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Fintech Development and Cooperation Strategies of Vietnamese Commercial Banks

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Abstract
The digital technology platform with the Industrial Revolution 4.0 has created favorable conditions for the combination of finance and technology (Fintech) to create new products and services in the financial - banking sector. With the advantage of creativity and the ability to apply advanced digital technology platforms such as blockchain technology, cloud computing, artificial intelligence, data analysis, the Fintech field has been developing strongly globally in general and in Vietnam in particular. Therefore, the cooperation between commercial banks and Fintech companies will bring benefits to both parties and increase new experiences for customers. The article focuses on analyzing cooperation strategies between Vietnamese commercial banks and Fintech companies as well as proposing solutions to solve obstacles hindering this cooperation.

Keywords: Fintech, cooperation, commercial banks, Vietnam

1. Fintech development and Vietnam Fintech market characteristics

The term "Fintech" (stand for "Financial Technology") describes the use of technology to automate the provision and use of financial services, thereby better responding to financial and commercial transactions. The Financial Stability Board (FSB) defines Fintech as a technology-enabled financial innovation that creates new business models, processes, applications or products that have a significant impact on markets and financial institutions as well as the provision of financial services. In a broader sense, Fintech is considered as a new market that integrates finance and technology (Arner et al., 2015), while replacing traditional financial structures with new technology-based processes (Hochstein, 2015). However, to date, there is no uniform legal definition for this term. Through a review of more than 200 current concepts of Fintech, the most comprehensive and universal concept can be drawn as follows: Fintech is the application of innovative, creative and modern technologies to the financial sector to provide customers with transparent, efficient and convenient financial solutions/services at a lower cost compared to traditional financial services (Mackenzie, 2015; Schueffel, 2016). Fintech includes the following areas: (i) Credit, deposit and capital mobilization services; (ii) Payment, clearing and settlement services, including digital currency; (iii) Investment management services (including trade); (iv) Insurance (Navaretti et al., 2017).

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In the period from 2015 to 2020, the world recorded an explosion of Fintech companies on a global scale. According to The Global Fintech Index 2020, the total value of investment activities in the global Fintech sector has increased from 60.2 billion USD in 2017 to 150.3 billion USD in 2019, corresponding to an increase of 250% after two years (Findexable, 2019). In the first half of 2021, one in every five dollars invested by venture capital this year has gone into Fintech. (The Economist, 2021). Currently, there are 10 leading global Fintech centers in the world, including the US, UK, Singapore, Lithuania, Switzerland, Netherlands, Sweden, Australia, Canada, Estonia (Findexable, 2019). These countries have a high-tech environment, an open and free economy, and a high proportion of consumers using financial technology services. The US is the country where Fintech companies and Fintech products are most active in the world. Although in 2020, China only ranks 21 of the world's top Fintech centers, this is the leading market in using Fintech services with more than 60% of people accessing Fintech services, twice the rate in the US. Besides, China is also the largest peer-to-peer lending market (P2P lending) in the world (Vu & Lai, 2021).

Vietnam is a country that possesses many favorable conditions and potentials for the development of Fintech such as a young population and rapid access to new technology. 89% of users aged 20-44 use the Internet, 58% of the population use the Internet at least 5 hours a day (Nielsen, 2017). In the period since 2015, Vietnam's financial system has recorded the strong development and expansion of Fintech companies with the following main characteristics:

Firstly, Vietnam's Fintech market develops at a rapid rate and attracts many investors.

The number of Fintech companies in Vietnam has increased fivefold from about 40 companies at the end of 2016 to about 200 companies at the end of 2020. Vietnam's Fintech market reached $4.4 billion in transaction value in 2017 and increased to nearly $9 billion in 2020.

Table 1. Ranking scores of Fintech development in 2019

Country	Scores	Ranking position
USA	31.789	1
UK	23.262	2
Singapore	19.176	3
Korea	11.543	18
China	11.143	21
Japan	11.114	22
Malaysia	9.692	36
Thailand	9.415	39
Philippines	8.831	46

Table 2. Fintech scores by the city in some Asia Pacific countries in 2019

City (Country)	Fintech scores	Ranking position	
		Asia Pacific	World
Singapore (Singapore)	19.176	1	3
Bangalore (India)	16.093	2	7
Mumbai (India)	15.063	3	10
Hong Kong (China)	14.778	4	11
Sydney (Australia)	14.470	5	13
New Delhi (India)	13.958	6	16
Tokyo (Japan)	13.783	7	17
Beijing (China)	12.762	8	23
Seoul (Korea)	11.914	9	28

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Indonesia	8.658	47
Taiwan	8.321	50
Vietnam	**8.118**	**51**

Shanghai (Trung Quốc)	11.855	10	31
HoChiMinh City (Vietnam)	**5.593**	**27**	**142**
Hanoi (Vietnam)	**5.216**	**30**	**149**

Source: Findexable (2019)

According to the ranking of global Fintech centers, Vietnam ranks 51st in the world, which is also an encouraging position when compared to other countries with young Fintech markets. The Fintech ranking of cities in the Asia-Pacific region shows that Ho Chi Minh City and Hanoi have quite good positions in this region when ranked at 27 and 30 respectively. In 2019, Vietnam's Fintech market experienced strong growth through funding of 300 million USD for VNPay company and 500 million USD for MoMo's funding round. These are the 3rd and 1st largest transactions in the ASEAN region, respectively (Vu & Lai, 2021). According to the Fintech News Singapore (2020), Vietnam ranks second in the ASEAN region in terms of attracting investment in the Fintech sector in 2019. The amount of capital that Vietnam raised in the Fintech field accounted for 36% of the total ASEAN capital in this field in 2019 and was second only to Singapore (51%). This is a spectacular growth for Vietnam in the region because this figure in 2018 was only 0.4%.

Figure 1 shows the transaction volume and number of Fintech users in Vietnam. Accordingly, the number of Fintech users has grown positively from about 26 million users in 2017 to 51 million users by the end of 2021. The transaction value of two areas of digital payment and personal finance in 2021 is estimated at $15 billion and $1.8 billion, respectively (Figure 2).

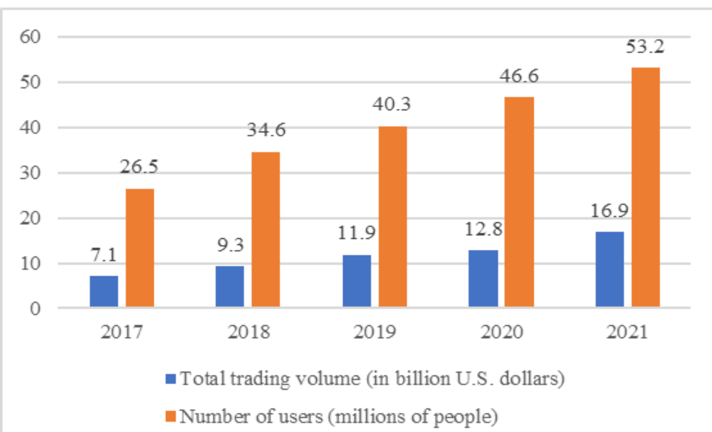

Figure 1. Transaction volume and number of Fintech users in Vietnam

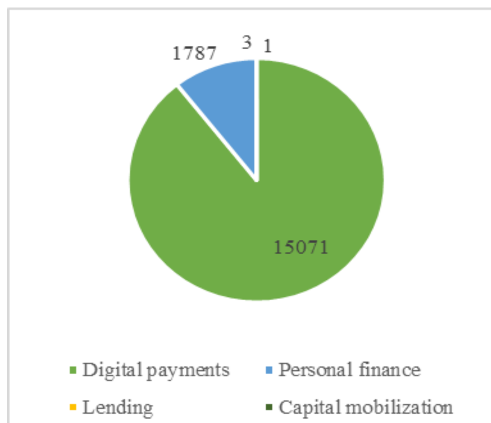

Figure 2. Fintech transaction value by operating segment in 2021 (USD million)
Source: Statista (2021)

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Secondly, the Vietnam Fintech market is led by two main areas which are payments and peer-to-peer lending.

Currently, the Fintech market in Vietnam focuses on 2 services including payment, peer-to-peer lending (P2P lending). Other services such as asset management, liquidity management, investment management, insurance, automated financial advisory services... are still in their infancy (Kieu, 2021). Investors' interest in Fintech companies in the payments sector is driven by advantages such as large population size, government support to promote a cashless economy, as well as high rates of Internet and mobile usage in Vietnam. This is also the general rule of Fintech markets in an early stage (Vu & Lai, 2021). This trend will continue because according to the forecast of the State Bank of Vietnam, the value of mobile payments in Vietnam is expected to increase nearly 4 times, from 16 billion USD in 2016 to 70.9 billion USD in 2025 (ISEV, 2020).

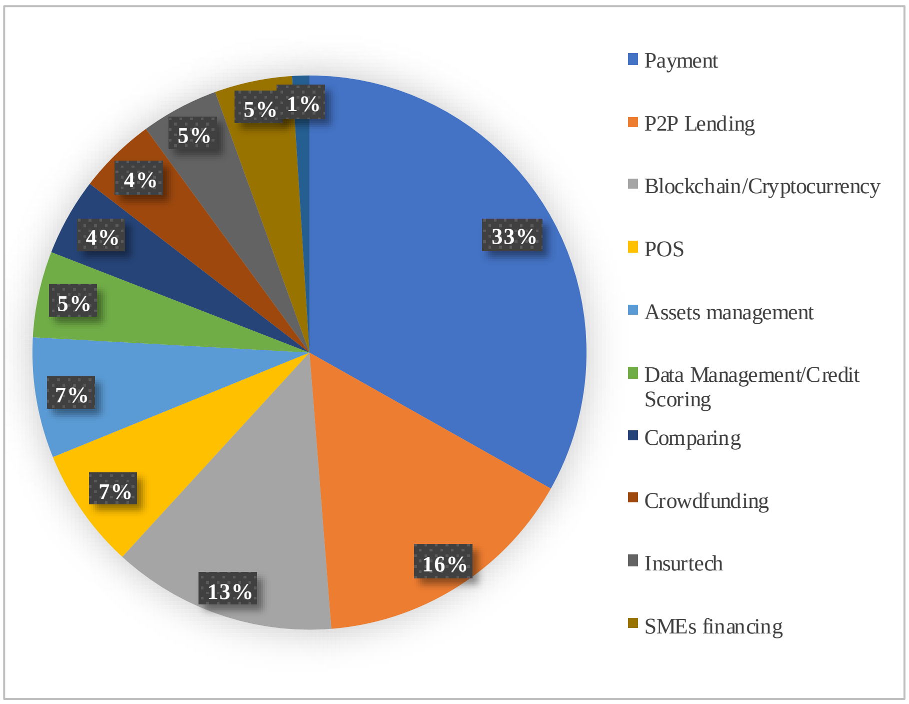

Figure 3. Structure of Fintech services in Vietnam in 2020

Table 3 Number and value of payment transactions via the Internet and Mobile Banking

	Number of transactions in 2020 (Millions of transactions)	**Compared to 2019**	**Transaction value in 2020 (Trillion VND)**	**Compared to 2019**
Internet	475,52	+13,33%	27.737	+24,78%
Mobile	1.183,34	+114,21%	12.613	+118,45%

Source: Nghiem, 2020

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Besides payment, P2P lending has also grown rapidly in Vietnam in the number of service providers. According to a survey in 2019 by the State Bank of Vietnam, Vietnam has about 40 companies providing P2P lending services, in which there are many companies with unknown legal basis originating from China, Indonesia, Malaysia... Thus, from 3 P2P lending platforms in 2017, the number of peer-to-peer lending companies increased to 40 and even 100 if the number of unregistered companies is included. The growth in the number of P2P lending companies represents a sign of a hot-growing Fintech sector in Vietnam. However, nowadays, there is little reliable data available to measure the loan size, total loan balance or growth rate of P2P lending companies.

Thirdly, the size of Fintech companies is quite small compared to the region.

There were 181 Fintech companies in Vietnam in 2020 (UOB Group, 2021), the lowest among ASEAN-6 countries (Indonesia – 758, Malaysia – 523, Philippines – 261, Singapore – 1315, Thailand – 263). At the same time, transaction value in the digital payments segment is also the lowest among comparable countries in the Asia Pacific in 2020 (Figure 4).

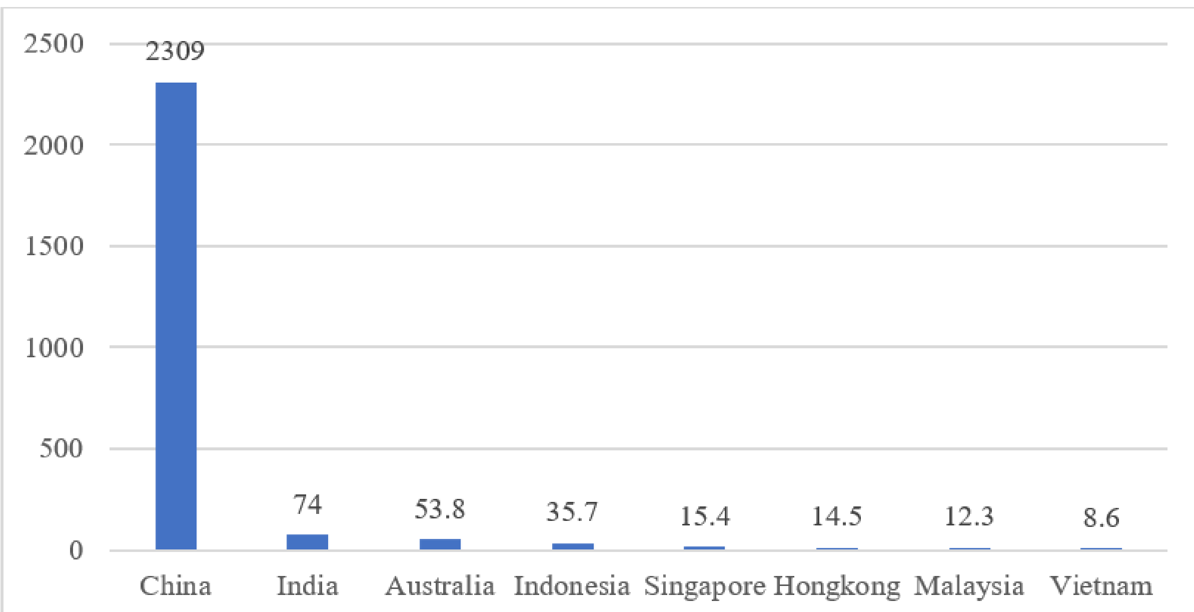

Figure 4. Digital payment segment value of some Asia-Pacific countries in 2020 (USD billion)

Source: KPMG, 2021

In addition, the survey report of the State Bank of Vietnam in 2019 shows that the majority of Fintech companies in Vietnam are newly established companies with a small scale. Specifically, about the development stages of Fintech companies in Vietnam, 47% of Fintech companies are in the stage of starting business activities, but the break-even point has not yet been reached; 28% are in the minimum viable product launch stage and have sales in the last six months to the time of the survey; 3% are in the proof-of-concept stage but no revenue yet; 9% achieved profit; 13% are in the business model development stage.

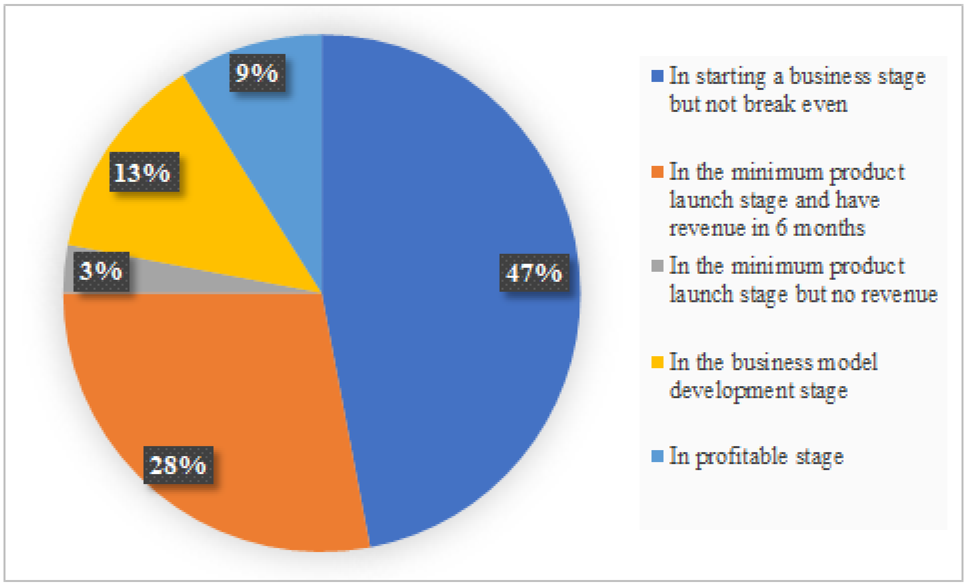

Figure 5. Evaluation of the development stage of Vietnamese Fintech companies in 2019

Source: SBV survey, 2019

Fourthly, Fintech activities are concentrated in the banking sector and have close interaction with traditional banks.

The survey report on the Fintech ecosystem in Vietnam of the State Bank of Vietnam in 2019 shows that the majority of Fintech services provided in Vietnam are in the banking sector or have the nature of banking activities such as payment, loans, capital mobilization, personal financial services, credit scoring or solutions applied to the operation of credit institutions... Meanwhile, Fintech services are applied in the area of securities or Insurance accounts for a smaller proportion and are not yet popular. Innovative technology not only increases competition but also provides opportunities for cooperation between banks and Fintech startups. The most prominent global trend during the past time has been the cooperation relationship between traditional financial institutions and Fintech companies. Among Fintech companies in the Vietnamese market, a few develop independently, which can become competitors with traditional financial institutions (banks, insurance, securities...), but most are developing in the direction of cooperation, becoming partners with traditional financial institutions, developing symbiotically, win-win... The survey report of the SBV in 2019 shows that 80-90% of Fintech in Vietnam cooperate with banks during their operation.

2. Cooperation strategies of Vietnamese commercial banks with Fintech companies

2.1. Key cooperation strategies of commercial banks with Fintech companies

Firstly, big banks tend to use an M&A strategy and develop their financial technology (In-house) as well as create their ecosystem. Tanda & Schena (2019) have launched technology

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initiatives in business according to 3 strategies with Fintech based on a sample of 32 major banks in the world (including 24 banks in Europe) including (i) Traditional banks hold shares of Fintech companies, (ii) Banks cooperate with Fintech to deliver or create technology initiatives, (iii) Banks develop a separate division within the bank to create technology initiatives. Survey results show that major commercial banks currently mainly carry out M&A with Fintech (53%), then develop the technology themselves (35%), and finally have partnerships with Fintech (12%). Cooperation with Fintech focuses mainly on Payments (25%) and Asset Management (22%).

DBS Bank in Singapore is a prime example of this strategy. In 2016, DBS consolidated resources to establish a Technology Center to research and develop 85% of its technology resources, instead of hiring 85% before. Besides, DBS has also acquired and cooperated with Fintech to create its financial ecosystems such as DBS Car Marketplace (Singapore's largest peer-to-peer car market), DBS Electrical Marketplace (allowing families to move switch quickly to different electricity suppliers in Singapore), DBS Property Marketplace (which connects tenants and renters, home buyers and sellers) and Carousell (a peer-to-peer online classifieds site). In addition, DBS is also entering into product cross-sell agreements with regional peer-to-peer lending platforms such as Funding Societies and Moolah Sense (Sia, Weill & Zhang, 2021).

Table 4. International bank digital development strategies

Area of development		**Development strategy**		
		Shareholding	**Partnership**	**In-House**
Financial intermediation activities	Lending and financing	31%	13%	22%
	Personal finance, including online banking services	25%	3%	44%
	Corporate banking services	0%	0%	6%
	Trading	41%	0%	13%
	Wealth management	25%	22%	41%
	Payments	53%	25%	34%
	InsurTech	16%	0%	19%
Technological, functional or instrumental activities	Block Chain	72%	3%	0%
	Data analytics	31%	9%	13%
	Security, compliance and data protection	6%	0%	31%
	RegTech	34%	3%	0%
Strategic application rate		53%	12%	35%

Source: Tanda et al (2019), calculation by authors

Note. The % figure represents the percentage of banks in the sample of 32 large commercial banks that use this strategy to create financial initiatives.

Secondly, the optimal choice for small banks is to cooperate with Fintech. For banks with smaller capital, M&A strategy and self-development of technology often require large costs. Therefore, these banks have a certain priority in cooperating with Fintech to expand market share, facilitate shortening the technological gap, as well as improve relationships with customers. Klus et al. (2018) analyzed the relationship between FinTech companies and some international banks and concluded that less profitable banks tend to cooperate with more Fintech. The cause of this problem comes from the competitive pressure of the low-capital business model. According to Schier and Nguyen (2018), the current model of cooperation between banks and Fintech should be: providing co-branded products to create the most suitable products for customers. For example, banks and Fintech can exchange profiles of potential borrowers that match their risk standards.

According to the authors, Fintech and banks have incentives to cooperate. For Fintech, the cooperation with banks creates more prestige thanks to the bank's patronage as well as helps Fintech to access a stable long-term customer base and potential investment capital. Besides, Fintech can also learn from experience in risk management and compliance of banks. For commercial banks, the cooperation with Fintech helps the bank create a seamless experience for customers from Fintech services as well as support the bank to transition to a platform-based business model and create a financial ecosystem.

Thirdly, banks establish pure digital banks, directly competing with Fintech. The establishment of a purely digital bank does not only come from investment funds, startups, or BigTechs such as Alibaba, Tencent... but also from major banks themselves (established or acquired to take control), such as Chase's Finn Digital Bank (2017), DBS' Digibank (2016), BNP Paribas' Hello Bank (2013), Simple's BBVA (2009) (The Financial Brand, 2018).

2.2. Strategies of Vietnamese commercial banks with the development of Fintech

Firstly, Vietnamese commercial banks have a general tendency to cooperate with Fintech to expand the financial ecosystem, but the level is not high due to the small size of the Fintech market in Vietnam. In Vietnam, commercial banks and Fintech often cooperate mainly in the field of payment with more than 30 banks already providing VN-PAY QR payment gateway service. This payment gateway is also linked with 8 e-wallets and domestic and international payment organizations such as UnionPay, Master, Visa, Paypal... In addition, 25 Vietnamese commercial banks have connected with Momo e-wallet. This cooperation is part of the strategy of building an open bank through an application programming interface (API) that many Vietnamese banks are pursuing. In addition, P2P peer-to-peer lending has also been established in Vietnam in the last 3 to 4 years (although the scale is still small). Banks also have an association with this segment to expand the customer base and enjoy account management service fees. For example, platforms associated with banks in Vietnam such as: InterLoan, Tima, LendBiz, Dragon Bank, Thebank, Gobear... However, the level of cooperation of commercial banks with Fintech is not high because the size of Vietnam's Fintech market is still small. Fintech services such as small and medium-sized business financing, insurance technology, crowdfunding, data management and scoring… still account for a low proportion (<10%).

Secondly, large commercial banks aim to develop financial technology from inside resources (In-house). Besides cooperating with Fintech, many banks also invest in developing financial technology from their internal resources to provide better financial products and services to customers. Large-scale banks, mainly state-owned commercial banks, are aiming to establish a Digital Banking Center - considered a financial technology innovation and creation center for banks. Some typical commercial banks for this strategy are: BIDV (2019), Vietcombank (2020),... The information technology workforce of Vietnamese commercial banks is still small, accounting for about 2% of the total number of employees for state-owned commercial banks and 4-5% for private commercial banks. In particular, there is a private commercial bank with an IT staff of more than 1,000 people, which is the basis for this bank to deploy many financial technology initiatives following world trends. However, with large and complex information technology projects, Vietnamese banks still mainly hire and buy (Out-sourcing), intrinsic technology development capacity is still the weak point of many banks.

Thirdly, the M&A strategy between commercial banks and Fintech in Vietnam is not as popular as in the world. There are three reasons why the M&A strategy between commercial banks and Fintech is less popular in Vietnam. The first reason is the limited financial capacity of the Vietnamese banking system. The capital adequacy ratio (CAR) of the Vietnamese banking system decreased continuously from 13% in 2015 to 11.1% at the end of June 2021, while outstanding credit/GDP in 2020 (146% of GDP) belongs to the group of countries with high rates (World Bank, 2021). This creates a big barrier for the banking industry in extending credit, increasing profits to make IT investments as well as implementing M&A strategies with Fintech. The second reason is the policy of financial stability of the State Bank of Vietnam. Accordingly, the State Bank of Vietnam requires banks to reduce cross-ownership and divest outside the capital of banks under the Scheme on restructuring the credit institution system associated with bad debt settlement 2016-2020. The final reason is that Vietnam's Fintech market is still small and has not reached the "saturated" level. The customer segments of Fintech and banks are still separate today. While Vietnam's Fintech market focuses mainly on the payment sector (90%), the main business of commercial banks is still mainly credit (80%).

2.3. Barriers prevent the cooperation between Fintech and Vietnamese commercial banks

Although Vietnam's Fintech market has recorded impressive growth in recent times, there are still many obstacles preventing the cooperation between Fintech and commercial banks:

Firstly, the legal corridor has not changed in time with the rapid development of technology to regulate new business models, business relationships, while the banking and finance sector is an important sector of the economy, it is always managed by the state with a strict legal framework. The list of Vietnam's current legal framework for Fintech activities is not completely synchronized and has a long-term orientation, most of which are focusing on short-term market trends and mainly in the payment segment. Besides, the lack of a centralized and reliable national database reduces the effectiveness of cooperation between Fintech and commercial banks.

Secondly, issues from market realities are also the main obstacles affecting the development of the digital economy in the banking and finance sector, and the cooperation relationship between banks and Fintech. The majority of Vietnamese people have not yet participated in the formal financial system. In the report on financial inclusion published in 2018 by the World Bank, the average proportion of people using an account in Vietnam is 30.8% while in East Asia and the Pacific, this rate is nearly 2.3 times higher than that of Vietnam. In the group of low-middleincome countries, 57.8%, also much higher than Vietnam. Besides, the rate of non-cash payment in e-commerce in Vietnam is still very low. According to the Vietnam Development Report 2019 titled “Connecting for Development and Shared Prosperity” by the World Bank, only 10% of Vietnamese users pay online to buy goods on the Internet, which is significantly lower than Indonesia and Malaysia. Meaning, 90% of e-commerce consumers in Vietnam use cash to buy online. Not only that, the quality of e-commerce goods in the Vietnamese market is not guaranteed, which partly prevents people from using the payment services of Fintech and commercial banks.

Thirdly, issues of information security, especially the development of high-tech criminals, also prevent the cooperation between Fintech and Vietnamese commercial banks. The bank's digital transformation and the development of digital financial services bring many great opportunities, but along with it are the problems of ensuring security and safety for the systems. Today, the trend of high-tech crimes attacking the banking and financial sectors in Vietnam is increasing both in number and sophistication. According to Bkav's 2020 Cybersecurity Report and 2021 forecast, the damage caused by computer viruses to Vietnamese users in 2020 will reach a new record, exceeding VND 23,900 billion. Besides the development of high-tech criminals, information security risks also arise from the development of business models based on new technology platforms. New models such as Open API, eKYC, cloud computing... cooperation between banks and Fintech, create many risks of information security related to confidentiality, the privacy of customer's personal information, the risk of protecting the system from threats of illegal access.

Fourthly, the shortage of talent in the field of high technology is the cause of reducing the effectiveness of cooperation between Fintech and commercial banks. The shortage of human resources is a problem for both commercial banks and Fintech companies. Banks are short of development personnel, leading to their dependence on external technological capabilities, reducing their initiative, limiting their ability to create breakthroughs as well as increasing competition in the market. In addition, the shortage of high-quality personnel at the bank also limits the ability to evaluate, select, manage and operate new technology solutions after the bank has cooperated with Fintech suppliers/ jointly develop new technology solutions, leading to investment capital for procurement of technology solutions but a shortage of post-procurement operation and development personnel. The cause of this problem is that the knowledge of new technologies such as application programming, artificial intelligence, blockchain, big data... is still not widely trained in Vietnam.

Fifthly, the Vietnamese Fintech market is lacking in investment capital to develop, leading to the low efficiency of Fintech's cooperation with commercial banks. According to the Fintech report - Wake up, get momentum and run (Fintech - Get up, Reset, Go) of banks UOB, PWC and SFA (Singapore Fintech Association) published in December 2020, ASEAN including Vietnam is still is the first choice for the market expansion plan of financial companies and is an attractive destination for foreign investment funds. However, compared to other countries in ASEAN, Vietnam is still at a relatively modest level in terms of the number of Fintech in the market and the size of investment capital of investment funds. The Vietnamese market mainly focuses on developing in the payment segment but is leaving open the potential of other service segments that have developed very well in Singapore, Indonesia such as lending, banking technology, blockchain in financial services, insurance and investment technology.

3. Policy implications

To improve the effectiveness of the cooperation strategy between commercial banks and Fintech in Vietnam, the paper proposes the following policies:

Firstly, regulatory agencies need to soon complete the legal framework for the digital transformation of the banking industry. These are activities that are growing strongly during the epidemic period and support banks to boost revenue from service activities as well as reduce the proportion of revenue from credit activities. From there, banks will have more resources to improve their financial capacity to implement the bank's information technology strategy in general and to cooperate with Fintech in particular.

Secondly, the legal frameworks on Open Banking and Open API need to be completed soon to promote cooperation in data sharing and service provision between the banking system and non-banking financial institutions (including Fintech). These regulatory frameworks need to set out such contents as regulations on exploitation and sharing of data between parties, rights and responsibilities of parties in connecting and performing banking services via Open API; technical standards on the implementation of Open API for the banking sector...

Thirdly, regulators need to raise people's awareness and understanding of financial services in general and Fintech in particular through financial education activities. Because financial education is often difficult to keep up with the rapid development of new forms of financial technology, regulators need to educate consumers to arm themselves with the knowledge, as well as determine risk appetite before engaging in Fintech services; especially, are sophisticated forms of financial investment.

Fourthly, regulatory agencies need to improve their supervisory capacity, especially in the financial technology sector. The complicated context of the COVID-19 epidemic has pushed for a stronger application of technology, especially in the financial sector. This also leads to an increase in cybercrime. Therefore, the SBV needs to improve its supervisory capacity in the financial technology sector, or indirectly through strengthening financial education activities for customers.

Fifthly, Vietnamese commercial banks urgently need to develop high-quality human resources, including digital personnel. Commercial banks need to define their own human resource development strategies such as: (i) make further breakthroughs in recruitment, job assignment, assessment, and remuneration for high-quality staff and IT experts. and digital transformation, ecosystem development; (ii) plan to recruit and develop the internal team as the second source of staff; (iii) consider acquiring a Fintech company to be able to own part of the technology, ecosystem and creative staff in the field of technology, digital transformation...

Sixthly, the Vietnamese government needs to maintain the stability of the investment environment, simplify the procedures for setting up businesses, create a friendly investment environment, and avoid discriminating between domestic and foreign investors as well as build a system of healthy, clear, supportive regulations for IPO activities or divestment activities of investors to attract investment capital flows into Vietnamese Fintech companies.

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