navigate				

Safety	Strongly disagree	Disagree	Agree	Strongly agree
1. I would find mobile banking secure enough to conduct my banking transactions				
2. Mobile banking keeps its promises				
3. Mobile banking is trustworthy				
4. Overall, I think mobile banking is safe				

Customer Satisfaction	Strongly disagree	Disagree	Agree	Strongly agree
1. I strongly recommend mobile banking to others				
2. I think that I made the correct decision to use mobile banking				
3. I am satisfied with the way that mobile banking has carried out transactions				
4. I am satisfied with the service I have received from mobile banking				
5. Overall, I am satisfied with mobile banking				

Appendix B. Measurement

Variables	Measurement	Related literature
Usefulness	1. Mobile banking will provide accurate information	Kim et al. (2008) and Bharati and Chaudhury (2004)
	2. Mobile banking will provide relevant information about transactions	
	3. Mobile banking will provide timely information about transactions	
	4. Mobile banking services meet my needs	
Ease of use	1. I could use mobile banking at anytime, anywhere I want	Bharati and Chaudhury (2004)
	2. Visual graphics of mobile banking are user friendly	
	3. The presentation style of mobile banking is easy to understand	
	4. Mobile banking is easy to navigate	
Safety	1. I would find mobile banking secure enough to conduct my banking transactions	Stewart (2003)
	2. Mobile banking keeps its promises	
	3. Mobile banking is trustworthy	
	4. Overall, I think mobile banking is safe	
Customer Satisfaction	1. I strongly recommend mobile banking to others	Anderson and Sullivan (1993)
	2. I think that I made the correct decision to use mobile banking	
	3. I am satisfied with the way that mobile banking has carried out transactions	
	4. I am satisfied with the service I have received from mobile banking	
	5. Overall, I am satisfied with mobile banking	