Research on the Influence of the Development of Third Party Payment on the Profitability of Commercial Banks

Yuan ZHANG

Institute of Economics and Management, Jiangsu University of Science and Technology, Zhenjiang, 212114, China

954538249@qq.com

Keywords: Commercial bank, Profitability, Third-party payment

Abstract: In the context of the rapid development of third-party payment, this article starts with the selection of indicator analysis data, uses factor analysis to study whether third-party payment has an impact on the profitability of commercial banks, and provides specific suggestions and countermeasures for improving the profitability of commercial banks.

1. Introduction

Payment is a breakthrough for Internet companies to penetrate into the financial sector. Various payment institutions have emerged at the historic moment, payment media, channels, and technologies have rapidly changed, payment application scenarios have been continuously enriched, user experience has been greatly improved, and transaction scale has grown rapidly.

The prosperity and development of third-party payment has brought a lot of impact to traditional commercial banks, and commercial banks are an important guarantee for the sustainable development of economic activities. To this end, this article will use factor analysis to analyze and test the financial data of 16 listed commercial banks, and get relevant measures to improve the profitability of commercial banks.

2. Literature Review on the Profitability of Commercial Banks

Most foreign scholars' research on the factors affecting the profitability of commercial banks mainly analyzes the three aspects of macroeconomic conditions, industry factors and commercial banks' own factors. However, domestic scholars mostly use principal component analysis or factor analysis, DuPont analysis model and other methods to study the influencing factors of profitability. At present, many domestic scholars are also Attempts to explore and find methods suitable for the influencing factors of the profitability of my country's commercial banks have not yet formed a unified analysis method.

3. Empirical Research

On the premise of ensuring the integrity and validity of the data, this paper will select 16 listed commercial banks as the research objects. The data comes from the annual financial data statements of major commercial banks, and the interception time is from 2017 to 2019. The relevant data indicators of third-party payment come from Chinareport.com.

3.1 Evaluation Index Selection and Data Source

The main evaluation indicators selected are asset return rate X_1, capital adequacy rate X_2, operating profit rate X_3, interest income growth rate X_4, non-performing loan rate X_5, non-interest income rate X_6, external factors X_7 and return on net assets X_8, for the purpose of research The impact of the development of third-party payment on the profitability of commercial banks. This article divides the transaction scale of third-party payment by the assets of the commercial bank to indicate the impact of external factors on the profitability of commercial banks.

3.2 Empirical Analysis

(1) Suitability test

Due to the large index X_7, this paper adopts logarithmic processing. KMO test and Bartlett sphericity test were carried out through software. The test results show that the KMO value is 0.521>0.5, and sig is significantly less than the given significance level of 0.01, so it is considered that there are significant differences between the relevant index factors. The above proves the applicability of the factor analysis method in this study.

(2) Common factor extraction and naming

Table 1 Using Spss Software to Perform Principal Component Analysis on 8 Indicators of 16 Commercial Banks from 2017 to 2019 and Extract Factors.

Table 1 Total Variance Explained

Ingredients	Initial eigenvalue			Extract the sum of squares and load			Rotate the sum of squares loading		
	total	Variance %	accumulation %	total	Variance%	accumulation %	total	Variance%	accumulation %
1	3.043	38.038	38.038	3.043	38.038	38.038	2.402	30.020	30.020
2	1.670	20.881	58.919	1.670	20.881	58.919	2.265	28.318	58.338
3	1.192	14.901	73.820	1.192	14.901	73.820	1.239	15.482	73.820
4	0.807	10.085	83.904						
5	0.701	8.765	92.669						
6	0.368	4.595	97.264						
7	0.129	1.612	98.877						
8	0.090	1.123	100.000						

It can be seen from the above table that the eigenvalues of the first three common factors are all greater than 1, so this article believes that the first three common factors are mainly feasible evaluation indicators. According to Table 2, F_1 is expressed as the capital adequacy ratio, and F_1 is

named the first profitability factor; then F_2 is the return on equity, named the second profitability factor; F_3 is the interest income growth rate and named the third profitability factor Ability factor.

Table 2 : Rotating Component Matrix[a]

	Element		
	1	2	3
X_1	0.758	0.496	0.038
X_2	0.826	0.244	0.050
X_3	0.489	0.700	0.064
X_4	0.004	-0.122	0.824
X_5	0.196	-0.835	-0.103
X_6	-0.068	-0.235	-0.735
X_7	-0.903	0.302	-0.023
X_8	0.216	0.782	-0.007

Table 3 : Component Score Coefficient Matrix[a]

	Element		
	1	2	3
X_1	0.279	0.140	-.029
X_2	0.342	0.007	-.004
X_3	0.129	0.273	-.013
X_4	-0.009	-0.119	.688
X_5	0.202	-0.425	-.032
X_6	0.024	-0.053	-.587
X_7	-0.450	.267	-.011
X_8	-0.004	.353	-.068

(3) Calculate Factor Score and Ranking

Based on the three profitability factors named F_1, F_2, and F_3 above, and according to the component score coefficient matrix of Table 3, the calculation formula of the principal component is finally determined as:

$F_1=0.279X_1+0.342X_2+0.129X_3-0.009X_4+0.202X_5+0.024X_6-0.45X_7-0.004X_8$

$F_2=0.140X_1+0.007X_2+0.273X_3-0.119X_4-0.425X_5-0.053X_6+0.267X_7+0.353X_8$

$F_3=0.029X_1-0.004X_2-0.013X_3+0.688X_4-0.032X_5-0.587X_6-0.011X_7-0.068X_8$

The scores of the three public factors of F_1, F_2, and F_3 and the contribution rate of the three factors after rotation (30.02%, 28.31% and 15.482%)/cumulative contribution rate 73.82% are used as weights to calculate the scores of all commercial banks. The specific calculation formula is:

$$F=\frac{30.02F1+28.31F2+15.482F3}{73.82}$$

Through the calculation of the above formula, the profitability score ranking of each commercial bank in Table 4 is as follows:

Table 4 : Ranking Of Profitability Scores of Commercial Banks

Company Name	2017	2018	2019	Mean	Rank
ICBC	8.80	8.66	7.50	8.32	2
Construction Bank	8.47	8.60	7.49	8.18	3
Agricultural Bank of China	8.85	8.41	6.68	7.98	4
Bank of China	7.51	7.26	7.12	7.29	5
Bank of Jiangsu	8.13	4.86	5.18	6.05	9
Bank of Nanjing	9.56	9.39	7.49	8.81	1
China Merchants Bank	7.35	7.31	7.11	7.26	6

Shanghai Pudong Development Bank	6.16	5.43	5.38	5.66	10
Bank of Communications	5.98	5.41	5.36	5.58	11
Industrial Bank	3.69	5.44	6.09	5.07	13
Everbright Bank	6.72	5.37	4.63	5.57	12
Ping An Bank	2.73	2.13	2.44	2.43	16
Bank of Beijing	7.84	8.57	4.47	6.96	8
Minsheng Bank	5.65	3.11	5.08	4.61	14
Shanghai Bank	2.68	11.05	7.56	7.10	7
CITIC Bank	3.48	3.72	3.77	3.66	15
Mean	6.48	6.54	5.84	6.28	

3.3 Result Analysis and Evaluation

It can be seen from Table 3 that the development of third-party payment has reduced the profitability of commercial banks. Table 5 proves that Bank of Nanjing ranks first in profitability score, the four major state-owned commercial banks also perform well, some local commercial banks rank in the middle, and most joint-stock commercial banks rank low. The above results indicate that commercial banks urgently need innovative ways to improve profitability.

4. Suggestions and Countermeasures

In order to better deal with the challenges posed by third-party payment, the following are some suggestions and countermeasures to improve the profitability of commercial banks.

4.1 Promote Digital Transformation

When using third-party payment on the mobile terminal, it is convenient and fast. Although traditional mobile banking has high security, the operation is not simple enough, and the frequency of use is much lower than that of third-party payment platforms. Therefore, commercial banks need to accelerate the digital transformation of their business, simplify the operation interface of each bank's payment platform, improve online banking functions, and improve profitability through the development of multiple businesses.

4.2 Promote Digital Transformation

Commercial banks can use various online platforms such as WeChat official accounts, website homepages, and APP on-screen promotion to conduct online marketing to attract more young customers. At the same time, it will introduce a large number of high-tech talents, strengthen independent research and development capabilities, and launch personalized services to meet the needs of multiple groups of people, thereby enhancing the competitiveness of commercial banks and increasing the income of various businesses.

4.3 Promote Digital Transformation

The development of third-party payment is also accompanied by many risks, and because many large customers still trust traditional commercial banks, third-party payment also lacks such high-quality customers, and banks need to attract more young customers. If the two parties cooperate for a win-win situation, they can exchange and integrate the data of both parties, realize resource sharing, and ultimately improve profitability.

5. Conclusion

The rapid development of third-party payment has not only enriched our daily lives, but also accelerated the business transformation and competitiveness of commercial banks themselves. Analyzing the impact of third-party payment on the profitability of commercial banks is conducive to promoting the reform of traditional bank operations, enhancing the sustainable development capabilities of commercial banks, enhancing their own profitability, and promoting the prosperity and development of the economic market.

References

[1] Nicolae P,Bogdan C,Iulian I.Determinants of Banks' Profitability:Evidence from EU 27 Banking Systems.Procedia Economics and Finance,no.4, pp.518-524, 2015.

[2] He Jiahuan. An Empirical Analysis of Commercial Banks' Profitability Based on Factor Analysis. Modern Business, no,26, pp.131-132, 2020.

[3] Yu Qiyuan. Research on the profitability of commercial banks based on principal component analysis. Enterprise Technology and Development, no.1, pp.87-89+92, 2019.

[4] Jin Jing. Research on the Evaluation of the Profitability of Commercial Banks in Qinghai Province--Based on Factor Analysis. Taxation, no.9, pp.147-148+151, 2019.

[5] Hu Li. An empirical study on the impact of third-party payment on the profitability of my country's commercial banks. Shanghai: Shanghai International Studies University, 2020.