

SOLUTIONS TO NON - CASH PAYMENT DEVELOPMENT IN VIET NAM

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The paper studies the performance of non-cash payment in Vietnam recently in terms of payment channels, payment instruments, infrastructure and organizations involved in providing payment services, payment intermediary services and payment transmission systems. Based on the current situation and the analysis of non-cash payment limitations, the author proposes orientations and some solutions (to the Government and State authorities, to commercial banks, other payment intermediaries, and payment intermediary service providers) in order to develop non-cash payments in Vietnam in the coming time.

***Keywords:** non-cash payment, payment instruments, payment infrastructure, commercial banks, payment intermediary service providers.*

***JEL Classifications:** E52, G18, D04*

1. Introduction

Non-cash payment is the payment method made by deducting money from an account in the system of payment service providers. Commercial banks, which have the longest history of processing payments or clearing debts without using cash, are the major service providers. Non-cash payment appeared a long time ago in history, however, it has just really developed and constantly improved in the market economy. Today, in any country, non-cash payment through payment intermediaries is widely applied and accounts for a large proportion of the total amount and value of payments and this situation tends to increase. Compared with cash payment, non-cash payment brings much convenience and outstanding advantages such as contributing to control money issuance and circulation costs, creating favorable conditions for the process of organizing and managing money circulation; creating the ability to concentrate credit capital sources into the banking system for investment in economic development; contributing to increase transparency, and

create a favorable economic foundation for the State to control economic activities and the compliance of tax payment obligations, strengthening payment discipline, contributing to the prevention of corruption and economic crime. In addition, with the development of information technology, the appearance of new and modern payment instruments and services such as payment via the internet, mobile phones, e-wallets, QR codes, and contactless cards... has made the operation of non-cash payment more convenient and easier for the parties to take part in the payment.

In addition to the benefits and positive impacts, non-cash payment especially electronic payment forms requires payment service providers to invest more in technical infrastructure and payment technology to increase convenience, safety and security for involved payment parties. Therefore, in the initial stage of the investment process, business costs will inevitably increase, which reduces operating income/profit of banks and other payment service providers.

Recently, there have been a number of studies on

non-cash payment published such as *State management of non-cash payment services in domestic payment of Vietnam commercial banks* (Nguyen Thi Ngoc Diem, 2018); *Developing E-commerce: Achievements, difficulties and challenges* (2020) by Pham Tien Dung, (Proceedings of the national conference on Promoting e-commerce in the digital economy published by Labor Publishing House) and a number of other articles published in the journals: Finance, Financial Market. However, the question of how to improve the rate and quality of non-cash payment services is still not easy to answer for policy makers, State authorities, commercial banks' managers and also researchers. In Vietnamese economy, promoting non-cash payment is a set goal which can be clearly reflected in the Government's Strategy for the development of non-cash payment. Despite the synchronous implementation of many measures, the rate of cash payments over the years is still quite high. Therefore, researching and proposing solutions to develop non-cash payment in Vietnam is still work to be done.

To assess the current situation and propose solutions to develop non-cash payment in Vietnam, the author mainly uses secondary sources of information from the Payment Department, the State Bank of Vietnam; the development scheme for the non-cash payment and the banking industry of the state authorities; papers and discussions at national and international scientific conferences in this field.

2. Current situation of non-cash payment in Vietnam

Payment channels

Table 1 shows that the non-cash payment activities through channels such as mobile phones, internet, NAPAS (implementing switching, clearing domestic card transactions, connecting card transaction switching for transactions with international card switching organizations) have grown strongly both in transaction volume and value. In which, BIDV, MB, Sacombank... are the leading commercial banks that are recognized for having the highest transaction value via mobile phones. Payment serv-

ices (money transfer, phone top-up, online bill payment...) over the internet at banks are deployed to different levels. Payment via POS is done mainly by most banks such as Vietcombank, Vietinbank, Maritime Bank, Sacombank etc. Small banks such as VIB, TP Bank, Eximbank... which focusing on developing e-banking services and having developed POS infrastructure system with great network also gain large sales of payment via POS. For payment via ATM, the number and value of transactions mostly come from large-scale banks and leading banks in providing e-banking services such as Agribank, Vietinbank, Vietcombank, Sacombank, MB, Techcombank. The number of payment transactions via the interbank electronic payment system (IBPS) has not changed significantly. The number and value of payment transactions via QR code increased rapidly in 2021 but still accounted for an insignificant proportion of the total number and value of non-cash payment.

Instruments of payment

Table 2 shows that there are not many instruments of payment in Vietnam, in which payment orders with modern technologies account for the largest proportion in both quantity and value of payment, accounted for 85.4% and 91.82% respectively of the total transaction number and value in 2021. The number of payment transactions by bank cards takes second place (12.5%) but the proportion of transaction value is small (0.64%). Collection of payment services and checks tend to decrease and account for a negligible proportion in the non-cash payment.

Infrastructure and participating institutions providing payment services, payment intermediary services

Most commercial banks have been building and implementing 4.0 technology, promoting the development of digital banking (Live Bank of TP Bank; MyVIB of VIBank; Digital Lab of Vietcombank; E-Zone of BIDV...), applying big data in customer behavior analysis (VPBank, Vietinbank, MB...), blockchain technology, cloud computing technology

Table 1: Non-cash payment situation in Vietnam
(Through payment channels)

Transaction channel		Year 2019		Year 2020		Year 2021		
		Absolute figure	Increase/Decrease compared to 2018 (%)	Absolute figure	Increase/Decrease compared to 2019 (%)	Absolute figure	Increase/Decrease compared to 2020 (%)	Ratio (%)
Quantity of Personal accounts as of December 31 every year (million)		100.42	26	110.92	10	114.62	3	
Total number of cards in circulation as of December 31 every year (million)		112.55	16	122.58	9	119.57	-2	
Via mobile phone	Quantity of transactions (million)	552.43	180		114	2082.34	76	38.42
	Value (billion VND)	5,773,962	195	12,612,966	118	23,649,100	87	10.00
Via internet	Quantity of transactions (million)	419.58	53		13	707.38	49	13.05
	Value (billion VND)	22,227,611	34		25	36,776,122	33	15.54
Via QR code channel	Quantity of transactions (million)	9.60	1844	16.26	70	23.60	45	0.44
	Value (billion VND)	12,478	1655	9,622	-23	21,698	125	0.01
Via IBPS	Quantity of transactions (million)		17		-9	157	7	2.90
	Value (billion VND)	98,399,662	35		6	151,200,000	45	63.90
Via NAPAS	Quantity of transactions (million)	688.17	96	1256.86	83	2450	95	45.19
	Value (billion VND)	4,768,115	172	10,688,341	124	24,955,000	133	10.55
Total								100

Source: Payment Department, State Bank of Vietnam

and automation in banking activities (MB, Techcombank, ANZ), using artificial intelligence (AI) when interacting, consulting, supporting and serving customers (TP Bank, Vietinbank, Vietcombank, VIB, Sacombank...). Over the past years, the banking industry has deployed to build a centralized, standardized and digital infrastructure and data system that allow sharing and integrating to create a digital ecosystem covering many industries and fields such as the mobile banking ecosystem

connecting with public services, finance, telecommunications, electricity, transportation, healthcare... New and modern technologies in payment have been researched, cooperated and applied such as applying biometric technology (fingerprint authentication, face and iris recognition, etc), using quick response code (QR code), encoding card information, applying contactless payment, mobile point of sale (mPOS), online payment online by card (Ecom) etc. Currently, there have been six banks deploying

Table 2: Non-cash payment situation in Vietnam
(Via payment instruments)

Means of payment		Year 2019		Year 2020		Year 2021		
		Absolute figure	Increase/Decrease compared to 2018 (%)	Absolute figure	Increase/Decrease compared to 2019 (%)	Absolute figure	Increase/Decrease compared to (%)	Ratio (%)
Payment orders	Quantity of transactions (million)		76		55	3,430.58	64	85.40
	Value (billion VND)		32	114,714,584	3	152,666,031	33	91.82
Bank card	Quantity of transactions (million)		43	399.40	22	502.04	26	12.50
	Value (billion VND)	799,052	35	871,598	9	1,055,988	21	0.64
Collection	Quantity of transactions (million)	10.37	-78	10.11	-3	11.04	9	0.30
	Value (billion VND)	6,000,645	8	5,054,322	-16	6,774,119	34	4.10
Cheque	Quantity of transactions (million)	0.31	-57	0.06	-79	0.05	-16	0.00
	Value (billion VND)	191,466	-47	60,603	-68	124,844	106	0.04
Others	Quantity of transactions (million)	48.30	-4	78.82	63	73.02	-7	1.80
	Value (billion VND)	5,906,807	-14	5,716,933	-3	5,637,600	-1	3.40
Total								100

Source: Payment Department, State Bank of Vietnam

mPOS. Sales of Ecom payments (domestic cards) have increased rapidly, especially payment by QR code associated with promoting payment via mobile phones to be in line with the trend of world development and consumer behavior. In 2021, NAPAS completed the connection of the Domestic Payment Gateway to the National Public Service Portal; fulfilled the connection and implementation of domestic transactions of Visa, MasterCard, JCB and UPI

cards following the new connection model on 01/01/2021; cooperated with 14 banks to launch VietQR brand and NAPAS247 fast money transfer service with VietQR code; expanded the automatic electronic clearing system for retail transactions (ACH)... As a result, customers can use more utilities on mobile phones and other modern payment channels than they do direct banking transactions.

According to statistics of the Payment

Department and the State Bank, by December of 2021, in Vietnam, there are 78 organizations implementing payment via the internet, 49 organizations providing payment services via mobile phones, 30 banks deploying QR codes, 90,000 points accepting QR code payments, 37 organizations providing payment intermediary services (including electronic payment gateway services, collection and payment services, e-wallet services), 34 organizations providing electronic payment gateway services, 9 organizations providing electronic money payment services, 19,509 ATM installed (Agribank, Vietcombank, Vietinbank, BIDV and Techcombank are the banks starting with the number of installed ATMs), 280,418 POS/EDC (first are banks: Vietcombank, Vietinbank, BIDV, Agribank)...

For rural, mountainous and island areas, the State Bank has approved the establishment and pilot implementation of 3 models: (i) PGBank's fast money transfer service using a network of branches and petrol stations of Petrolimex in rural areas; (ii) Vietcombank's small value money transfer service using the telecommunications agent network of Mobile Online Joint Stock Company (M_Service) in rural areas; and (iii) MB's money transfer service using the network of Military Telecommunications Corporation (Viettel) in mountainous, rural and island areas. The Government has allowed the pilot implementation of mobile money services throughout Vietnam for 2 years (according to Decision No. 316/QĐ-TTg dated March 9, 2021). Unlike e-wallets, users do not need to have a bank account, so this form of payment is considered quite suitable for people in rural, mountainous, remote, border and island areas where the financial-banking system has not been developed and people have not or cannot access banking services.

Payment transmission system

Currently, there are 9 main non-cash payment systems in Vietnam, including inter-bank electronic payment system (IBPS); clearing system; internal payment system of each commercial bank; bilateral payment systems; VCB-Money foreign currency

payment system; securities payment system managed and operated by BIDV; card payment system; payment systems via internet and mobile phones; SWIFT system. Among those systems, IBPS is the back bone of the national payment which is ready to meet the capital transfer needs of the economy and is an important foundation for the development of non-cash payment. SWIFT's electronic money transfer service is used by most payment service providers in Vietnam for foreign currency transfers and international payment transactions. The remaining payment systems are invested by commercial banks to improve the quality to better meet the increasing demands of society and adapt to the process of international integration.

Limitations and shortcomings

Although there have been many positive changes in formulating and promulgating policies to promote payment through banks for public services (collection of taxes, electricity, water, school fees, hospital fees and social security programs), developing payment instruments and infrastructure for non-cash payment, etc, the scale of non-cash payment is still limited compared to other countries in the region and the world. In the period 2011-2021, the ratio of cash to GDP in Vietnam increased from over 13% to nearly 20% (the global average is at 9.6%, the Asian region is in the range of 5%-10%); the ratio of payment in cash/total means of payment has not yet reached the set target. According to the Project on developing non-cash payment in Vietnam, the country has planned to strive for the rate of cash payment to be less than 10% in 2020 and less than 8% in 2025 of total means of payment. In fact, in 2021, this rate still fluctuated between over 11% and nearly 12%.

Crime in the field of high technology and electronic payment has recently been increased with more sophisticated new acts and tricks. Therefore, measures to ensure security and safety for payment services based on high technology need to be paid attention by the banks and their control capacity also needs to be strengthened.

The cause of limitations

The main reasons for the limitations and inadequacies in non-cash payment in Vietnam are as follows:

Firstly, there are shortcomings in the legal system on checking financial technology activities in the banking sector, especially with new financial services. The rapid development of technologies has changed the online payment methods very quickly, but the regulations have not yet been tackled. Currently, Vietnam does not have a specific legal framework for exploiting, sharing and storing data in cloud computing, blockchain and some online products as well as mandatory non-cash payment policies for the transactions of great value such as real estate, cars... And there has not been a regulation on the minimum sales rate of non-cash payment for large-scale retail businesses.

Secondly, the investment in CTM infrastructure with modern technologies is quite expensive, so commercial banks also need to consider and calculate to ensure operational efficiency. In addition, a part of the human resources at commercial banks have not yet met the professional requirements of e-banking services, not been able to access advanced and modern technologies, and not mastered the knowledge of information technology.

Thirdly, the system of non-cash payment infrastructure in rural, mountainous and island areas is still small. People do not have conditions to access modern payment services and facilities. Currently, on average, in rural and mountainous areas, there are only about 2 transaction points/administrative area (in the Northern mountainous area, there are only 0.7 transaction point/district); while this number in districts, towns and cities is approximately 40 transaction points. The installed ATMs are mainly located in 5 big cities such as Hanoi, Ho Chi Minh, Hai Phong, Da Nang, Can Tho (accounting for nearly 50%).

Fourthly, the level of integration of banking infrastructure and applications with other sectors also has limitations. It is necessary to continue

strengthening coordination to improve the efficiency and operating capacity of the systems. To employ electronic payments for public services (electricity, water, healthcare, traffic fees, etc.), the related parties need to have a mechanism to share data and customer information, build an open application programming interface (Open API) system connecting with related ministries to create a smooth payment mechanism. However, this problem has not been completely solved yet due to the requirements of information security and the problems of method and the ratio of income/cost distribution between the parties providing and sharing information.

Fifthly, the habit of using cash of the people especially the elderly consumers, psychological concerns about the security in electronic payments and the fees of using modern payment services (fee for using e-banking service, fee for purchasing hard token equipment...) are also the reasons hindering the development of non-cash payment in Vietnam.

3. Orientations and solutions to develop non-cash payment in Vietnam

Development orientations

Vietnam currently has the population of more than 96 million people. Nearly 70% of the population uses the internet and about 60% of the population has social network accounts over 5 million people use it. The online shopping trend has been increasing, especially since the emergence of the covid-19 pandemic... These are favorable conditions for the development of non-cash payment in Vietnam.

Stemming from the importance of the non-cash payment, the opportunities offered by the 4.0 technology revolution, the advantages of the population situation, the new trend of shopping habits and market demand, reducing the payment rate in cash and improving the quality of non-cash payment services is an inevitable trend in the development of non-cash payment in Vietnam. To achieve this goal, it is necessary to carry out the following basic orientations:

Continue to innovate and apply 4.0 technology

achievements in payment activities, deploy and expand new and modern payment services such as QR code, mPOS, Ecom, card payment tokenization technology, contactless payment on mobile devices, mobile wallets, mobile money etc. In particular, for mobile money services, the development of this service helps individual customers who do not use, or have no conditions to access traditional banking/financial services (unbanked/underbanked) can still transfer money or pay for transactions quickly and conveniently, thereby contributing to a gradual change in payment habits in cash of the people and increase the rate of non-cash payment.

Promote the non-cash payment in the public sector and public administration; review, rearrange, and improve the quality of the network of card-accepting devices; develop non-cash payment in rural, mountainous, island, deep-lying and remote areas in association with the national strategy on comprehensive financial development.

Development solutions

Considering the causes of the limitation, in order to develop the non-cash payment, the Government, State authorities, payment intermediary organizations and intermediary payment service providers need to focus on solving the following problems:

Firstly, for the Government and State authorities,

Amend and complete the legal framework, guiding documents, detailed regulations on digital identification (ID digital), Electronic Know Your Customers system (e-KYC); manage e-banking activities safely and effectively and prevent risks; clearly define the rights and responsibilities of payment participants, control legal risks appropriately in accordance with international standards and practices recommended by financial institutions or generally applied in other countries; have effective measures in monitoring, detecting and dealing with fraud; strengthen the work of ensuring security and safety in electronic payments.

Promulgate a data sharing mechanism; build an interoperable Open application programming interface (Open API); complete the system connecting

the electronic payment infrastructure of commercial banks with the infrastructure of the tax authorities, customs, state treasury to serve the request for coordination in collection of state budget by electronic means; develop national information, communication and payment technology infrastructure in a synchronous and unified manner among financial institutions and payment intermediaries.

Add regulations that transactions of large value (eg, 100 million VND or more) are required to be paid in non-cash. Large-scale retail businesses must ensure a minimum percentage of revenue paid by bank transfer (this rate can be gradually increased according to a certain route, such as 50%/60%/70% etc.).

Promote, guide and have a mechanism to encourage non-cash-payment for taxes, fees and services through banks; encourage individuals, small businesses, micro enterprises... to pay period bills (electricity, water, telecommunications, tuition fees, etc.) by non-cash payment instruments; promote salary payments and support social insurance through banks.

Secondly, for commercial banks, other payment intermediary organizations and payment intermediary service providers

These organizations need to continue to innovate and apply modern technology in banking activities towards digital banking development; complete the bank's transaction processing procedure towards digitization, automation, safety and convenience; regularly update and apply advanced measures to ensure security and safety for the payment system. Banks need to step up the development of internal security policies, password setting mechanisms, and develop post-disaster troubleshooting procedures; focusing on investing in software tools and programs to support information system safety to minimize the cases of system intrusion, data loss, malicious code attack etc. Reality shows that innovating and upgrading technology infrastructure is a long journey and requires and large initial investment costs. Therefore, in addition to the option of self-

investing in new technology, recruiting human resources with both specialized knowledge and skills in using digital technology, in order to achieve the set goal of technological innovation and improve the quality of human resources with high technology qualifications to meet the requirements of developing modern non-cash payment services, banks can consider cooperation options with large technology companies, thereby taking advantage of technology and human resources of these technology companies.

The development of non-cash payment, especially electronic payment channels, requires each bank to have a large payment environment. Therefore, in parallel with technological innovation, banks need to promote the construction and development of a digital ecosystem - an electronic payment environment by strengthening linkages with retail suppliers such as electricity, water, television, internet, telecommunications, tuition, hospital fees, tax payment, movie tickets and a variety of other services; at the same time, strengthen and expand connections with fintech companies, businesses etc. to build an ecosystem to serve the needs of non-cash payment in all fields and industries.

Considering the limitations and inadequacies mentioned above, the establishment of strategies and plans for the development of non-cash payment services of payment service providers should target the poor, low income people and those living in rural, remote areas, small and micro enterprises under the policy of comprehensive financial development. It is also necessary to develop and apply modern payment and money transfer models that are easy to use and suitable for people in underdeveloped economic areas and disadvantaged people.

In order to promote non-cash payment in rural, mountainous, island, remote and isolated areas, it is necessary to strengthen the combination of banking and telecommunications using the available network of banks, port offices, and payment intermediary service providers. Banks can consider providing and installing free POS equipment for card-accepting

organizations such as companies and business households and public service providers (electricity, water, telecommunications, hospital fees, school fees etc.) and shops those sell agricultural supplies and equipments or buy agriculture products in rural areas.

In addition, commercial banks and other payment intermediaries, payment intermediary service providers also need to make better use of the development of online communication channels, social networks, strengthen communication so that each person clearly understands the advantages and disadvantages of the payment methods, thereby having a fuller and more accurate awareness of each form of payment and making the decision to choose the appropriate form of payment.

Conclusion

The development of non-cash payment is an inevitable trend in many countries, of which Vietnam is not an exception. To reach this goal, it is necessary to apply solutions at both macro and micro level, in which, completing the legal framework, guiding documents and having a mechanism to encourage the non-cash payment for tax and fee collection and public services via banks need to be paid attention. Continuing to innovate and apply modern technology in banking activities towards digital banking development, developing non-cash payment services to the poor and low-income people and those living in rural remote areas, small and micro enterprises under comprehensive financial development strategies are important solutions. ◆

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6. Vụ thanh toán, Ngân hàng Nhà nước Việt Nam.

7. Website của một số NHTM và NHNN.

Summary

Bài viết nghiên cứu thực trạng thanh toán không dùng tiền mặt tại Việt Nam thời gian gần đây trên các khía cạnh: kết quả thanh toán qua các kênh, các phương tiện thanh toán; cơ sở hạ tầng và các tổ chức tham gia cung ứng dịch vụ thanh toán, dịch vụ trung gian thanh toán, các hệ thống truyền dẫn thanh toán. Trên cơ sở đánh giá về những kết quả đạt được, hạn chế và nguyên nhân của hạn chế trong thanh toán không dùng tiền mặt, tác giả bài viết đề xuất định hướng và một số giải pháp (với Chính phủ và các cơ quan quản lý nhà nước, với ngân hàng thương mại và các tổ chức trung gian thanh toán khác, với tổ chức cung ứng dịch vụ trung gian thanh toán) nhằm phát triển thanh toán không dùng tiền mặt tại Việt Nam thời gian tới.

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- Journal of Trade Science