

The Effect of the QR Code Commission Rate on Commercial Banks in China

Yongjie Zhu¹, Shanyue Jin^{2*}

¹Ph.D. Student, School of Business, Gachon University

²Associate Professor, School of Business, Gachon University

QR코드 수수료율이 중국 상업은행에 미치는 영향

주영걸¹, 김산월^{2*}

¹가천대학교 경영대학 박사과정, ²가천대학교 경영대학 부교수

Abstract In China, with the rise of third-party payments such as WeChat Pay and Alipay, the traditional business of banks has been greatly affected. Banks can encourage and expand QR code payments to merchants. Therefore, it is meaningful to analyze and study the QR code work of banks. The purpose of this study is to analyze the effect of the execution of the zero-rate of the comprehensive payment QR code combined with the payment cycle and Funds Transfer Pricing (FTP) on commercial banks in China. Based on the manually collected customer data of Chinese commercial banks, this paper conducts a case analysis combined with the calculation method of financial indicators. As a result of the study, it was found that commercial banks need to continue to implement the policy as the advantages of introducing the integrated QR code fee rate 0 policy are greater than the disadvantages. This paper provides feasible suggestions on how to quickly occupy the offline payment market for commercial banks, which has guiding significance for commercial banks' marketing decisions. Presently, there are few studies on the zero-rate subsidy policy implemented by Chinese commercial banks.

Key Words : Commercial bank, QR code, Zero rate, FTP, China

요약 중국에서는 위챗페이, 알리페이 등 제3자 결제가 활발해지면서 은행의 전통적인 비즈니스가 큰 충격을 받고 있다. 은행은 가맹점에 QR코드 결제를 권장할 수 있고 확대할 수 있다. 따라서 은행의 QR코드 업무를 분석하고 연구하는 것은 의미가 있다. 본 연구는 결제 사이클과 FTP(Funds Transfer Pricing)를 조합한 통합결제 QR코드의 제로 수수료율의 실행이 중국 상업은행에 미치는 영향을 분석하는 것을 목적으로 한다. 본 연구는 수작업으로 수집한 중국 상업은행의 고객 데이터를 기초로, 재무 지표 산출 방법을 활용하여 사례 분석을 진행하였다. 연구결과, 상업은행은 통합결제 QR코드 제로 수수료율 정책의 도입은 이점이 단점보다 더 큰 것으로 나타나 해당 정책을 지속적으로 시행할 필요가 있다는 것이 밝혀졌다. 본 연구는 상업은행의 마케팅 의사결정에 중요한 역할을 하는 오프라인 결제 시장을 빠르게 점유할 수 있는 방법에 대해 실현 가능한 제안을 제공하였다.

주제어 : 상업은행, QR코드, 제로 수수료율, FTP, 중국

*Corresponding Author : Shanyue Jin(jsyrena0923@gachon.ac.kr)

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1. Introduction

With the popularization of mobile networks, mobile payment has gradually entered people's field of vision, such as APPLE PAY in the United States, NAVER PAY and KAKAO PAY in South Korea, and WeChat Pay and Alipay in China [1] [2]. Mobile payment reduces the flow of cash and the number of credit card swipes. In China, with the rise of third-party payments such as WeChat Pay and Alipay, offline payment has ushered in a new development opportunity, as more and more payment platforms have appeared in the offline payment market, such as: Cloud QuickPass, Receive Money, Haoda collection, aggregated payment QR code, etc. [3]. For commercial banks, the traditional payment and settlement business – POS (Point of Sale) can no longer meet the current offline payment, and they have also developed or cooperated to develop and launch aggregated payment QR codes. In the "Notice of the People's Bank of China on Strengthening the Management of Payment Acceptance Terminals and Related Businesses" issued by the People's Bank of China, it is clearly pointed out that "for individuals with obvious business activity characteristics, barcode payment collection, service institutions should provide them with special merchants' collection barcodes, and refer to the implementation of the relevant management regulations of special merchants, and shall not provide them with business activities-related collection services through personal collection barcodes." This is an opportunity for commercial banks, as they can speed up the development of new customers. In addition, commercial banks are also facing new challenges in the face of third-party payment and homogeneous products of their peers. Effectively and quickly occupying the offline payment market is a problem that commercial banks must face directly.

Based on this background, the aggregate

payment QR code with zero-rate subsidy launched by commercial banks appeared in the offline market. Offline payment is a two-sided market; commercial banks have the opportunity to market merchants, and merchants also decide whether to use the aggregated payment QR code launched by the bank [4][5][6]. For merchants, the more they meet the needs of merchants, such as rates, reconciliation, ease of collection, the convenience of customers to scan QR codes, etc. [7], according to the mechanism of bilateral market externalities [8], the higher the acceptance of merchants [9]. In order to meet the needs of merchants, various commercial banks have essentially solved similar related problems when they launched the aggregated payment QR code.

In the short term, the effect is remarkable. The reputation of commercial banks and the trust relationship with former cooperative merchants help commercial banks to occupy part of the offline payment market [10]. However, after the zero-rate subsidy policy is canceled, some newly developed customers will be lost. In order to prevent the loss of customers, it is effective to continue to implement the zero-rate subsidy policy for the aggregate payment QR code. The benefits that the implementation of the subsidy policy brings to commercial banks are key to determining whether commercial banks continue to implement the zero-rate subsidy policy for aggregated payment QR codes.

The purpose of this article is, from the perspective of commercial banks, starting from the implementation of zero-rates for aggregate payment QR code, combined with settlement cycle T+0.5 and FTP (Funds Transfer Pricing), to analyze the effect of aggregate payment QR code implementation of zero-rates on commercial bank influence. This paper takes the customer information of the Bank of Communications as the object and studies the impact of the implementation of the zero-rate subsidy policy

on commercial banks through the calculation of financial indicators.

This article provides feasible suggestions on how to quickly occupy the offline payment market for commercial banks, which has guiding significance for commercial banks' marketing decisions. At present, there are few studies on the zero-rate subsidy policy implemented by Chinese commercial banks. This study attempts to combine the settlement cycle and FTP to verify the policy results, which is the innovation of this study.

2. Literature Review and Hypotheses

For the offline payment market and payment settlement, the first study of payment settlement was in the late 1990s. Mallat (2017) and others studied merchants from the perspective of rates and compatibility. Among them, the transaction rates were too high, and the cash register system Incompatibility is the reason why merchants do not adopt [11][12][13][14][15]. Chen (2020) studied the impact of third-party payment on national income [16]; Li et al. (2020) conducted a detailed study on the factors and decision-making process of merchants adopting mobile payment [7]. Although there are many pieces of research on payment, most of them focus on consumers [14], less on merchants' willingness to use it [15], and fewer articles from the perspective of commercial banks.

The aggregated payment QR code is called the fourth-party payment by many scholars. Ye (2017) said that aggregated QR code is a fourth-party payment that aggregates various types of payment interfaces on the same platform to provide comprehensive payment services [17]; Fang and Zhang (2017), websites, and other channels to aggregate payment tools such as API (Application Programming Interface) interfaces of multiple cooperative banks,

third-party payment platforms and other service providers to provide comprehensive online payment solutions for B-end small and medium-sized merchants [18]. In this paper, the aggregated payment QR code is defined as H5 (HTML5) that integrates WeChat payment, Alipay, Cloud QuickPass, and payments such as JD.com relying on UnionPay. Customers can use different payment methods to scan the QR code for aggregated payment and to order or checkout. For the related research and risk analysis of the aggregated payment QR code, many scholars have done research on this. Liu (2018) studied the predicament of commercial banks and the QR codes of aggregated payment of commercial banks [19]; Li (2017), Xia (2018) elaborated on the risks and regulatory suggestions of aggregated payment [20][21].

Regarding the settlement cycle, this article defines it as the time when the POS merchant clears the funds to the account. The settlement cycle of commercial banks for POS-related business is T+0 (real-time entry), T+0.5 (real-time arrival of funds, available the next day), and T+1 (funds into the account the next day). It is the T+1 settlement cycle.

Regarding FTP, it is also called internal fund transfer pricing [22], which refers to an internal operation and management model in which the internal capital center of a commercial bank and business units transfer funds in full according to certain rules to achieve the purpose of calculating the cost or income of business capital. Wei (2006) elaborated on FTP and how to price [22]; Guo (2021) made his own views on how to use FTP but did not apply FTP to aggregated payment QR codes for research [23]. However, none of them have studied the method of combining the billing cycle with FTP.

According to the cost-profit calculation method of commercial banks [24], Chinese commercial banks implemented a zero-rate subsidy policy for aggregated payment QR codes

and changed the settlement cycle to T+0.5, combined with FTP to research to calculate the difference between the income obtained from the deposit and the handling fee advanced by the commercial bank. If the difference is positive, it proves that the commercial bank can continue to implement the zero-rate subsidy policy for the aggregated payment QR code. So we assume:

H: The deposit income of the commercial bank exceeds the handling fee advanced by the commercial bank.

3. Case Analysis

3.1 Introduction to Bank of Communications of China

Founded in 1908, Bank of Communications (BCM) is one of the six largest banks in China and a large state-owned commercial bank. On April 1, 1987, the restructured Bank of Communications officially opened for business, becoming China's first nationwide state-owned joint-stock commercial bank with its head office in Shanghai. Bank of Communications was listed on the Hong Kong Stock Exchange in June 2005 and successfully listed on the Shanghai Stock Exchange in May 2007.

By the end of 2017, Bank of Communications had 232 domestic branches and 3,285 business outlets nationwide.

3.2 Imperfect incentive mechanism

This paper mainly studies the impact of the implementation of zero-rate subsidy on the impact of aggregated payment QR codes on commercial banks and merchant's contribution revenue.

Table 1 lists all variables, variable names, and measurement methods.

Table 1. List of Variable Definitions

Serial Number	Variable	Variable Name	Measurement Method
1	SXF	Fees advanced by commercial banks	Merchant's cumulative transaction amount from August to December 2019*0.2%
2	HQS	Annual Average Daily Demand Deposit Yield	Annual Average Daily Demand Deposit* (2.8%–0.3%)
3	DQS	Annual Average Daily Time Deposit Yield	Annual Average Daily Time Deposit* (2.8%–2.1%)
4	JGS	Annual average daily return on structured deposits	Annual average daily structured deposits* (2.8%–2.1%)
5	SY	Merchant's Contribution Revenue	Annual average daily demand deposit income + annual average daily time deposit income + annual average daily structured deposit income – handling fee advanced by commercial banks

3.3 Data Sources

The research object of this study is the customers of the Jiaozuo Branch of Bank of Communications of China. Because starting in August 2019, its bank implemented a zero-rate subsidy policy for aggregated payment QR codes, and the settlement cycle was T+0.5. Therefore, the study period was from August 2019 to December 2019.

For the research, we visited 1,312 individual industrial and commercial merchants, excluding merchants with zero transaction volume, merchants with annual average daily assets of less than 1,000 yuan, and merchants that did not open cards in early August, and obtained a total of 286 sets of valid data.

3.4 Data Analysis

3.4.1 Profit Sources of Chinese Commercial Banks

After the settlement cycle is adjusted to T+0.5, the funds will be credited to the account in real-time after the merchant receives the payment, and the merchant can check the fund balance in the account through the bank APP or

SMS reminder. The funds in the merchant's account are calculated according to the demand interest with an annualized rate of return of 0.3%, while the price of FTP is about 2.8% (annualized rate of return), and the fluctuation does not exceed 0.05% (annualized rate of return). 2.8% interest rate for calculation. Therefore, the difference between the FTP and the interest paid to the merchants on that day is one of the profit sources of commercial banks.

On the next day, the merchant's funds can be used freely; some merchants will transfer them all, and some merchants' funds will remain in the bank account and may also be converted into fixed deposits or wealth management, which will be another profit of commercial banks. We mainly conduct quantitative analysis and calculation on variable time deposits (one year) and structured wealth management products.

3.4.2 Profit Calculation Formula

This study uses the comprehensive profit contribution to calculate the profit of commercial banks. The comprehensive profit contribution of merchants to commercial banks can be expressed by formula (1):

$$SY = HQS + DQS + JGS - SXF \quad (1)$$

If $SY > 0$, the merchant's contribution is negative, and the commercial bank's advance expenses exceed the income obtained;

If $SY < 0$, the merchant's contribution is positive, and the commercial bank's income exceeds the advance fee;

If $SY = 0$, the merchant's contribution is 0, and the commercial bank's advance fee is equal to the income obtained.

3.4.3 Analysis results

According to the data analysis, $\Sigma HQS = 67620.28$, $\Sigma DQS = 4560.40$, $\Sigma JGS = 9457.07$, $\Sigma SXF = 76626.98$, so $SY = 5010.77$ yuan > 0 , that is,

the income received by the commercial bank exceeds the advance cost, supporting hypothesis.

4. Research Conclusions and Implications

4.1 Research Conclusions

This article starts with the implementation of zero-rates for aggregate payment QR codes, combined with the settlement cycle and the analysis of the impact of aggregate payment QR code implementation of zero-rates on commercial banks in China. The results of the study found that the implementation of zero-rates for aggregate payment QR codes has more advantages than disadvantages for commercial banks, and commercial banks need to continuously implement the zero-rate subsidy policy for aggregate payment QR codes.

4.2 Management Implications

First, commercial banks need to change the settlement cycle to T+0.5 and use the difference between the FTP and the paid demand deposit interest to obtain income. At the same time, the aggregated payment QR code can be made into a special business for circle marketing [25], so that there will be more merchants.

Second, optimize the efficiency of processing QR code applications for aggregated payment and try to make it possible for customers to go out without leaving home. Marketing personnel should try to successfully apply for a single visit, such as prefabricating blank QR codes in advance. This method not only reduces staff costs but also allows merchants to recognize commercial banks more.

Third, when commercial banks introduce subsidy policies, they should clearly inform merchants of the preferential time or notify merchants on the eve of the cancellation of

subsidies to avoid complaints and loss of commercial bank reputation.

Fourth, whether it is an aggregated payment QR code or agency service, for commercial banks, it is only a medium for establishing contact with merchants, and the profit point lies in the difference between deposits and loans. Commercial banks should follow up in marketing for merchants that have already been marketed.

4.3 Limitations

Because commercial banks canceled the zero-rate subsidy policy of in 2020, the situation of merchants in 2020 has not been studied. At the same time, because the subsidies of commercial banks are aimed at individual industrial and commercial households, this paper focuses on the research on individual industrial and commercial households and does not research other customers of the company.

Reference

- [1] F. Liébana-Cabanillas, I. García-Maroto, F. Muñoz-Leiva & I. Ramos-de-Luna (2020). Mobile payment adoption in the age of digital transformation: The case of apple pay. *Sustainability*, 12(13), 5443. <https://doi.org/10.3390/su12135443>
- [2] S. D. Kim, P. Park & S. B. Yang (2017). Influencing factors on users' resistance to the mobile easy payment services: Focusing on the case of Kakaopay users. *Journal of Information Technology Services*, 16(2), 139–156. <https://doi.org/10.9716/KITS.2017.16.2.139>
- [3] M. Yao, H. Di, X. Zheng & X. Xu (2017). Impact of payment technology innovations on the traditional financial. *Technological Forecasting & Social Change*, 135, 199–207. <https://doi.org/10.1016/j.techfore.2017.12.023>
- [4] T. Dahlberg, N. Mallat, J. Ondrus & A. Zmijewskac (2008). Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications*, 7(2), 165–181. <https://doi.org/10.1016/j.elerap.2007.02.001>
- [5] P. G. Schierz, O. Schilke & B. W. Wirtz (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*, 9(3), 209–216. <https://doi.org/10.1016/j.elerap.2009.07.005>
- [6] N. Mallat (2007). Exploring consumer adoption of mobile payments: A qualitative study. *The Journal of Strategic Information Systems*, 16(4), 413–432. <https://doi.org/10.1016/j.jsis.2007.08.001>
- [7] E. Li, Y. He & Y. Li (2020). A study on influencing factors and decision-making process of mobile payment merchant adoption. *Management Review*, 32(6), 184–195. <https://doi.org/10.14120/j.cnki.cn11-5057/f.2020.06.014>
- [8] C. Arango, P. H. Kim & L. Sabetti (2015). Consumer payment choice: Merchant card acceptance versus pricing incentives. *Journal of Banking & Finance*, 55(12), 130–141. <https://doi.org/10.1016/j.jbankfin.2015.02.005>
- [9] A. T. Ching & F. Hayashi (2010). Payment card rewards programs and consumer payment choice. *Journal of Banking & Finance*, 34(8), 1773–1787. <https://doi.org/10.1016/j.jbankfin.2010.03.015>
- [10] L. Cao (2020). Problems and suggestions on the development of aggregate payment. *Cooperative Economy and Technology*, 24, 73–75. <https://doi.org/10.13665/j.cnki.hzjyjk.2020.24.030>
- [11] F. Liébana-Cabanillas & J. Lara-Rubio (2017). Predictive and explanatory modeling regarding adoption of mobile payment systems. *Technological Forecasting and Social Change*, 120, 32–40. <https://doi.org/10.1016/j.techfore.2017.04.002>
- [12] N. Mallat & V. K. Tuunainen (2005, July). Merchant adoption of mobile payment systems. *Proceedings of the Fourth International Conference on Mobile Business*, Sydney, IEEE. <https://doi.org/10.1109/ICMB.2005.58>
- [13] H. van der Heijden (2002, June). Factors affecting the successful introduction of mobile payment systems. *Proceedings of the 15th Bled E-Commerce Conference* (pp. 430–443). Bled, Slovenia. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.111.467&rep=rep1&type=pdf>
- [14] E. Teo, B. Fraunholz & C. Unnithan (2005, July). Inhibitors and Facilitators for Mobile Payment Adoption in Australia: A Preliminary Study. *Proceedings of the Fourth International Conference on Mobile Business*, Sydney, Australia: IEEE, [https://doi.org/DOI: 10.1109/ICMB.2005.47](https://doi.org/DOI:10.1109/ICMB.2005.47)
- [15] J. Ondrus & Y. Pigneur (2004, December). Coupling mobile payments and CRM in the retail industry. *Proceedings of the IADIS International E-Commerce*, Lisbon, Portugal: IADIS. https://staff.cdms.westernsydney.edu.au/~anton/Publications/EC2004_Proceedings.pdf
- [16] C. W. Chen (2020). Impacts of third-party payment in an open economy. *Australian Economic Papers*, 59(1),

34-42.

<https://doi.org/10.1111/1467-8454.12168>

- [17] C. Ye (2017). Aggregated payment: The expansion of payment services. *Financial Technology Times*, 1, 81.
- [18] Y. Fang & S. Zhang (2017). The supervision logic and development trend of aggregated payment. *China Credit Card*, 5, 53-55.
- [19] C. Liu (2018). Aggregated payment: New opportunities for commercial banks. *Journal of Xiangyang Vocational and Technical College*, 17(1), 95-96.
- [20] T. Li (2017). Research on the risks and regulatory countermeasures of the development of aggregated payments. *Financial Technology Times*, 12, 67-70.
- [21] Y. Xia (2018). Aggregated payment risk analysis and supervision suggestions. *Financial Technology Times*, 2, 57-60.
- [22] Q. Wei (2006). Research on the implementation of internal funds transfer pricing system in domestic commercial banks. *Bank Funds Management*, 6, 31-34.
- [23] Q. Guo (2021). The enlightenment and application of ftp to the operation and management of similar financial institutions. *Enterprise Management*, 7(1), 100-102.
- [24] J. Maudos, J. M. Pastor, F. Pérez & J. Quesada (2002). Cost and profit efficiency in European banks. *Journal of International Financial Markets, Institutions and Money*, 12(1), 33-58.
[https://doi.org/10.1016/S1042-4431\(01\)00051-8](https://doi.org/10.1016/S1042-4431(01)00051-8)
- [25] P. Xiao & S. Gao (2015). Marketing analysis of "Fan economy" in social network. *Media Management and Management*, 10, 118-121.

김 산 월 (Shanyue Jin)

[정회원]



- 2004년 8월 : 중국 난카이대학교 (경제학학사)
- 2013년 8월 : 연세대학교(경영학박사)
- 2013년 9월 ~ 2014년 2월 : 연세대학교 경영연구소 연구원
- 2014년 3월 ~ 2018년 2월 : 국민대학교 국제학부 조교수
- 2018년 3월 ~ 현재 : 가천대학교 경영학부 부교수
- 관심분야 : 기업재무, 기업지배구조, ESG, 기업혁신
- E-Mail : jsyrena0923@gachon.ac.kr

주 영 결 (Yongjie Zhu)

[정회원]



- 2014년 6월 : 중국 산둥공상대학 (경영학학사)
- 2019년6월 : 중국 중남재경정법대학 (경영학석사)
- 2021년3월 ~ 현재 : 가천대학교 경영학과 박사과정
- 관심분야 : 기업재무, 기업지배구조, 금융혁신, 금융투자
- E-Mail : zyjzone@163.com