

Research on the Impact of Internet Finance on Risk Level of Commercial Banks

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How to cite this paper: Liao, W.L. (2018) Research on the Impact of Internet Finance on Risk Level of Commercial Banks. *American Journal of Industrial and Business Management*, 8, 992-1006. <https://doi.org/10.4236/ajibm.2018.84068>

Received: March 27, 2018

Accepted: April 25, 2018

Published: April 28, 2018

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Abstract

The rapid development of Internet finance has continuously changed the mode of operation of China's financial system. Under the backdrop of China's entry into a new normal economy, slowing economic growth, and a grim situation, the impact of Internet finance on traditional financial models based on commercial banks is extremely huge and far-reaching. Therefore, we should thoroughly investigate the risk exposure of commercial banks in the context of Internet finance, study the two-way impact mechanism of Internet finance on bank risk exposure, and how Internet finance generally affects the risk behavior of banks. This stabilizes the Chinese banking industry and the stability of the entire financial system has important practical significance. This paper uses the loan loss readiness rate as an explanatory variable to try to model, construct the Internet index as an explanatory variable, and select the control variables from macroscopic and microscopic perspectives, including macroeconomic level, bank capital adequacy ratio, bank capital return rate, and banking concentration. Degree, bank loan-to-deposit ratio, and asset size, through the regression analysis of the GMM model, access to the data of 26 listed commercial banks from 2006 to 2016, striving to theoretically sort out the impact of Internet finance on commercial bank risk-taking, combined with empirical research. The in-depth study of the impact of Internet finance on commercial banks' risk-taking will provide theoretical and practical reference opinions for commercial banks to improve the risk-taking situation.

Keywords

Internet Finance, Commercial Bank, Risk Taking

1. Introduction

This article will explore the mechanism of risk influencing factors of commercial

banks from the perspective of Internet finance. Combining the existing literature theory on the impact of Internet finance on commercial banks' risk-taking, it discusses three aspects: risk level, operating efficiency, and profitability. We use the panel data of listed banks and GMM dynamic moment estimation, to further analyze the Internet financial impact on commercial banks, the level of risk transmission mechanism, and whether the overall impact of Internet finance is positive or negative on the risk-taking level of commercial banks. Through the research, this article draws the following conclusion: the development of Internet finance has increased the commercial bank's risk-taking level, and it has had a significant impact on commercial banks. This paper seeks to provide effective research on both theoretical research and policy formulation, and put forward reasonable suggestions.

Therefore, the article is organized as follows.

The first chapter summarizes the current background of the core of this study, and proposes research questions based on the background. Then, it further explains the purpose and significance of researching the topic of this paper, and organizes the research framework of this article, including the research ideas, research methods, and the technical route of this article. In the end, the article briefly summarizes the innovation of this article.

The second chapter is theoretical analysis and hypothesis. In this chapter, we discuss the connotation of Internet finance, the measurement of commercial banks' risk commitment indicators, the impact of Internet finance on commercial banks' risk exposure, and the impact of Internet finance on the risk exposure of commercial banks. In this chapter, we assume that Internet finance will increase the risk exposure of commercial banks.

The third chapter is empirical research. This chapter collates the panel data of 26 listed banks from 2006 to 2016, briefly describes the sample data, sets a GMM regression estimate of the impact of internet finance on commercial banks' risk exposure, and we conduct Hansen and Arellao-Bond test, analyzing the empirical results.

The fourth chapter is giving some practical advice. This chapter integrates the existing theoretical research and analyzes the results of empirical research. It carefully analyzes the impact of internet finance on commercial banks' risk-taking, summarizes the conclusions of this paper, and summarizes how the regulatory authorities can promote the development of Internet finance and commercial banks in Internet finance. The two perspectives of risk control under the premise of development provide reasonable policy recommendations.

2. Theoretical Analysis and Hypothesis

2.1. Meaning of Internet Finance

The foreign research on Internet finance mainly refers to Electronic Finance. As early as 1997, Cronin researched online products and online payments, and proposed that the emergence of Internet finance was given the meaning of the

development of the times, and it was dynamic and vital [1]. Claessens *et al.* [2] pointed out that the impact of Internet finance development has continued to increase globally, whether in developed economies or emerging countries, or in developing countries with low levels of financial development, and even some countries where Internet finances have not further developed and financed. Even in countries with weak foundations, Internet finance has had a tremendous impact on these economies.

Ping Xie & Chuanwei Zou [3] starting from the general equilibrium theory, studied Internet finance earlier and defined Internet finance as the “third type of financial financing model”, which laid the foundation for the domestic Internet finance research. They pointed out that Internet finance is different from direct financing and indirect financing. It has emerged with the development of computer information technology such as mobile payment, search engines and cloud computing. On this basis, Xiaoqiu Wu [4] further defined Internet finance as the “third financial format”. He proposed that Internet finance should develop through the Internet platform and it is the new financial model with financial services modules. Guogang Wang & Yang Zhang [5] combed and studied the definition of Internet finance, and agreed with the definition of Internet finance in a narrow sense. Jizun Li [6] integrated inclusiveness into the definition of Internet finance and believed that Internet finance has a “grassroots” nature and is also given an inclusive nature because of the groups it contacts. He pointed out that Internet finance, with its extremely low operating costs, efficient and convenient financial services, forms its core competitiveness and has financial functions. It has played an important role in reducing information asymmetries in the financial market. Shuting Liu [7] agreed with Jizun Li that the convenience and efficiency of Internet finance will make it take on important functions in the financial system, and will affect commercial banks from all aspects such as financial services and channels. Weifeng Yu & Hao Zhou [8] were essentially defining the Internet finance, and believed that the essence of Internet finance is “funding”.

2.2. Measurement of Commercial Banks' Risk-Taking Level

The academic community has conducted more research on the measurement of commercial banks' risk-taking. The agent variables of bank risk assumptions include non-performing loan ratio, loan preparation loss, capital adequacy ratio, Z index, and expected default rate as proxy variables.

The academic community often uses non-performing loan ratios as a measure of commercial banks' risk-taking and is widely used by Chinese and foreign scholars. Salas & Saurina [9], and Barth *et al.* [10] used the non-performing loan ratio as a proxy variable for commercial bank risk exposure. Hai Jiang & Liqin Wang [11], and Chengsong Wu *et al.* [12] selected commercial banks' first-order differentials in non-performing loan ratios, first-order lag and second-order lag of bad-asset ratios to measure commercial banks' risk exposure, taking dynamically lagging change of assets into the model.

Based on the non-performing loan ratio, some scholars combine actual supervision and capital adequacy, and use denominated indicators such as non-performing loan ratios as a denominator, and asset-liability ratio CAR as a molecule to form a capital adequacy method to measure commercial banks' risk. The capital adequacy method originated from the study of Shrieves & Dahl [13]. After analyzing five years of relevant data from several US banks, they found that both the bank's capital and risk levels are positively changing, regardless of whether the bank meets regulatory requirements. Haiming Liu & Juan Xu [14] pointed out that the capital adequacy method is a measure of the best risk assumption combined with non-performing loan ratio and capital adequacy ratio.

The Z index is an index measuring the bankruptcy rate of banks. It is also commonly used by scholars to study the level of risk-taking level of commercial banks. Hannan & Hanweck [15] proposed for the first time the use of the bankruptcy index Z value to measure commercial banks' risk-taking level, and then the Z index was recognized by the academic community and was commonly used to measure the level of commercial bank risk exposure. Weida He & Yu Yi [16] used the Z index to measure the risk measurement of listed banks and empirically studied the relationship between foreign equity participation and Z index. Jianhua Zhang & Peng Wang [17], Zhichao Yin *et al.* [18], Zhonglin Li [19], Junshan Duan & Ruihao Zhang [20] are all using the Z index as a measure of bank risk exposure.

Some scholars also believe that the commercial bank's expected default rate is a good choice for measuring the risk-taking of commercial banks. Altunbas *et al.* [21] believed that the measurement of commercial bank risk and the expected default rate were currently the most suitable proxy indicators. Xiaojian Niu & Xiang Yu [22] also used the expected default frequency (EDF) as a risk measurement indicator, selected the expected default rate of the Chinese banking industry in secondary market transactions, and studied the relationship between interest rates and bank risk exposure. However, at present, China does not establish a special database for breach of contract, and the relevant data is very scarce, and it cannot meet the empirical data sample size requirements. Therefore, the domestic academic community uses less the expected default rate as the proxy variable of bank risk.

Some scholars have combined several major bank risk measurement indicators and sought to find more reasonable agency variables. Xuelan Zhang & Dexu He [23] chose loan loss provisions as a ratio of total loans to measure bank's risk, while non-performing loan ratio and Z value were used as indicators for assisting robustness. Zheng Zuo *et al.* [24] selected a total of six variables to fully measure the risk level to avoid the theoretical and practical bias caused by a single variable.

2.3. The Impact of Internet Finance on Commercial Banks' Risk

The emergence and rise of Internet finance has largely changed the model of traditional commercial banks. Changes in the economic environment are begin-

ning to affect the entire industry through information technologies and other Internet elements, which have caused major changes in financial services and service formats [25]. Therefore, domestic and foreign scholars have done a lot of research in these areas.

Some scholars believe that Internet finance will optimize the structure of the financial industry and will promote the reform of commercial banks, thereby reducing the risk level of commercial banks. Mishkin & Strahan [26] and Allen *et al.* [27] found that the information technology brought by Internet finance can reduce information asymmetry in credit behavior, speed up information transmission and sharing among banks, and provide loans more accurately and safely. It is good for banks and lenders.

Most scholars believe that, from a short-term perspective, Internet finance will have an impact on commercial banks and will increase the risk exposure of commercial banks. Nsouli *et al.* [28] pointed out that online banking will exacerbate the bank's own risks, so regulators should pay attention to the impact of online banking and should continuously adjust their supervisory policies according to actual conditions. Chengsong Wu *et al.* [29] found that the continuous deepening of Internet finance through the 5-year empirical data of city commercial banks will weaken the innovative capacity of urban commercial banks to cope with the new environment. He pointed out that the reason for such a result may be that Internet finance has largely eroded the profits from the city bustling business. Weifeng Yu & Wei Zhou believed that the essence of Internet finance and commercial banks are to play the role of "financial financing," and the essence of the two is the same. Therefore, Internet finance and commercial banks will have competition in some businesses and fields, and Internet finance will increase the risk exposure of commercial banks.

Some scholars hold a compromise point of view. They believe that in the short term, Internet finance will bring risks to banks, but from a long-term perspective, more is the role of promotion. Godfrey *et al.* [30] found that compared with traditional commercial banks, the operating costs of Internet finance forms such as online loan platforms are extremely low, and they are more individualized and diversified. However, the risk level of Internet financial services is higher than that of banking services. With the constant standardization of Internet finance, the regulatory authorities will inevitably draw up detailed regulatory laws and regulations, clarify the direction of Internet finance development, and promote the healthy development of Internet financial sustainability. KaiJing [31] & Zhigang Fan [32] believed that the emergence of Internet finance has changed the traditional competitive landscape of commercial banks, enriched the number of financial market participants and business forms, and constantly reshaped the financial industry. There is a competitive relationship between Internet finance and commercial banks, and there are many potential opportunities for cooperation. Although it seems that Internet finance companies occupy an active position and commercial banks are relatively more passive, due to the large volume of commercial banks, banks still have enough time to respond.

Therefore, in the future, traditional financial institutions will form more in-depth cooperation and more complex competitive relationships with Internet finance companies. Ting Yu [33] further pointed out that Internet finance generally has a positive effect on commercial bank risk, that is, it would increase its risk. However, for commercial banks with more online banking users, Internet finance has a negative effect on commercial bank risks.

Overall, Internet finance has not been around for a long time, and it has developed rapidly, which has profoundly affected the development of traditional commercial banks. At present, academic topics on the impact of Internet finance on commercial banks' risk-taking have aroused the attention of the academic community. However, most of the research focuses on the theoretical guidance of Internet finance and the theory and case analysis of the influence of Internet finance on the risk-taking of commercial banks. There are also some literature has carried out empirical research, but all are relatively general. Therefore, based on the current research results, this paper conducts empirical research by selecting reasonable proxy variables and constructs empirical models to deeply study the impact of Internet finance on commercial banks' risk-taking.

2.4. Study and Assumption of the Impact Mechanism of Internet Finance on Commercial Banks' Risk

Internet finance mainly comes from both direct and indirect roles. The direct impact mainly refers to Internet finance which directly increases bank risk. Indirect effects include the impact of Internet finance on commercial bank operating efficiency and profitability. The influence mechanism of the Internet on commercial banks has distinctly different approaches.

The following assumptions are made in this paper to integrate the above-mentioned mechanisms of the impact of Internet finance on commercial banks' risk assumptions:

Ho: Internet finance will weaken the level of risk-taking level of commercial banks.

H1: Internet finance will increase the risk-taking level of commercial banks.

2.4.1. Risk Level

The technological changes brought about by the development of Internet finance have opened up the barriers between traditional commercial banking departments, reduced the information asymmetry between commercial banks, linked various links in banking operations, and streamlined the internal management process of commercial banks. And the system has enhanced the commercial banks' management of their risk control [34]. Internet finance has brought big data analysis technology to commercial banks. Commercial banks can use their own accumulated customer group data to improve their own risk control procedures and improve the precision of risk control models and risk management processes used by commercial banks. Achieve accurate identification of custom-

er information and comprehensive customer evaluation. At the same time, the technology brought by Internet finance has also optimized the internal evaluation system of commercial banks, simplified the internal management procedures and operations of commercial banks, reduced the management costs of commercial banks, and improved the management efficiency of commercial banks and the profit income of commercial banks. It improved the attitude and mode of commercial bank service customers, promoted the self-improvement growth process of commercial banks, and changed the monopoly pattern of commercial banks. Since the risk management model of Internet finance is different from that of traditional commercial banks, commercial banks can use the concept of Internet finance to learn from the risk management model, thereby reducing the risk exposure level of commercial banks themselves.

2.4.2. Operational Efficiency

Internet finance will promote the technical level of commercial banks, thereby reducing the internal management costs of commercial banks. By optimizing commercial bank operations and internal control processes, the operational efficiency of commercial banks will be continuously improved, thereby reducing the risk exposure of commercial banks.

Through the demonstration effect, Internet finance stimulates banks to learn advanced information technology and service concepts from them, forcing commercial banks to shift from traditional self-oriented to customer-driven, to improve their technical level and improve their operational performance. The popularization of Internet finance has gathered idle funds in the society. Since Internet finance often provides high yields, a large number of individual investors and institutional investors have begun to invest funds in the Internet financial platform. The efficiency of capital flow in China's capital market has increased. The degree of capital flow of the entire system, and the funds in the financial system will eventually flow to commercial banks. This will increase the liquidity of commercial banks and will be beneficial to the operation and development of commercial banks. The open and shared features of Internet finance make it possible for customers to have a high degree of participation in the development of related services. The business process is simple and convenient, the operating costs are low, and the coordination between internal departments is good, which is an unmatched advantage of traditional commercial bank.

2.4.3. Profitability

Internet finance has caused a certain impact on the profitability of commercial banks, and along with the reduction of profits, commercial banks may take the risk, and pursue high-risk risk behaviors in order to pursue higher profits to maintain high-risk risk behaviors [35]. The cooperation between Internet finance and commercial banks has continuously promoted the scale expansion of commercial banks' Internet finance business. These businesses often have relatively high risks themselves, and if there is a cash flow problem in the coope-

rating Internet financial platform, then they will be used as trustees or partners. Commercial banks are required to compensate for the loss of funds, which can easily result in the loss of commercial banks' interests, as well as the commercial banks' own goodwill. Therefore, the in-depth cooperation between commercial banks and Internet finance will be contaminated by the risk of Internet finance and increase business, which will increase bank's operating risk.

3. Empirical Research

3.1. Variable Design

Variable description table is as below (Table 1).

3.2. Construction of Internet Financial Index

In order to scientifically measure the status quo of Internet finance development, this article draws on the research results of Yue Shen & Pin Guo (2015) and uses the "text mining method" to construct an Internet finance index as an explanatory variable. The initial glossary is shown in the table below.

3.3. Model Setting and Measurement Methods

3.3.1. Types of Data

In view of the fact that the sample selected in this paper is the financial data of 26 listed commercial banks spanning from 2006 to 2016. Because we cannot get data from 2017, as most of banks didn't disclose annual year data, we choose the time scope of 2006 from 2016. The GMM is used for analysis through dynamic panel data. In addition, due to the fact that the data selected in this paper is not complete within the corresponding time span, some commercial banks have only recently been listed. In order to ensure the comprehensiveness of the sample, this paper uses the interpolation method to handle some of the missing data smoothly.

3.3.2. Model Settings

In order to explore the impact of Internet finance on commercial bank risk

Table 1. Variable description table.

Type of Variable	Name of Variable	Symbol of Variable	Description of Variable
Explained variable	Loan-loss reserve rate	$RISK_{DL}$	loan-loss reserve/total loan
Explanatory variable	Internet finance Index	IFI	Internet finance Index
	Macroeconomic level	GDP	Nominal GDP growth \times 100
	Bank capital adequacy	CAR	Bank capital/weighted risk assets
	Return on bank assets	ROA	Net margin/total asset
Control Variable	Banking concentration	CR4	The ratio of assets of the top 4 Banks
	Bank loan-to-deposit ratio	DPR	Total loan/total deposit
	Asset Size	SIZE	Log total asset

assumptions, the model of this paper is as follows:

$$RISK_{it} = \beta_0 + \beta_1 RISK_{i,t-1} + \beta_2 IFI_t + \sum_{j=1}^8 \alpha_j Control_{jit} + u_i + \varepsilon_{it}$$

The explanatory variables in the equation are $RESK_{it}$, which represent the risk acceptance level of the i -th bank in the t -th term. $RESK_{i,t-1}$ represent the level of the pre-risk exposure; the Internet finance index IFI_t is the main explanatory variable; $Control_{jit}$ is the control variable; u_i is the intercept of the individual heterogeneity; ε_{it} is the random disturbance items.

3.3.3. Measurement Methods

In the model of this paper, there are endogenous problems in the explanatory variables. In addition, there may be unobservable time effects and individual effects. It is difficult to use fixed-effect or random-effect models to estimate, which will lead to inconsistency of parameter estimation, which will inevitably distort the economic implications of empirical results. Therefore, in this paper, the GMM estimation is used to estimate the model to eliminate the endogeneity problems in the model that the explanatory variables contain lag explained variables. The principle of this method is to obtain a consistency estimate by first-order difference of the original estimation equation, and then using the lag explanatory variable as a tool variable of the corresponding variable in the difference equation.

4. Empirical Research and Analysis

4.1. Variable Descriptive Statistics and Internet Financial Index

This article uses the factor analysis method to construct the Internet financial index, and uses the Internet finance index constructed as the explanatory variable. In the process of constructing the Internet financial index, KMO value and Bartlett's sphericity test were conducted. In general, the KMO test is used to examine correlations and partial correlations between variables, ranging from 0 to 1. The closer the KMO statistic is to 1, the stronger the correlation between variables and the weaker the partial correlation, the better the factor analysis effect. In the actual analysis, the KMO statistic is better at 0.7 and above; when the KMO statistic is below 0.5, factor analysis is not suitable at this time. It can be seen that the KMO value was 0.7 when the Internet financial index was constructed, and the Bartlett sphericity test was also significant under the 1% confidence level. Therefore, it is suitable for constructing a factor analysis method (Tables 2-4).

The Internet finance index data are as follows.

4.2. The Model Result and Analysis of the Effect of Internet Finance on Commercial Banks' Risk

4.2.1. Analysis of Correlation Coefficients Matrix

Through the analysis of the correlation coefficient matrix for each variable, the correlation between the independent variable and the dependent variable, and

Table 2. Variable descriptive statistics.

Name of Variable	Mean Value	Standard Deviation	Minimum Value	Maximum Value
risk	1.549	2.142	0.330	23.500
riskd	2.590	0.674	0.710	5.080
car	12.338	2.536	3.400	30.670
roe	18.818	4.264	4.320	36.710
roa	1.118	0.294	0.148	2.239
cr4	67.124	4.954	59.298	75.618
size	27.365	1.910	23.571	30.815
dpr	67.714	7.587	38.970	92.032
gdp	9.336	2.304	6.700	14.200
ifi	0.691	0.451	0.090	1.540

Table 3. Factor analysis.

Index	KMO	Bartlett's test	Number of common factors	variance contribution rate
Internet finance index	0.70	196.7856*** (0.0000)	4	86.26%

Table 4. Internet financial index.

Year	Internet finance index
2006	1.54
2007	0.9
2008	0.64
2009	0.09
2010	0.71
2011	0.34
2012	1.45
2013	0.42
2014	0.88
2015	0.38
2016	0.25

between the independent variable and the controlled variable is roughly examined. It is generally believed that there may be multiple collinearity problems when the correlation coefficient reaches above 0.8 (Table 5).

It can be seen that in the correlation coefficient matrix, there is no significant linear correlation between the Internet financial index if i and the agent variable riskd of bank risk, so we continue to analyze the GMM model.

4.2.2. GMM Model Analysis of the Effect of Internet Finance on Commercial Banks' Risk

The Hansen test P value should be as large as possible, generally exceeding 0.1

Table 5. Correlation coefficients matrix.

	riskd	car	roa	cr4	size	dpr	gdp	ifi
riskd	1.0000							
car	0.0932	1.0000						
roa	-0.0226	0.4629*	1.0000					
cr4	-0.3161*	-0.2088*	-0.0381	1.0000				
size	-0.0628	-0.1013	-0.1983*	-0.2886*	1.0000			
dpr	-0.3111*	-0.2569*	-0.1371*	-0.1513*	0.2308*	1.0000		
gdp	-0.2599*	-0.1711*	-0.0747	0.8914*	-0.2661*	-0.1414*	1.0000	
ifi	-0.0013	-0.0760	-0.0333	0.4023*	-0.1156*	-0.1507*	0.4078*	1.0000

means that the null hypothesis that the instrument variable cannot be rejected is valid. The larger the p value of the AR (2) is, the better, and it is generally considered that more than 0.1 passes the test, indicating that the GMM estimate is not There is a second-order sequence correlation. The results of this model show that the p-value of AR (1) is 0.001, the p-value of AR (2) is 0.119, and the Hansen value is 1.0. Therefore, it can be seen that the instrumental variable in this model is valid and does not exist in the model. Second-order sequence correlation, GMM estimation effect is better (Table 6).

Based on the empirical results of the above model, the following analysis was made:

The Internet financial index is positively correlated with the commercial bank's risk-taking behavior, with a significant level of 10%, accepting the hypothesis H1. In other words, the development of Internet finance will continue to increase the level of bank risk exposure. The technological changes brought about by the development of Internet finance have opened up the barriers between traditional commercial banking departments, reduced the information asymmetry between commercial banks, linked various links in banking operations, and streamlined the internal management process of commercial banks. And the system has enhanced the commercial banks' management of their risk control. However, the new technologies of Internet finance may bring potential technology risks, and the accelerated cooperation between commercial banks and Internet finance may also directly lead to technical risks, operational risks, and credit risks of commercial banks, while the risk of Internet finance is contagious. It also indirectly increased the risk exposure of commercial banks. At the same time, as a new thing in development, Internet finance is relatively weak in supervision by the regulatory authorities and there are many vacuum areas for supervision. Internet finance has caused a certain impact on the profitability of commercial banks, and along with the reduction of profits, commercial banks may take the risk and take high-risk risk behaviors in order to pursue higher profits to maintain the profit space. Although the development of Internet finance has brought new technologies to commercial banks and has caused

Table 6. GMM model analysis.

Name of Variable	(1)	(2)	(4)	(5)	(6)	(7)	(8)
L. riskd	0.889*** (53.74)	0.876*** (46.62)	0.879*** (74.35)	0.770*** (40.00)	0.769*** (37.13)	0.733*** (44.26)	0.757*** (32.44)
ifi	0.091*** (8.87)	0.061*** (5.24)	0.059*** (3.97)	0.070*** (3.87)	0.073*** (3.94)	0.065*** (3.16)	0.043* (1.79)
car		0.032*** (5.81)	0.010 (1.34)	0.031*** (4.31)	0.029*** (4.13)	0.024*** (3.31)	0.025*** (3.21)
roa			0.264*** (4.42)	0.034 (0.64)	0.050 (0.83)	0.029 (0.43)	0.008 (0.13)
cr4				-0.044*** (-9.51)	-0.045*** (-9.78)	-0.043*** (-8.38)	-0.048*** (-8.80)
size					-0.002 (-0.28)	0.006 (0.52)	0.000 (0.03)
dpr						-0.010*** (-7.41)	-0.009*** (-6.33)
gdp							0.014 (1.04)
Cons	0.267*** (5.81)	-0.077 (-1.23)	0.167* (1.94)	2.794*** (12.11)	2.915*** (8.52)	3.515*** (8.16)	3.718*** (9.27)
N	236	233	224	224	224	224	224
AR (1)	0.000	0.001	0.002	0.000	0.000	0.001	0.001
AR (2)	0.11	0.118	0.105	0.103	0.103	0.107	0.119
Hansen	0.999	1.000	1.000	1.000	1.000	1.000	1.000

Explanation: The variable is t-value in parentheses, and AR (1), AR (2), and Hansen's J are the *p*-values corresponding to the statistic; the value in parentheses is the standard error size; *, **, *** Corresponding differences are significant at 10%, 5%, and 1% confidence levels, respectively.

commercial banks to optimize internal adjustments through competition, which has increased the core competitiveness of commercial banks in the new financial environment, overall, Internet finance has increased commercial banks' risk-taking level.

5. Policy Suggestions

Commercial banks must have a correct and comprehensive understanding of the impact of Internet finance development. Under the background of the rapid development of Internet finance, the transformation and development path planning of commercial banks will rise to the strategic level of banks, and attention will be paid to the construction of Internet-related financial services. Commercial Banks have to clarify its own weaknesses in some financial services with re-

spect to Internet financial institutions, and combine its traditional advantages with Internet technologies.

Therefore, commercial banks and Internet finance can learn from each other and cooperate with each other. They can cut in investment and financing businesses, product sales, and online credit business, deepen cooperation, expand cooperation, optimize cooperation models, and integrate the advantages of the two parties. Banks and Internet finance should share their resources, to achieve mutual benefit and win-win goals.

When commercial banks learn from the development experience of Internet finance, they should pay attention to properly adjust and improve the internal management and control system, prevent system risks, optimize the internal risk control system, and ensure that risks can be effectively identified and evaluated in every link of internal procedures, and grasp the level of risk as a whole.

Commercial banks should increase their capital investment in information security technology research and development, pay attention to the bank's information security issues, set up data backup centers, and build an early warning mechanism for Internet financial risks; at the same time, commercial banks should also actively conduct R&D and innovation based on Internet technologies, and learn from and learn about the current development of a better Internet finance company related technology.

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