

SEM-based Customer Loyalty Model: An Empirical Analysis with IT Enabled Financial Industries

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Abstract

The Comprehensive analysis includes the development of personal financial services under IT environment and the effect of personal financial services in the banking industry, Through the questionnaire survey, the factors affecting the loyalty of personal financial services on commercial banks were collected, Using the structural equation model to analyze, The process quality, customer satisfaction, customer age, monthly income and the degree of customers culture .All of them have an effect on the loyalty of personal financial service in the banking industry, And the technical quality, the customer gender has not directly affect the personal loyalty to financial service, And the commercial banks' personal financial services are proposed to base on the technical quality and the process quality of service proposal, increase customer loyalty.

Keywords: individual financial services; loyalty of customers; structural equation model

1. Introduction

In recent years, along with the constant strengthening of liberalization, internationalization and integration in the financial market, homogeneous competition among commercial banks has become increasingly fierce, and a decline in cost of carry has exacerbated this fiercely competitive market environment. In order to survive and develop, commercial banks have actively sought for new opportunities of creating incomes and shifted their focus to personal financial services. Meanwhile, foreign commercial banks have developed mature financial services. Compared with Chinese commercial banks, foreign commercial banks show a much larger proportion of personal financial incomes in their total income. Moreover, personal financial service of foreign commercial banks has greatly contributed to improvement in their profits and benefits. Therefore, in past few years, vigorously developing personal financial services has become one of strategic development plans for most banks. How the technical quality and process quality of the bank financial service affect satisfaction and loyalty of consumers has become an issue of concern.

In this article, questionnaire investigation and customer loyalty model ,they just are the demonstration method. The core of this paper is the following content. We must prove that technical quality and the process quality is the key elements to establish consumers' loyalty and satisfaction. In the finance industry of our country's bank, Paying attention to technical quality and the process quality meet the needs of objective trend that IT become more and more widespread. In 2015, China's government working report "we should accelerate the speed that is the integration of information technology and Internet finance". Therefore, we need to put forward the reforming measures in line with national policy .The purpose is to enhance the customer's loyalty in the process of personal

financial services.

With the development of economy and the society, Information technology is playing a more and more important role in daily consumption behaviors. The Internet technology makes the connection among individuals become more closer, So it is an urgent affair that we need to offer the financial services, which must highly meet the personal character.

In fact. The realization of the technical quality, to a large extent, depends on the network technology and related equipment

Everybody should know that banks involve IT attribute. Nowday. There are two functions realized by banks, the first one, they could be regarded as intermediary agent for social financing. the secondly, it's everyone's paying platform. Both of them actually used the communication and information technology. Since the 1980s, Our country's informational tendency of banks can be summarized for three stages. manual substitution (safe software was introduced), on-line real-time processing and data collection

The informational tendency of banks is closing to the end. What has been promoted is informational banks: The operating mode has been changed from account-center to client-center. The front counter and middle, behind counter are separate and restrict for each other. Using electronic channels, self-service equipment to control risk and reduce costs. The current banks industry is developing into multiple functions include providing financial production, loans and settlement, and the other deep service. PayPal payment mode innovation, NFC mobile pay, financial IC card, core system update, processing bank reform, VTM, the electronic banks, all of them are the new products that were born in this time.

Structural Equation Modeling (SEM) is a statistical data analysis tool which makes a comprehensive use of the multiple regression analysis, variance analysis, path analysis, factor analysis and causal relationship with latent variables. As a measurement tool, SEM can measure both latent and manifest variables. Manifest variables can be directly observed and measured, also known as observed variables, while latent variables cannot be directly observed, but acquired through manifest variables. The technical quality, process quality, customer satisfaction, customer loyalty and other variables studied in this paper cannot be directly observed, so they are so-called latent variables. Therefore, in this paper, the structural equation modeling is used.

2. Literature Review and Research Design

2.1. Overview of Service Quality, Customer Satisfaction and Customer Loyalty

In the late 1980s, American marketing experts A.Parasuraman, Zeithaml and Berry put forward a new service quality evaluation system SERVQUAL for the service industry, according to the total quality management theory. In this paper, the service quality is divided in. to technical quality and process quality and combined into relevant aspects in the SERVQUAL theory to design a questionnaire which covers following contents.

2.1.1. Technical Quality: Technical quality refers to what customers can benefit from their exchanges with service companies, that is, the performance of service companies when they provide customers with service products or product portfolios. To be specific, technical quality discussed in this paper includes the product quality of personal financial service by commercial banks, service types, banking outlet setting, channel safety, bank size and other hardware resources. Questionnaire contents are shown in Table 1.

Since 2013, There were five major commercial banks that have launched their own portable APP including payments, loans, personal financial products. Outstanding Mobile Internet technology exist in this kind of internet-product. The Major commercial banks need to provide the clients with more personalized financial services, which must

meet the various characteristics of the numerous users. The best example could be reflected on the technology of App platform. Let us show the realization of individualized financial service through the technical method. There are four main APP systems: Four main APP systems: 1, apple : IOS system version 2, Symbian :Symbian version 3, Microsoft Phone7 Windows system version 4, Android system version

Table 1. Evaluation Indices for Technical Quality

Nominal variables	Manipulated variables	Evaluation indices
Technical quality	Q1	Banking outlets are reasonably distributed
	Q2	Bank business acceptance time is properly arranged for business operation.
	Q3	Facilities are advanced and safe.
	Q4	Rich types of financial products are available for satisfying diverse demands
	Q5	Financial service staffs have a high technical level and rich human resources.
	Q6	E-finance services are easily accessed
	Q7	Financial product design meets customer needs.

2.1.2.Process quality: The process quality refers to how customers get results in connection to the technical quality, which means that how to achieve the delivery of the technical quality. To be specific, the technical quality is reflected by the staff quality, service efficiency, service attitude, service convenience and other aspects. On the basis of extracting relevant factors in the SERVQUAL theory, following 4 indices were chosen to measure the technical quality, we can see in Table 2.

We can usually find this equipment operating in bank counter that called Fingerprint identification system (AFIS). The primary purpose is assuring the safety of personal account .from the handling-process angle, the Time length on going through financial service will be cut down for a large extent..That is equal to efficiency.

Table 2. Evaluation Indices for Process Quality

Nominal variables	Manipulated variables	Evaluation indices
Process quality	Q8	Banking financial staffs keep good attitudes towards their customers.
	Q9	Financial services provided by banks are high-efficiency, safe and secure.
	Q10	Financial staffs value benefits of customers and show willingness to help customers.
	Q11	Financial staffs have strong responsibility sense and follow rules and regulations when providing services.

2.1.3.Customer satisfaction: Foreign and domestic scholars mainly used the expectation theory and cognitive differential theory to analyze driving factors of banking finance customer satisfaction and corresponding evaluation index systems. The author chooses 4 evaluation indices for customer satisfaction, as shown in Table 3.

Table 3. Evaluation Indices for Customer Satisfactions

Nominal variables	Manipulated variables	Evaluation indices
Customer satisfaction	Q12	Time and money invested is worth it.
	Q13	Compared with other banks, this bank can gain more customer satisfaction.
	Q14	Service is better than customer expectation.
	Q15	Gain overall satisfaction

2.1.4.Customer loyalty: Customer loyalty refers to the phenomenon that people show commitments to their favored products and services. They became a regular loyal customers liking their these products and services or even showed the repeated purchasing behaviors to other products and services provided by the same company. However, this commitment would not change, along with changes in market environments. The author chooses 3 evaluation indices for customer satisfaction, as it shown in Table 4.

Table 4. Evaluation Indices for Customer Loyalty

Nominal variables	Manipulated variables	Evaluation indices
Customer loyalty	Q16	You will still choose a bank, even though it requires higher costs (time and money).
	Q17	Commend services of a bank in front of other people.
	Q18	Recommend services of a bank to others.

2.2.Research on Variable Relationships

2.2.1.Relationship between Service Quality and Customer Satisfaction :In terms of the relationship between the service quality and customer satisfaction, most domestic and foreign scholars believe that the service quality is an antecedent factor for customer satisfaction.

Busch et al. (1976) pointed out that sales staffs with higher professional knowledge and more empathy tended to more easily arouse customer satisfaction and loyalty.

Don et al (2007) suggested that in the process of building enterprise-customer relationships, positive performance of service staffs would produce positive impacts on the enterprise-customer relationships, and customers believed that communications with service staffs could reduce perceived risks and gain long-term benefits.

Sun Yan (2009) believed that the service quality is an antecedent for high-level satisfaction conception and a relatively dominant conceptual model. According to Sun

Yan, customer satisfaction is a relatively higher measurement dimension, and the service quality can affect customer satisfaction and simulate repeated purchasing of customers.

Han Ling (2010) studied personal customer satisfaction of a commercial bank in Nanjing, and pointed out that improving product attributes and service quality could help to enhance customers' overall understanding of the commercial bank, increase perceived values and promote the improvement of customer satisfaction.

2.2.2.Relationship between service quality and customer loyalty:According to research of Zeithaml, Berry and Parasuraman (1990), the service quality of enterprises has a positive impact on customers to continue to keep loyal to their products, and the service quality affects customer loyalty through customer satisfaction as a mediating variables.

Sharma et al. (1999) pointed out that financial service staffs are professional personnel, so characteristics of the sales staffs will positively affect customer loyalty.

Jiang Yunjie (2006) applied the YHR model to make a case study of commercial banks in Jiangsu and concluded that personal customers' satisfaction with product attributes, service quality and image of commercial banks had a significant impact on customer loyalty.

According to his research on influencing factors of banking customer loyalty, Zhou Qidong (2010) concluded that the service quality improvement of banking e-finance can greatly boost the improvement of customer loyalty.

In summary, the author agrees that the service quality has a positive impact on customer loyalty.

2.2.3.Relationship between customer satisfaction and customer loyalty :Foreign and domestic scholars have conducted a lot of researches on the relationship between customer satisfaction and customer loyalty. Some scholars believe that customer satisfaction and customer loyalty basically exist the same connotation, while other scholars believe that customer satisfaction and customer loyalty are independent for each other. Meanwhile, another group believe that customer satisfaction and customer loyalty are interrelated, but partly different from each other.

The earlier studies just simply pointed out the relationship between customer satisfaction and customer loyalty.Olira (1992), Reichheld (1993), Haskett (1997) and Kotler (1999) concluded that customer satisfaction had a positive impact on customer loyalty.

Win Stanley (1997), Ehigie (2006) and Ndubisi (2006) believed that the banking customer satisfaction could affect customer behaviors, so that customers are willing to maintain relationships with banks for long-term business contact.

Li Qiang (2011) made an empirical analysis of customers of retail outlets of commercial banks and found that customer satisfaction has a positively linear relationship with customer loyalty.

Oliver (1999) proposed the famous six kinds of combinational relationships between customer satisfaction and customer loyalty. Satisfaction and loyalty are the same concept; customer satisfaction is the core of customer loyalty; satisfaction is a manifestation of loyalty; satisfaction and loyalty are one of constituting parts for the ultimate loyalty; satisfaction and loyalty have overlapping parts; through continuous development, customer satisfaction can generate customer loyalty.

Through the analysis of the relationship among the above variables.We can see that customer satisfaction, customer loyalty, service quality, all of them have a necessary Contact.Service quality determines customer satisfaction, customer satisfaction determines customer loyalty.Therefore, if we want to enhance the customer satisfaction of personal financial services. The first step we should solve focus on Service quality.Because it is the decisive factor in the model of customer loyalty,However, IT

technology can directly improve the customer experience and Service quality. The concept model of this research can be shown in Figure 1.

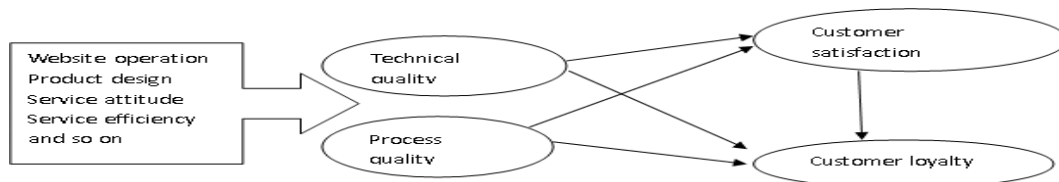


Figure 1. Concept Model

3. Survey and Data Analysis

3.1. Survey and Data Analysis

In order to improve the reliability and validity of the research questionnaire, it is quite necessary to pre-test the questionnaire before the large-scale survey. At the pre-testing phase, the exploratory factor analysis and reliability analysis were applied to sift variable items. According to exploratory factor analytical results, no item between observed variables and 4 extracted common factors including technical quality, process quality, customer satisfaction and customer loyalty should be removed, because their load factors meet standards and their fitting indices are appropriate.

After the questionnaire based on pre-survey analytical results was revised , questionnaires were distributed for a large-sample survey. The survey period is from June 2014 to December 2014. 400 copies of questionnaires were distributed, while 357 of them were valid, effective rate approximately close to 89.25%. SPSS17.0 and LISREL8.7 were mainly used for analysis. Analyses were completed through two steps. At the first step, the confirmatory analysis was made. At the second step, a structural equation modeling analysis is made of relationships among technical quality, process quality, customer satisfaction and customer loyalty. Meanwhile, influencing factors of customer loyalty were analyzed.

3.1.1. Confirmatory factor analysis :Confirmatory factor analysis is a kind of factor analyses. It is derived from exploratory factor analysis. Confirmatory factor analysis is made mainly to examine whether there is a significant load between manifest variables and latent variables, thereby achieving control and test of the sample data quality. Items in this research question were generated through the Delphi experts investigation method and adjusted based on pre-survey results, so they can well reflect connotations of relevant latent variables and have good content validity.

In the above text, the author used the exploratory factor analysis to achieve orthogonal rotation of 18 question items to get 4 common factors. The cumulative variance contribution rate was 67.274%. LISREL8.70 was used to make a confirmatory factor analysis (CFA), and validity of variables in the model was re-tested. The CFA model factor loading matrix of questionnaire items is shown in Figure 2.

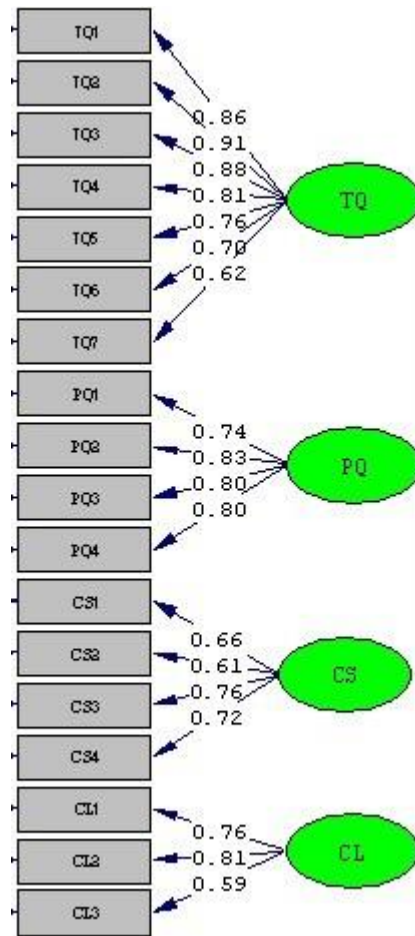


Figure 2. CFA Official Survey Results

Factor loadings of all 18 question items are above 0.5. CL3 has the least value, and its normalized factor loading is 0.59. It indicates that each index in each sub-scale has great explanatory power; the questionnaire has good design and structure validity. Corresponding T values are shown in Table 5.

Table 5. CFA Factor Loading

Latent variable	Item	Standard factor loading value	The value of T
Technical quality (TQ)	TQ1	0.86	20.17
	TQ2	0.91	21.97
	TQ3	0.88	21.02
	TQ4	0.81	18.31
	TQ5	0.76	16.53
	TQ6	0.70	14.77
	TQ7	0.62	12.59

Process quality (PQ)	PQ1	0.74	15.55
	PQ2	0.83	18.30
	PQ3	0.80	17.48
	PQ4	0.80	17.55
Customer satisfaction (CS)	CS1	0.66	12.88
	CS2	0.61	11.74
	CS3	0.76	15.33
	CS4	0.72	14.43
Customer loyalty (CL)	CL1	0.76	15.38
	CL2	0.81	16.71
	CL3	0.59	11.24

3.1.2. Model building : A structural model is built to analyze internal relations. This structural model mainly includes 4 measurement models, which respectively measure relationships between 2 endogenous variables (customer satisfaction and customer loyalty) and two exogenous variables (technical quality and process quality) and their corresponding observed variables. In addition, this model also includes a structural model which is used to measure the relationship between endogenous and exogenous latent variables. The full model is shown in Figure 3.

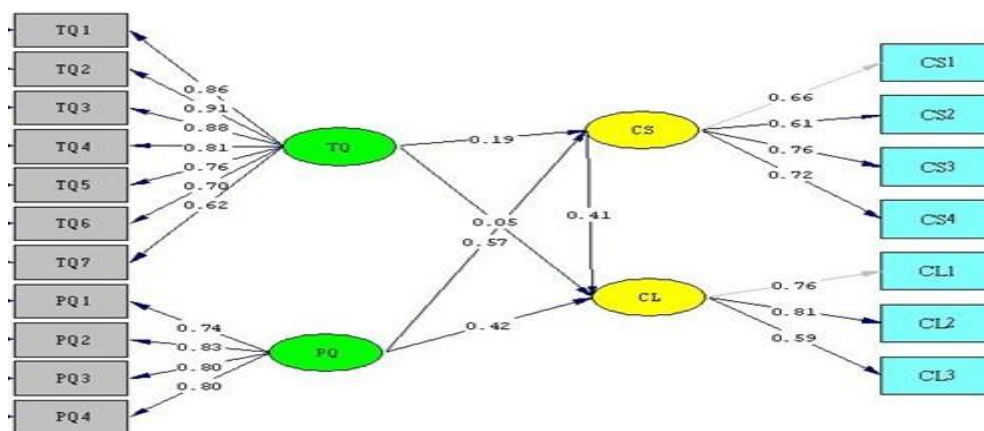


Figure 3. Full Model Chart

3.1.3. Model verification and modification :

In this paper, the structural equation modeling software LISREL is used to further verify and analyze relationships between various constructs. The core of the model verification results includes the model statistical parameters and structural parameters. The model statistical parameters mainly include χ^2/df , CFI, GFI and RMSEA, that is, model fitting indices. The model structural parameters refer to path coefficients (or correlation coefficient) between latent variables. The structural parameters used in this research are composed of two parts: path coefficients and t values. T values are used to test the significance of paths, while path coefficients reveal the degree of correlation between latent and manifest variables, as shown in Table 6 and Table 7.

Table 6. Fitting Effects of Research Model

Statistical index	Ideal standard	Model	Whether to
$\chi^2 / d.f.$	<5	4.56	yes
GFI(Goodness of fit coefficient)	>0.9	0.908	yes
AGFI(Adjusted goodness of fit coefficient)	>0.9	0.920	yes
NFI(Norm fitting coefficient)	>0.9	0.93	yes
CFI(Comparison of fit factor)	>0.9	0.94	yes
RMSEA	<0.1	0.091	yes

If the structural equation model is evaluated to have poor fitting effects, the model should be corrected. There are generally two methods to correct the model. One is the deleting path. The significance and size of t values are taken as criteria to cut and check fitting indices one by one. The other one is the adding path. The size of the modified index (MI) is mainly based to increase path relationships. Because detailed discussions were made of relevant indicators and correlations in the preliminary research, adding new path relationships will lack relevant theoretical support. Therefore, in this part, t values are mainly based to delete path coefficients.

Table 7. Path Coefficients between Latent Variables

Path relationship	Standardized path coefficient	The value of T	Corresponding hypothesis
Customer satisfaction← Technical quality	0.19	3.19	H1
Customer loyalty← Technical quality	0.05	1.01	H2
Customer satisfaction← Process quality	0.57	8.08	H3
Customer loyalty← Process quality	0.42	5.48	H4
Customer loyalty← Customer satisfaction	0.41	4.92	H5

As can be seen from the above table, the T value of the TQ-CL path coefficient is 1.01 (less than 1.96), which is quite small. According to requirements of the smaller T value deleting path, the direct impact path of Technical Quality to Customer Loyalty is deleted. After this path is deleted, LISREL is used to get T values of each path after the TQ-CL path is deleted, as shown in Table 8.

Table 8. Path Coefficients between Latent Variables after Modification

Path relationship	Standardized path coefficient	The value of T	Corresponding hypothesis
Customer satisfaction← Technical quality	0.19	3.31	H1
Customer satisfaction← Process quality	0.57	8.06	H3

Customer loyalty← Process quality	0.43	5.65	H4
Customer loyalty← Customer satisfaction	0.43	5.25	H5

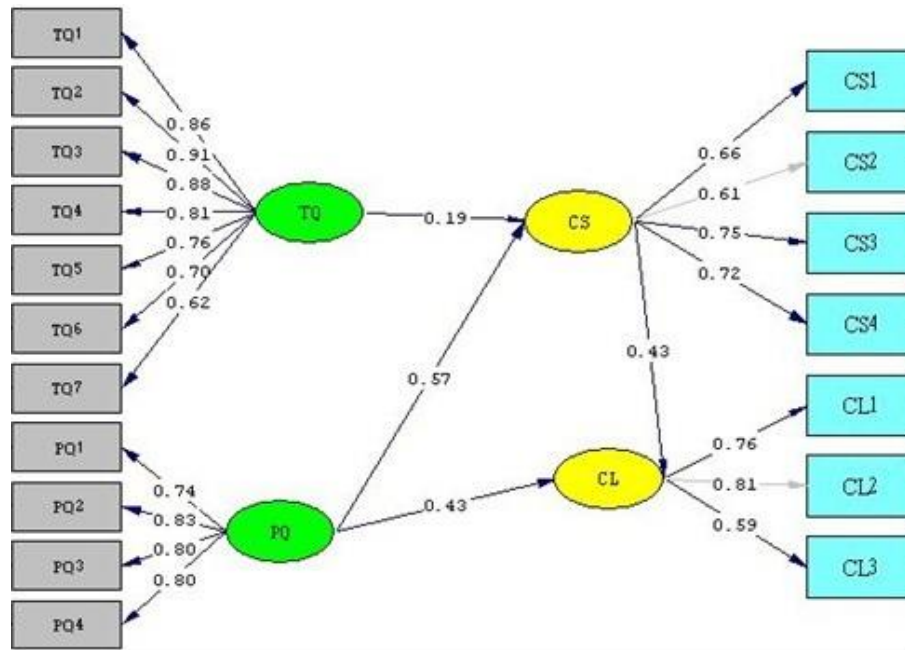


Figure 4. Normalized Path Coefficients of the Full Model

Following Bollen's recommendation, relationship strengths of each causal path are estimated, by testing direct influence coefficients and total influence coefficients between latent variables. As discussed in the previous section, path coefficients between latent variables are direct influence coefficients of latent variables. However, besides direct influence coefficients, indirect influence coefficients also exist between different latent variables. Direct effect refers to the direct influence of exogenous variables (causal variables) to endogenous variables (effect variables), while indirect effect refers to the indirect influence of casual variables on effect variables through one or more mediating variables. When there is only one mediating variable, the direct effect is the product of two path coefficients. That is to say, the total influence coefficient = direct influence coefficient + direct influence coefficient * indirect influence coefficient. Specific values are shown in Table 9.

Table 9. Total Effects between Variables

Latent variable	Direct effect	Indirect effect	Total effect
Technical quality—> Customer satisfaction	0.19	0.00	0.19
Technical quality—> Customer loyalty	0.00	0.08	0.08
Process quality—> Customer satisfaction	0.57	0.00	0.57
Process quality—> Customer loyalty	0.43	0.25	0.68
Customer satisfaction—> Customer loyalty	0.43	0.00	0.43

As can be seen from Table 9, the relationship coefficient between process quality and customer loyalty is the highest (0.68), reflecting the importance of soft power in personal finance service delivery of commercial banks. Strengthening staff quality training and improving the professional skill of the financial staff can largely promote the improvement of customer satisfaction, and, more importantly, win regular customers and improve core competitiveness of banks. Although statistical results of this research show that the technical quality has no direct impact on customer loyalty and lowest indirect impact among several indicators. Moreover, this research finds that the technical quality is of little importance. However, the technical quality should be quite important.

3.2. Analysis of Control Variables

Factors concerning personal financial service quality of banks influence each other. Moreover, other factors also influence the personal financial service quality. However, these factors do not meet requirements of the structural equation model for data continuity. Therefore, in this research, these factors are taken as control variables. The factors are mainly demographic variables, including gender age, cultural background and monthly income. One-way analysis of variance is made of control variables to determine their influence on personal financial service relationships. In addition, SPSS17.0 is used to make a one-way analysis of variance to test the influence of control variables. One-way variance can be used to make multiple comparisons among groups.

3.2.1. Influence of gender: Among demographic characteristics of this research, gender is the most basic variable. Male is marked as “1”, while female is marked as “2”. Analytical results are shown in Table 10.

Table 10. Gender-based One-way Variance Analytical Results

	Square sum	df	Mean square	F	Significant	
TQ	Between groups	4.594	1	4.594	5.930	.015
	In the group	275.058	355	.775		
	Total	279.652	356			
PQ	Between groups	.708	1	.708	1.036	.309
	In the group	242.663	355	.684		
	Total	243.372	356			
CS	Between groups	4.253	1	4.253	8.631	.004
	In the group	174.941	355	.493		
	Total	179.194	356			
CL	Between groups	2.004	1	2.004	3.173	.076
	In the group	224.231	355	.632		
	Total	226.235	356			

Note: P < 0.05

As can be seen from the table, gender has inconsistent influence on different items. Gender has no significant influence on the process quality and customer loyalty. That is to say, there is no gender difference in the process quality perception of bank financial service and customer loyalty. However, there are significant gender differences in the technical quality perception and customer satisfaction. Therefore, H7 and H9 are falsified, while H6 and H8 are confirmed.

3.2.2. Influence of age: In this research, age is taken as an influencing factor. In the sample data, “age 18 to 27”, “age 28 to 37”, “age 38 to 47”, “age 48 to 57”, “age 58 to 69” are marked as “1,2,3,4 and 5” respectively. Age-based one-way variance analytical results are shown in Table 11. Age has significant influence on the technical quality, process quality, satisfaction and loyalty. Therefore, H10, H11, H12 and H13 are supported.

Table 11. Age-based One-way Variance Analytical Results

		Square sum	df	Mean square	F	Significant
TQ	Between groups	170.470	4	42.617	137.397	.000
	In the group	109.183	352	.310		
	Total	279.652	356			
PQ	Between groups	23.975	4	5.994	9.616	.000
	In the group	219.397	352	.623		
	Total	243.372	356			
CS	Between groups	18.759	4	4.690	10.289	.000
	In the group	160.435	352	.456		
	Total	179.194	356			
CL	Between groups	22.754	4	5.688	9.840	.000
	In the group	203.482	352	.578		
	Total	226.235	356			

Note: $P < 0.05$

3.2.3. Influence of income: In this part, the monthly income is taken as an influencing factor to study its influence on the technical quality, process quality, customer satisfaction and customer loyalty. According to their monthly income, respondents are divided into 6 groups according to their monthly income: “under 2,000 yuan”, “2,001 to 5,000 yuan”, “5,001 to 10,000 yuan”, “10,001-20,000 yuan”, “20,001 to 50,000 yuan”, “over 50,000 yuan”, which are respectively marked as “1,2,3,4,5 and 6”. Income-based one-way variance analytical results are shown in Table 12. Analytical results show that monthly income has significant influences on 4 items, thereby verifying H14, H15, H16 and H17.

Table 12. Household Monthly Income-based One-way Variance Analytical Results

		Square sum	df	Mean square	F	Significant
TQ	Between groups	110.433	5	22.087	45.813	.000
	In the group	169.219	351	.482		
	Total	279.652	356			
PQ	Between groups	33.496	5	6.699	11.204	.000
	In the group	209.875	351	.598		
	Total	243.372	356			
CS	Between groups	15.256	5	3.051	6.533	.000
	In the group	163.937	351	.467		
	Total	179.194	356			
CL	Between groups	24.899	5	4.980	8.682	.000
	In the group	201.336	351	.574		
	Total	226.235	356			

Note: P <0.05

3.2.4. Influence of educational background: In this research, according to educational background respondents are divided into 4 groups: “High school or below”, “junior college”, “bachelor”, “master and above”, which are respectively marked as “1, 2, 3 and 4”. Analytical results show that educational background has no significant influence on the process quality, but significant influence on the other three items. Therefore, H18, H20 and H21 are confirmed, while H19 are falsified. Detailed analytical results can be seen in Table 13.

Table 13. Educational Background-based One-way Variance Analytical Results

	Square sum	df	Mean square	F	Significant
TQ Between groups	22.184	3	7.395	10.139	.000
In the group	257.468	353	.729		
Total	279.652	356			
PQ Between groups	2.417	3	.806	1.181	.317
In the group	240.954	353	.683		
Total	243.372	356			
CS Between groups	7.338	3	2.446	5.024	.002
In the group	171.856	353	.487		
Total	179.194	356			
CL Between groups	5.111	3	1.704	2.719	.044
In the group	221.125	353	.626		
Total	226.235	356			

Note: P <0.05

3.3. Test Results

As mentioned above, hypothesis testing results are shown as follows.

- H1: technical quality has a directly positive influence on customer satisfaction; valid
- H2: technical quality has a directly positive influence on customer loyalty; invalid
- H3: process quality has a directly positive influence on customer satisfaction; valid
- H4: process quality has a directly positive influence on customer loyalty; valid
- H5: customer satisfaction has a directly positive influence on customer loyalty; valid
- H6: customer gender has influence on the personal finance service delivery technical quality of commercial banks; valid
- H7: customer gender has influence on the personal finance service delivery process quality of commercial banks; invalid
- H8: customer gender has influence on customer satisfaction with personal finance service delivery of commercial banks; valid
- H9: customer gender has influence on customer loyalty to personal finance service delivery of commercial banks; invalid
- H10: Customer age has influence on the personal finance service delivery technical quality of commercial banks; valid
- H11: customer age has influence on the personal finance service delivery process quality of commercial banks; valid
- H12: customer age has influence on customer satisfaction with personal finance service delivery of commercial banks; valid

H13: customer age has influence on customer loyalty to personal finance service delivery of commercial banks; valid

H14: customer monthly income has influence on the personal finance service delivery technical quality of commercial banks; valid

H15: customer monthly income has influence on the personal finance service delivery process quality of commercial banks; valid

H16: customer monthly income has influence on customer loyalty to personal finance service delivery of commercial banks; valid

H17: customer monthly income has influence on customer loyalty to personal finance service delivery of commercial banks; valid

H18: customer education background has influence on the personal finance service delivery technical quality of commercial banks; valid

H19: customer education background has influence on the personal finance service delivery process quality of commercial banks; invalid

H20: customer education background has influence on customer loyalty to personal finance service delivery of commercial banks; valid

H21: customer education background has influence on customer loyalty to personal finance service delivery of commercial banks; valid

4. Recommendations and Strategic Analysis

4.1. Technical Quality-based Financial Service Recommendations

4.1.1. Hardware Environment :According to empirical testing results of the questionnaire survey and the structural equation analysis, several hardware environment factors, including banking outlet location, service delivery environment, and the convenience and safety of e-banks, have influence on customer satisfaction. Therefore, while delivering personal finance services, banks should pay more attention to the building of their hardware environment.

According to the present situation of informational construction of Chinese finance. We can get some information from the international developing tendency of IT construction. In the foreseeable future. The construction of China's financial information system, it still have to focus on the premise of data accumulation. We can use the integrated business system and data warehouse to achieve the self-development. At the same time, the technology of information security should be the guarantee.

4.1.2. Financial Managers :This empirical study shows that the service efficiency and professional knowledge of financial managers have some positive influence on customer's satisfaction and loyalty. Whether financial managers, as one of the core competitiveness of bank financial services, are outstanding and have rich professional knowledge, high service-providing quality and great technical tactics is quite important. Financial managers should be favorably a complex of product managers, marketing managers and after-sale service managers.

4.1.3. Financial Products:When developing personal financial products, banks should not simply sell financial products that they can produce, but should fully understand customer demands and future demands, make effective technical analyses and prediction and eventually combine with their own resources to design financial products that can fully meet diverse financial needs of customers.

We should actively promote the standard system of financial information technology and application. Not only standardization could meet the needs of different applications, but also reduce the complexity of the system and management difficulty and

simplify the operation. The standardization of hardware, network, basic software and so on, is relatively easy, we can promote it in advance, but the technical platform, development methods and other work at application system standardization, which is need to reference different development period and imply it.

For example, when we doing the design of financial products, if it is a product involving information technology, From a purely technical angle, you can use the help of the OSI reference model.

OSI (Open System Interconnect) open system interconnection, generally called the OSI reference model by scholar, ISO (International Standardization Organization) . in 1985 ,It's a study of network interconnection model.OSI reference model defines the hierarchical structure of the open system, the relationship between the levels and each layer of the package containing the service.OSI reference model not a standard, but a conceptual framework used in the formulation of the standard. It has been regarded as a framework to coordinate each layer's organization and formulation.OSI defines the seven layer framework of interconnection network, including the physical layer, the number of the link layers, network layer, transport layer, session layer, presentation layer and application layer. At each layer, we should meet the needs of client.

4.2. Process Quality-based Financial Service Recommendations

Before the empirical research, the author consults theoretical models in this field and believes that the process quality has positive influence on customer satisfaction, so process quality is introduced into the concept model. In fact, the author finds that the overall impact factor of the process quality on customer satisfaction and loyalty reaches 0.68. Therefore, it is recommended that commercial banks can employ the customer manager system to deliver personal financial service. In addition, it is quite necessary to introduce the customer relationship management.

The typical embodiment of process quality in IT Technology, which is , when clients receiving financial service, they can feel the efficient and speedy that brought by IT technology. Such as "Smart Counter" , this is a good example, "Smart Counter" includes, TCP/IP communication technology, Wireless Synchronization Technology, Cloud Storage, and many other emerging network technology, it Can fully realize the goal for no people helping us handle business affairs. At the same time ,It saved a lot of time, the general business wont take long time to resolve, and the experience of customers will become more and more better.

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