

# Literature Review on The Impact of Internet Finance Development on Commercial Bank Profit Model

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**Abstract:** By diverting customers, squeezing the scale of deposit and loan business and raising the cost of capital, internet finance can reduce the interest rate spread of commercial banks and compete with them in many fields. This paper adopts the method of literature review to comb and study the relevant literature of Internet finance, the profit model of commercial bank, the impact of Internet finance on the profit of commercial bank and the relevant literature of improvement, on this basis, this paper discusses the impact of Internet finance on commercial bank profit model in the future research direction.

**Keywords:** Internet finance, Commercial Bank, Profit model, Literature review.

## 1. Introduction

As the blood vessel of the national economy, the bank undertakes the social responsibility and the responsibility of the national Macroeconomic regulation and control, which are different from the ordinary enterprises. As the most active part of the banking industry, the commercial banks, under the background of the rapid development of internet finance, the marketization of interest rates, and the normalization of the epidemic situation, in the past, the profit model of interest margin as the main source of income, separate operation as the main mode of operation, and credit expansion as the main business needs to be optimized. The 14th five-year plan states that the ability of commercial banks to serve the real economy should be enhanced by giving full play to their capital allocation functions, as well as derivative functions such as resource reallocation and risk dispersion, avoid capital from the real economy idling, leading to industrial hollowing, financial bubbles.

(1) Internet finance as a new form of finance is rising rapidly

Internet finance, as the third financial financing mode which is different from the traditional financial institutions and capital markets, meets the needs of people who are different from the traditional financial products, and makes financial products tailor-made for the long tail customers through big data, through the data tracking and push mechanism, push the business to potential customers. The development of information technology leads to the impact of internet finance on traditional banking, which diverts deposit funds from traditional banking and increases the cost of obtaining funds. The asset business field attracts the long tail customers, which are neglected by the traditional banking industry, and its low threshold, all-weather, huge amount of transactions, small single transaction and so on satisfy the diversified financing needs of the people, and make up the deficiency of the traditional banking industry. The profit structure squeezes the profit space of the banking industry, especially the commercial banks whose main profit mode is credit business, forcing a shift in its profit model. Before 2005, internet finance mainly reflected in the provision of network technology services for financial institutions. With the birth of Alipay and other third-party payment platforms, internet

finance gradually from the technical field into the business field, online lending platforms, crowdfunding and other emerging forms of network finance have emerged. The birth of P2P online lending in 2007 marked a new stage in the development of Internet Finance. In 2013, the People's Bank of China issued a monetary policy implementation report, stating that for the first time, internet finance provides a new channel between the capital Demander and the capital supplier, which is different from the traditional banking and securities markets, and is a useful complement to the existing financial system. In 2015, the People's Bank of China further Ministry of Industry and Information Technology of the People's Republic of China with 10 other ministries and commissions to issue the guiding opinions on promoting the healthy development of internet finance, marking the rise of internet finance to the level of a national strategy. In 2018, regulatory documents such as the implementation plan for special regulation of Internet financial risks appeared frequently, marking the stage of regulation of Internet Finance. Since 2020, when the epidemic brought about a surge in online transactions and a boom in the online economy, Internet Finance has entered a new stage of development.

(2) The development of Internet finance brings new opportunities and challenges to commercial banks

Internet finance breaks down the financial boundary and industry barrier. The competition of enterprises in the past is upgraded to industry competition, and will be upgraded to ecological competition in the future, no longer tied to the established service relationship. Financial service is no longer a passive service to meet customer needs, it needs financial institutions and practitioners to actively tap and create customer needs. Internet finance not only makes up for the deficiency of commercial banks, but also is a strong competitor of commercial banks. On the one hand, the internet finance concentrates on the long tail small market which the traditional commercial banks neglect, reduces the entry threshold of the financial industry, meets the diversified financing demand, and makes up the deficiency of the traditional commercial banks, to meet the diversified investment needs of the people. On the other hand, internet finance can reduce the interest margin of commercial banks by diverting their customers, squeezing the scale of deposit and loan business, and raising the cost of capital.

Therefore, under the impact of the booming internet finance, the commercial banks of our country must face up to the internet finance and judge whether their profit model matches the current market environment and their own development, once the mismatch should actively adjust the profit model to deal with the changing financial market, in the context of Internet finance to find a new profit growth point. Internet finance is characterized by a large number of transactions, small single transaction, all-weather, all-round, one-stop, if commercial banks can refer to its development model, rely on the way to build an internet platform to speed up the use of funds, reduce the precipitation of funds or by digging deep into the value of data to understand the customer, and then develop accurate products to broaden the scope of services, seek survival and development in the new economic normal.

## 2. Internet Finance Literature Carding and Analysis

### 2.1. Definition of Internet finance

Internet finance, also known as New Finance, financial technology, digital finance. It is an entirely new model of financial services that is different from traditional financial services. It is a financial activity based on information technologies such as big data, mobile payments and cloud computing and carried out by means of the Internet and mobile communications. Berger (2009)[1] considers Internet finance as an innovative activity that integrates traditional financial services with network technology to meet the financial needs of the public. Leejer (2012)[2] thinks that the internet finance has got rid of the excessive intervention of the government, and has taken on the function of the credit intermediary and the payment intermediary effectively. Vasiljeva and Lukanova (2016)[3] argue that internet finance is the most effective, low-cost, customer-oriented solution to the traditional financial weakness, which is the dynamic intersection of financial services and technology.

Academic circles have different views on whether Internet finance is a new type of finance that has not appeared in the past. Xie Ping (2012)[4] believes that internet finance is a new type of finance, it shows the financing model and commercial banks indirect financing and direct financing capital market too much difference. On the contrary, Wang Guogang and Zhang Yang (2015)[5] pointed out that internet finance is just a kind of financial arbitrage through the channels and technologies of the Internet, not so-called new finance.

### 2.2. The impact of Internet finance on commercial banks

Internet finance has brought many impacts on commercial banks. For example, the development of Internet finance has brought unprecedented risks to the financial industry because of the imperfect laws and regulations. Chen Zhao and Deng Dongsheng (2019)[6] considered that the lack of appropriate regulation in the early stage of the development of Internet finance had led to frequent chaos in the industry, while the frequent occurrence of strong regulatory policies in the late stage of the development had triggered special systemic risks, it also has a great impact on the risks of micro-financial institutions. Chen Rongda et al. (2020)[7] think that unlike Western countries, domestic internet finance relies on developed network infrastructure, and its business types and forms have surpassed most countries in the world. The

development of Internet finance in our country shows obvious leapfrogging and emphasis on financial model, and faces the challenge of systemic risk, supervision and industry self-discipline, and investor participation behavior. In order to further explore the impact of internet finance on commercial banks, different scholars hold different views. Some scholars believe that internet finance only brings negative effects to commercial banks, but some scholars think that internet finance causes catfish effect to the banking industry, impels the commercial bank to break through and reform itself in the competition, and encourages the commercial bank to improve the management efficiency.

(1) The negative impact of internet finance on commercial banks

The rapid development of Internet financial management has a strong impact on the traditional commercial banking system. Under the influence of Internet finance, commercial banks are facing increasingly fierce deposit competition and increasing profit pressure. Brissimis et al. (2009)[8] studied the negative effects of internet finance on the intermediary business, deposit business and loan business of commercial banks, and found that Internet finance has the largest impact on the deposit and loan business of banks. Norden (2014)[9] believes that internet financing will have an impact on the income of deposit and loan interest margin of commercial banks. Zheng Zhilai (2015)[10] pointed out that the internet finance will divert deposits on the liability side of commercial banks, and form a dislocation competition on the asset side, which has a huge impact on the third-party wealth management market. Chen Xiaoming et al. (2019)[11] found that the rate of non-performing loans (NPL) of commercial banks is highly positively correlated with internet finance. Therefore, in the traditional business, commercial banks are still dominant. Some commercial banks are also stimulated by network finance, develop their own internet financial business, trying to explore new profit growth points, profit model transformation. The rapid development of Internet finance has led many internet enterprises to enter the financial industry, and even some non-internet enterprises have added online credit business, squeezing the share of traditional commercial banking business. Du Jun and others (2019)[12] believe that the interest income of commercial banks mainly comes from the deposit and loan business, internet finance reduces the net interest income of commercial banks by diverting customers, squeezing the scale of deposit and loan business, and raising the cost of funds. Guo Ping and Shen Yue (2019)[13] believe that the development of internet finance will worsen the deposit structure of banks, increase the cost of interest payment and increase the risk-taking of banks, in particular, non-state, small, highly liquid and Capital adequacy ratio commercial banks have been hit harder.

(2) The positive impact of internet finance on commercial banks

Some scholars believe that internet finance can promote the traditional banking industry, they are not negative competition. Zheng Liansheng et al. (2014)[14] that the internet wealth management to absorb funds will be higher interest rates agreement deposits, borrowing funds and other ways back to the banking system. Gu Haifeng and Yan Jun (2019)[15] put forward the efficient and convenient internet finance to attract customers to the internet finance platform, to meet people's different needs from traditional financial products, and through big data for long tail customers tailor-made financial products, through data tracking and push

mechanism, push business to potential customers. Commercial banks should actively reach cooperation with the network financial platform to achieve a win-win situation. Guo Jing et al. (2022)[16] believe that the development of internet finance is a "Double-edged sword" for the risk-taking of commercial banks, on the other hand, Gresham's law forces commercial banks to optimize their profit models.

(3) The impact of internet finance on different types of commercial banks

Different types of commercial banks have been impacted by internet finance to different degrees. Huang Hang (2018)[17] believes that internet finance has reduced the profitability of city commercial banks. Gu Haifeng and Yan Jun (2019)[18] examined the impact of third-party payment and P2P online lending on bank profitability, and found that third-party payment and commercial banks are positive competition. The third-party payment not only impinges on the profitability of commercial banks, but also develops the demand for non-interest business. Network credit has a significant impact on the non-interest income of large state-owned banks, but it has no significant impact on the share of non-interest income of joint-stock banks and urban and rural commercial banks. Shen Zijie and Yu Ke (2020)[19] used the return on total assets (Roa) as a core indicator to measure the impact of non-financial institutions on the performance of commercial banks, the declining trend of city commercial banks is much larger than that of state-owned banks and joint-stock commercial banks. The reasons are: first, non-financial institutions divert customers' deposits, commercial banks lose part of the competitive advantage of funds and increase operating costs; second, the business of regional city commercial banks is often limited to one place, it is hard to absorb capital and spread risk around like a big national bank. City commercial banks should develop digital operation mode, strengthen product innovation and upgrade, dig deep into customers, accurate marketing, and shift to diversified profit structure. Wang Yu and Kan Bo (2021)[20] studied the impact of internet finance on the profitability and profit structure of commercial banks. The results show that different types of commercial banks' profit structure are affected by internet finance to different degrees, the impact of internet finance on the profitability of city commercial banks is greater than that of joint-stock banks and state-owned commercial banks.

### **3. The Literature About Commercial Bank's Profit Is Combed and Analyzed**

#### **3.1. The profit model of commercial banks**

(1) The definition of the profit model

Michael Porter [21] argues that the profit model is a business-specific business structure shaped by a company to maintain its vitality, reflecting the allocation and control of resources within the company, is a complete scientific research, design, procurement, production, sales, docking and other activities of the value chain. Bodie[22] extends baud's idea of competitiveness to the commercial bank's profit model, which is to provide customers with personalized, heterogeneous and standardized batch services, the paper holds that the profit model of commercial bank is the operation model of service intermediary in the industry or the whole market. Jang Dong-hwi (2019)[23] proposed that the profit model is the main research object of the enterprise

engaged in the management activities, and is the source of the profits and the mechanism of determining the income of the enterprise in the specific operating environment. The profit model is decided by many factors, such as the business scale, the business choice of the enterprise, the internal management strategy and the external environment.

(2) Influencing factors

The market structure of commercial banks refers to the competitive situation formed by the number, scale and proportion of banks in the market, market concentration degree, scale economy, product difference degree and industry barrier difference will cause the difference of market structure. Brown (2005)[24] found that the competitive market structure has a significant positive correlation with diversified profit models and profit levels, while the commercial banks in countries with high market concentration have limited innovation in profit models. Zhao Xu (2001)[25] found that China's banking industry has strong policy background and traditional industry division, there is a negative correlation between profitability of commercial banks and their market share and market concentration, but the correlation is not significant. It shows that scale can affect market share and competitiveness more than business model innovation. Therefore, to enhance profitability, we must enhance market competitiveness. All the above studies show that the characteristics of market structure have an impact on the profit model of banks. Only on the basis of analyzing and studying the characteristics of market structure, can commercial banks choose a suitable profit model to gain competitive advantage.

The profit model of commercial banks is also influenced by financial system, which not only restricts commercial banks, but also influences the change of profit model. Peng Jiangang et al. (2016)[26] found that financial institution changes characterized by interest rate marketization have affected commercial banks' diversified operations, government deregulation and market-oriented reform have promoted the diversification of commercial banks, and to a certain extent, enhanced the performance of banks, thus affecting the performance of commercial banks.

The level of interest rate and the size of the deposit-loan ratio will have an impact on the commercial banks. In the interest rate marketization reform, Liu Xiaoyu and Peng Yingqi (2019)[27] point out that the narrowing of the net interest margin caused by the marketization of interest rates will have a negative impact on the profitability of banks, and the impact will be more significant for banks with stronger monopolies, it also finds that large banks are more capable of dealing with the impact of interest rate liberalization. The analysis of internal factors mainly includes capital constraint, diversification and internet finance. SuYang (2014)[28] believes that the profit model is affected by the deposit-loan ratio, which is an indicator of capital liquidity. A reasonable deposit-loan ratio is conducive to the healthy development of banks.

At present, there are two theoretical viewpoints on profit model and strategic transformation: first, horizontal strategic expansion is the main, which is manifested by financial system and technological innovation to broaden the scope of business and achieve business diversification. Second, the vertical business mining strategy, mainly for shrinking the scope of business, to the direction of professional development. Under the background of internet finance, the exclusivity of financial institutions is gradually weakened, the

boundary of financial services is gradually blurred, and mixed operation has gradually become the common strategic development direction of international commercial banks' profit model transformation. Our Country Commercial Bank's strategic transformation also proposed many viewpoints, the mainstream viewpoint also conforms to the mixed operation strategic transformation development mentality. GE Zhaoqiang (2005)[29]by analyzing the changes of the internal and external environment of the domestic banking industry, this paper points out that the strategic transformation of China's commercial banks is the only way, and that commercial banks should strengthen their crisis awareness and construct new business models, tamping the system foundation, further widening the differentiation of business development ideas.

### 3.2. Profitability

Profitability can literally be understood as the ability of a business to make profits in the course of its operations, the ability to use capital to gain returns and the ability to return capital, it also reflects its ability to withstand risks in the course of business. Profitability is the driving force and foundation for the sustainable development of commercial banks. SuYang (2014)[28]believes that profitability of commercial banks can not only reflect the current level of asset profitability, we should integrate, reshape and innovate its internal and external resources and technologies to cope with the changing external environment. It is the comprehensive embodiment of the bank's risk management, product marketing promotion, social financing level, capital liquidity management, future growth ability, bank asset quality, capital expansion ability, capital structure management, capital profit level and so on. From this point of view, profitability is not only limited to the value creation of products, but throughout the whole process of business activities, is the embodiment of commercial banks' comprehensive management ability.

### 3.3. Profitability and profitability model

The profit model of a commercial bank is the premise to determine its profitability, which can reflect the profitability of the commercial bank, the efficiency of asset utilization, and the effectiveness and level of the internal capital accumulation of the organization. SuYang (2014)[28], Jang Dong-hwi (2019)[23]through the research of commercial banks, there is a significant correlation between profitability model and profitability, it is of great significance to explore how to enhance the profitability of commercial banks from the perspective of the transformation and upgrading of profit models. Better profitability helps to enhance market confidence, ensure the safety of bank assets, reduce liquidity risk, and maintain the stability of the credit system.

## 4. Literature Review and Analysis on The Improvement of Profit Model Under Internet Finance

Most of the scholars discuss the improvement of commercial banks' profit model, and most of them pay attention to the specific improvement measures, such as diversified operation, financial technology, etc. less attention has been paid to the impact of the improved profit model of commercial banks. The intermediary effect model, regression analysis, ROA, Roe, Eva, Reva and so on are often used in

the study of commercial bank profit model.

### (1) Measures to improve the profit model

With the rapid development of Internet finance, commercial banks have been forced to transform from a single loan-deposit-interest-spread profit model to diversified operation. Wang Manshu and Liu Xiaofang (2013)[30]pointed out that the rising proportion of non-interest income can positively affect the profitability of banks, and the optimization of income structure can help to continuously improve the profitability of banks. Wu Liujie and Qiao Guiming (2016)[31]also believe that diversification is an important channel to affect bank profits, and the growth of intermediary business income is an important way to measure the diversification of banking business and profit model. Bao Yunxi (2019)[32]based on PVAR analysis, found that internet finance has forced commercial banks to diversify from a single interest rate differential, in the past, commercial banks only focus on big and wholesale customers to create wealth management services for different customers. The improvement of commercial banks' operating efficiency in turn promotes the development of third-party payment services. Wang Xiao and Li Jia (2021)[33]argue that the more diversified a bank's business is, the better its earnings growth will be, at the same time for the asset liquidity structure more reasonable, lower level of risk-taking, capital adequacy and better performance. The regulatory authorities should pay attention to the comprehensive observation of the micro-structure of small and medium-sized banks, implement different incentives for banks with different risk-taking capacities, or restrain financial Sunac measures, strive to prevent risks and achieve diversification between the pursuit of balance.

Some scholars believe that commercial banks should actively integrate with fintech. Fang Fang Kullander and Chen Chen (2021)[34]point out that online finance diverts customer funds, resulting in a decline in bank certificates of deposit, the gap between certificates of deposit (cds) and liabilities in commercial banks is the biggest, which leads to the change of deposit structure. Online financial platforms such as Yu'e Bao and wechat pay act as intermediaries between commercial banks and users, and charge intermediary fees from commercial banks, a move that increases the cost of debt for commercial banks. Commercial banks' profit margins have been squeezed, prompting them to favour risky investments in order to make big profits. The commercial banks should build a risk firewall, actively promote the deep integration of fintech and existing business, and avoid the influence of internet finance on the liabilities of banks, which will increase the level of risk-taking of banks. In view of the high cost of developing financial technology, some banks through cooperation with the internet financial platform to reduce costs and improve profitability. Xiong Jian (2022)[35]considered that the role of cooperation with external fintech enterprises in enhancing the prior risk-taking of small and medium-sized banks is mainly embodied in small-scale, low-profit banks, to the small and medium-sized bank after the reduction of risk-taking mainly reflected in the role of large-scale, high-profit banks.

### (2) The analysis method of profit model research

Regression analysis is a commonly used analytical method for the study of profit models, and Zhao Xin et al. (2021)[36] used regression analysis with an intermediary effect model to examine the effects of internet finance, the net interest income, non-interest income, income source and income structure of

the commercial bank. Liu Mengfei and Wang Qi (2021)[37] used multiple regression and intermediary benefit model to analyze the impact of the internet on traditional commercial banks, a sample of 37 Chinese listed banks from 2007 to 2019, the main indexes are Reva, Roa and Roe. The results show that the Internet has the greatest impact on the interest income of commercial banks, but has no significant impact on the non-interest income and income diversification, the reason may be that the development time of Internet finance in our country is short, and the income structure of traditional commercial banks has not changed fundamentally. In addition, regional commercial banks such as urban commercial banks and rural commercial banks are much more affected by internet finance than national large and medium-sized banks, therefore, the city commercial bank should pay attention to the deep cooperation with the network finance platform, carries on the profit pattern transformation upgrading.

The multi-index evaluation research can reflect the commercial bank's operation situation comprehensively, developing and connecting. Shen Zijie (2020)[38] believes that ROA can directly reflect the overall profitability of commercial banks, and is helpful to measure the profitability of commercial banks' total assets and the changing trend of industry development. SuYang (2014)[28] considers operating profit margin to be a measure of a firm's ability to manage costs, indicating its ability to make a profit from its operations. The higher the ratio, the more profitable the firm is, it is an important index to measure the profitability of commercial banks. Zhu Guo Yiming (2021)[39] considered that the lower the asset turnover rate, the more serious the capital occupation faced by enterprises, thus resulting in high external financing costs, reducing the profitability of enterprises. Reva can not only take into account the capital market value corresponding to the current market environment, reflect the current market value of the enterprise, but also predict the future development trend of the enterprise. Liu Li (1999)[40] believes that the revised economic value-added method (Reva) is a measure of business performance based on the market value of assets and an index of value creation measured by unit capital. An Wang (2020)[41] argues that the use of a modified economic value added (Reva) method to replace account value with market value in comparison with economic value added (Eva) avoids errors caused by excessive differences between book value and market value. The revised economic value-added method (Reva) uses a transaction-based approach, which measures capital gains based on the gains investors make from buying and selling stocks. It looks at changes in a company's share price, it also tries to determine how much shareholders' wealth has increased through cash dividends and rising stock prices.  $Reva = NOPAT - WACC \times TC$ ,  $Nopat = \text{after tax operating profit}$ ,  $NOPAT = \text{after tax net profit} + \text{interest expense}$ ,  $WACC = \text{Weighted average cost of capital}$ ,  $TC$  is total capital.

In addition, Reva has the function of prediction, which can not only take into account the capital market value corresponding to the current market environment, but also strongly reflect the current market value of commercial banks, it also reflects the revision of the whole future operating income forecast of commercial banks and measures the value creation of commercial banks' long-term development strategy. Wang Ruifu (2014)[42] thinks that Reva synthetically considers the enterprise's risk and development prospect, and sums up the future development of the enterprise into the calculation of enterprise value. Zhang

Xiaoqing (2019)[43] thinks that Reva is less sensitive to cash flow. It evaluates the value of enterprises through economic profits from the perspective of residual income, and pays more attention to the profitability of enterprises in the future period, so as to effectively avoid the drawbacks of EVA. Anna Wang (2022)[44] believes that Reva does not rely on positive and negative cash flow, and pays more attention to the future development potential of the company, which has a strong applicability to evaluate the market value of enterprises. Reva can more accurately measure the internal value of the enterprise, and this way is not subject to the impact of positive and negative cash flow, pay more attention to the company's future development potential, can predict the company's future development trends.

## 5. Conclusion and Prospect

### (1) Conclusion

To sum up, the profit model is a healthy business cycle business process, but also with comprehensive, development and contact characteristics of the enterprise management system. The profit model is not only influenced by external industry environment, but also by internal management model and Operation Strategy, which is a kind of internal and external feedback result. Relying on the domestic developed network infrastructure, the type and form of domestic internet finance business has far exceeded most countries in the world, resulting in problems rarely encountered by foreign countries. However, due to the late start of domestic research, the definition of internet finance, Internet Finance and banking is a positive or negative competition, there is no unified conclusion.

According to the academic research, the impact of internet finance on different types of banks is different, among which the regional urban commercial banks and rural commercial banks are the most affected. Under the pressure of Internet Finance, commercial banks are transforming towards diversified business structure, integrating financial technology, paying attention to long tail customers and digging into existing customers' needs.

### (2) Prospect

In view of the influence of Internet finance on the profit model of commercial banks, the research direction in the future can grasp the following two points: first, pay attention to the difference before and after the fusion of city commercial banks and internet finance; For example, after the integration of commercial banks from the past extensive operations to more convenient and efficient refined operations, internet finance in promoting the quality of commercial banking services and operational efficiency, but also intensified the competition among peers, before and after the integration of commercial banks customer groups, changes in major business types and other differences. To guide the commercial banks that are about to merge, fully understand the impact of the current Internet financial technology on banking business, and turn the crisis into an opportunity, encourage more commercial banks to participate in the process of cooperation with internet finance companies to increase each other's profits; We encourage the commercial banks that have already cooperated to deepen their business and strategic cooperation with internet finance companies. Second, focus on the noninterest business of commercial banks. Under the impact of Internet Finance, commercial banks should try to reduce their dependence on interest income, vigorously develop intermediary business,

and enhance the degree of business diversification, such as innovative bond underwriting, financial advisory services, etc., multiprice, multiterm consumer financial products. We should also strengthen the training of specialized talents and build an innovative and compound talent team to meet the ever-changing market challenges.

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