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Industrial Revolution 4.0 and the Problems Facing Vietnam's Currency Market

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Abstract

Advances in science and technology, especially the strong development of the Fourth Industrial Revolution (Industry 4.0), the era of the digital revolution, have been having significant impacts on the financial market in general. Including the money market. In addition, in the context of deepening international integration, transactions on the money market are increasing both in size and the diversity and complexity of banking and financial products and

services goods, changing payment methods and cash flows. The article studies the current situation and proposes some solutions to develop the money market in Vietnam in the context of the Fourth Industrial Revolution to create maximum conditions for mobilizing financial resources at home and abroad, promoting money flow. Money transfer, contributing to sustainable economic development in the coming time.

Keywords: Money Market, Industry 4.0, Banking and Financial Services

JEL Codes: E40, E44, G29

1. Introduction

The Vietnamese currency market has been formed with all components and is increasingly essential in regulating national currency circulation. The development of the Money Market has supported financial institutions and companies in storing short-term excess capital; supporting the Government, financial intermediaries, and companies to access short-term capital; balancing and harmonizing solvency among banks, and contributing to regulating money circulation on a national scale. However, in the revolutionary context of Industry 4.0, the digital revolution era also increases the complexity and Diversity of banking and financial products and services, changing payment methods and cash flow. Therefore, along with this development trend, the money market, in particular, and the management and administration of the Central Bank, in general, must also develop and make changes suitable for the new context.

2. Theoretical Background and Research Overview

2.1 Overview of the Money Market

Mishkin (1992) ^[8], in his research on monetary economics, banking, and financial markets, defined the financial market, according to which: Money market is a financial market in which only companies' Short-term debt instruments (maturity less than one year) are traded. Loretan *et al.* (2008) argue that the money market is the market for short-term debt instruments that provide capital to financial and non-financial institutions, performing several essential economic functions. Randall Dodd (2012) defines a money market as providing tools for borrowers and borrowers to satisfy their short-term financial needs. Vo Thi Thuy Trang (2010), Duong Thi Thanh Huyen (2017) ^[7], Le Thi Thuy Van (2017) ^[11], Dao Hong Chau (2018), Nguyen Thi Thuy Duong *et al.* (2019) also mentioned the money market in their studies: "The money market is a short-term capital market, where short-term buying and selling of valuable papers, including credit treasury bills, State Bank bills, certificates of deposit and other valuable papers."

In general, the money market has the following essential functions:

First, temporarily transfer idle capital to people who lack capital for business and have investment opportunities. With this function, the money market has created a public market in which economic institutions with a temporary surplus of capital can

find an excellent place to earn their excess wealth, and institutions without money find a place to meet their short-term capital needs.

Second, Balance and Regulate Solvency among Banks, and Regulate Money Circulation on a National Scale. The main participants in the money market are the Central Bank, commercial banks, and other credit institutions, which the Central Bank regulates commercial banks and credit institutions. The money market provides the means through which the Central Bank can implement the Monetary Policy, coordinate the money supply and the degree of credit expansion, and control the banks' reserve ratio—Commercial goods. If commercial banks and credit institutions cannot pay their customers, the Central Bank will be the lender of last resort.

Third, Finance the Lack of Liquidity of Economic Actors. The money market was created to meet short-term capital needs by pairing those with temporary idle capital with those with temporary shortfalls, benefiting both parties. The money market has the effect of balancing the solvency among credit facilities. This is especially meaningful for credit institutions, primarily commercial banks. Thus, the money market is the "rescue" place to finance credit institutions and other economic entities when these entities lack liquidity.

2.2 Impact of Industry 4.0 on the Development of the Money Market

First, The Impact on Money Market Management

Industry 4.0 is not only the digitization and internalization of devices but also the convergence and integration of many technologies and their interactions in many fields on a large scale, such as Big data; Artificial intelligence; Connected things, automation, robotics, uncrewed vehicles; 3D printing technology, virtual reality technology combined with biotechnology, nanotechnology. Subjects in the money market in the context of Industry 4.0, increasing the application of information technology and digital technology in its management of the money market. The application of digital technology in management activities will help the Central Bank store a large amount of information, making it easier to look up information to conduct inspection and supervision activities on the market. This facilitates management activities to be carried out quickly and conveniently. However, the Fourth Industrial Revolution will also create complexity in the operation of the money market, requiring money market management agencies to issue stricter supervision documents to avoid risks. Occur, especially information technology risks.

Second, the Impact on the Development and Diversity of Tools and Goods on the Market

- Digital banking trend: Digital banking is a bank that digitizes all operations, programs, and functions. It digitizes products and services, automates processes, and connects with middleware. Digital banking is a step ahead of online banking. Digital banking is based on big data and analytics and includes cutting-edge technologies focused on customer experience. A bank is considered a digital bank if it has digitized all functions, from product development to customer service. In the context of Industry 4.0, the digital banking trend is getting stronger and stronger.
- Trends in using artificial intelligence:
- + "Chatbot" customer support: this tool answers customer

questions 24/7. The advantage of chatbots is that they can work continuously, without a time limit, like humans; the cost of installing chatbots on websites or social networking sites is also lower than hiring a call center staff.

+ Voice assistant for account service: if the chatbot is for messaging, the voice assistant integrates a voice application so that users can interact with the robot more easily. Banks can provide spending information to customers to help them control their account balances, such as how much they spend, in which stores or locations, and when they spend the money. In addition, voice assistants can also make money orders and pay users when required.

+ Personal financial management: banks will use artificial intelligence to create applications to help customers manage their finances. Artificial intelligence in the form of an intelligent assistant will help customers check their accounts, make payments, and automatically deduct a small amount of money into the user's savings account.

Fourth, the Impact on the Diversity and Capacity of Market Participants

Industry 4.0 has increased market participation. The birth and development of Fintech companies have changed the distribution channels and traditional banking products and services through the intense development trend of online transaction channels such as Internet banking, mobile banking, and networks. The competition for expanding bank branches will no longer exist; banks must develop self-service devices based on automation and multi-connection technology. Afternoon.

Fifth, The Impact on the Development of Infrastructure Supporting Market Operations

In the context of Industry 4.0, the application of information technology will increase, tending to use big data. Banks can analyze big data to detect behaviors that pose a risk of fraud or loss of bank assets. This technology analyzes data from websites and mobile applications to trace the activity of potentially fraudulent transactions and prevent them in the first place. Instead of before, fraud was detected after a loss incident; now, thanks to new technology, fraud in banking transactions is prevented in the first place, helping to avoid enormous losses for the bank and customers.

Sixth, the Impact of the Increase in Market Size

Industry 4.0 helps to connect with markets around the world with the participation of different actors. Buying and selling on the money market is done quickly. With the diverse involvement of market members and enormous market scope, it is necessary to increase the size of the money market by increasing the number of members, the trading volume, and the number of members—currency market transactions.

3. Research Methods

This paper studies the current situation and proposes some solutions to develop the money market in Vietnam in the context of the Fourth Industrial Revolution to create maximum conditions for mobilizing financial resources at home and abroad, promoting the flow of money. Money transfer, contributing to sustainable economic development in the coming time. To conduct this article, we have used the qualitative research method.

Methods of collecting information: Synthesize the theoretical basis, research framework on the money market, the impact of the Industrial Revolution 4.0 on the money market. And other issues related to the money market-

research topics through studying documents, books, and published research works of scientists.

Document Processing Method: From the collected documents, the research team uses analytical methods to analyze the movements of the Vietnamese currency market in the 2016-2021 period, the impact of the industrial revolution, and the impact of the industrial revolution. Industry 4.0 to the Vietnamese currency market. From the point of view of dialectical materialism: use the deductive method to make speculations, assess the current situation of the money market in Vietnam over the past time, use induction to conclude, and summarize to propose some solutions.

Data were collected from the World Bank, the State Bank of Vietnam, the World Economic Forum (WEF), the Ministry of Planning and Investment, the General Statistics Office (GSO), the Vietnam Chamber of Commerce and Industry (VCCI).

4. Research Results

4.1 Current Status of Vietnam's Money Market in the Context of Industrial 4.0

a. Interbank Local Currency Market

From 2016 to the end of 2021, the number of members has increased significantly in the interbank local currency market. The trading method of the market has been gradually innovated; most transactions are done online, with flexible terms (overnight, one week, two weeks, one month, three months, six months, 12 months). The average transaction interest rate on the Vietnam Interbank Local Currency Market (VNIBOR) has also been developed based on daily quotations from several banks.

The total turnover of loans and deposits in the interbank market in VND reached 33,636 trillion VND, in USD converted to VND was 7,872 trillion dong, an increase of 95% and 12% respectively compared to 2020. Compared with lending and deposit activities, they were buying and selling with terms of valuable papers among credit institutions with smaller scale and turnover. They reached 858 trillion dong in 2021, up 14% compared to 2020. In terms of terms, transactions on the interbank market in 2021 continued to be mainly under one month, focusing on overnight tenors, one week. Overnight trading volume in VND for the whole year reached 26,130 trillion VND, and in USD totaled 5,469 trillion VND, which equals 77% and 69%, respectively, of the total amount of trade for the year as a whole¹.

Compared to the standard level in recent years, the interbank interest rate in 2021 is relatively stable at a low level due to abundant system liquidity thanks to the inheritance of a good liquidity position from the end of 2020 and the system's continued growth an additional source of VND from the sale of foreign currency by credit institutions to the State Bank. On average, for the whole year, VND interest rates for overnight, 1-week, and 2-week terms are at 0.76%/year, 0.93%/year, and 1.07%/year, respectively.

b. Foreign Currency Market Movements

From the beginning of 2021, the SBV implemented a plan to buy foreign currency with a term of 6 months, reducing the frequency of intervention and gradually lowering the forward buying rate, creating conditions for the exchange

rate to move more flexibly while absorbing supply. Abundant foreign currency in the market, ensuring the smooth operation of the foreign currency market. After relatively stable movements in the first seven months of the year, from August 11, 2021, the domestic exchange rate tended to decrease when the State Bank actively stopped buying foreign currencies for futures, buying foreign currencies on the spot and gradually lowering the foreign currency buying rate to match market conditions, and at the same time support VND liquidity in the context of complicated developments of the COVID-19 epidemic. In the early days of December 2021, the exchange rate in the market tended to increase rapidly due to the unfavorable balance of supply and demand of foreign currencies and the market-adjusted expectations about the Fed's monetary policy narrowing roadmap. However, after the SBV listed the intervening selling rate at 23,150 VND/USD (December 8, 2021), it was ready to sell foreign currencies to support liquidity and stabilize the market and exchange rates. Interbank tends to decrease again. By the end of 2021, the central exchange rate will increase by 0.06% compared to the end of 2020, and the VND/USD exchange rate on the interbank market will decrease by 1.32% compared to the end of 2020. The foreign currency market is stable. Market liquidity was smooth, the legal needs of the economy to buy and sell foreign currencies were fully and promptly met, and the SBV purchased a large amount of foreign currency to supplement the State's revenue. The foreign currency market has been maintained stably thanks to the solid domestic macroeconomic foundation and favorable foreign currency supply and demand; The central exchange rate mechanism continues to be effective in creating conditions for the market exchange rate to move flexibly and in line with market conditions, supporting the absorption of external shocks to the economy and to limit speculation and hoarding of foreign currencies.

c. Gold Price Movements

In 2021, the domestic gold bar price fluctuated according to the international gold price movement; Except for the period from June to September 2021, the domestic gold price remained almost unchanged, remaining around 57 million dong/tael because most gold shops were closed under the regulations on social distancing while the price of gold remained unchanged. International gold prices fell sharply, causing the difference between domestic and global gold prices to increase. From October 2021, the provinces and cities throughout the country began to reopen; the domestic gold price increased according to the international gold price. As of December 31, 2021, the domestic gold price traded at 61.25 million dong/tael, an increase of about 9% compared to the beginning of 2021; the difference between domestic and international gold prices remained at 10.7 million dong/tael.

d. Open Market

Since the official start of operation (in 2000), open market operations (OMO) have had the participation of many members of different types of credit institutions, including domestic and commercial banks. Country, joint-stock commercial banks, joint-venture banks, foreign bank branches, a financial company, and the Central People's Credit Fund. However, the number of members participating in the transaction and participating in each trading session is still modest.

¹ According to the State Bank's latest Annual Report (AGM 2021)

Trading volume on the market is also increasing; the number of trading sessions increases from 10 days/time to 1 time/week, then two times/week, and payment is made within the same day. Trading goods are short-term assets issued in VND registered with the State Bank, such as

treasury bills, SBV bills, and several other short-term assets prescribed by the State Bank's governor; treasury bills and SBV bills (mainly State Treasury bills) are shared commodities.

Table 1: Transaction volume on the open market (2017-2021)

Year	Unit	2017	2018	2019	2020	2021
Total sales	Billions dong	101,200	403,490	505,617	556,448	61,244
Total sales	Billions dong	353,616	233,350	301,236	332,112	0
Number of trading sessions	Session	484	388	412	402	251
Number of Members	Member	1,903	1,023	1,132	1,128	34
Average winning bid volume/session	Billions dong	400	1,563	1,612	1,604	244
Average winning bid volume/session	Billions dong	1,531	1,127	1,131	1,216	0

Source: Annual Report, SBV 2016-2021

e. Bank Credit Market

Capital mobilization of the whole system increased by 10.3% compared to the end of 2020 (2020: 14.9%), in which VND deposits increased by 11.67% (2020: 15.06%), foreign currency deposits decreased by 3.5% (2020: 13.27%). Foreign currency mobilization dropped after four consecutive years of growth, causing dollarization in warranties (ratio of foreign currency deposits/M2) to decrease from 8% in 2020 to 6.98% in 2021. The proportion of capital mobilization of State-owned commercial banks increased. At the same time, other credit institutions and VBSP decreased: Capital mobilization of State-owned commercial banks (excluding VBSP) accounted for 45.53% of total deposits. System (2020: 44.46%); VBSP accounted for 0.67% of system-wide mobilization (2019: 0.69%); the group of other credit institutions accounted for 53.8% (2020: 54.85%).

Credit to the economy increased by 13.61% compared to the end of 2020 (2020: 12.17%); VND credit grew by 13.44%, and foreign currency credit grew by 16.69%. Unlike the evolution of dollarization in terms of deposits, dollarization on loans (ratio of foreign currency credit/M2) tends to increase from 4.13% per year. 2020 to 4.36% in 2021, but still below 5%. Credit to the economy continues to be focused and allocated by credit institutions in production and business sectors, which drive economic growth, thereby contributing to controlling inflation and supporting growth recovery Economy.

The credit balance of State-owned commercial banks (excluding VBSP) accounts for 45.27% of the system's total outstanding loans (2020: 46.2%); VBSP accounts for 2.37% (2020: 2.46%); the group of other credit institutions accounts for 52.36% (2020: 51.34%).

f. Market Liquidity

It generally improved in the 2016-2021 period, and the loan/deposit ratio on the market 1 (the market for lending and depositing money between commercial banks and individuals, businesses, and economic organizations) decreased. From 91.36% in 2016 down to about 94% in 2020 2019-2020, the growth rate of capital mobilization from residents and economic organizations is always lower than the growth rate of credit outstanding. The ratio of short-term capital for medium and long-term loans tends to decrease. Market activities are stable and smooth. In 2021, although the capital mobilization rate decreased lower than the credit growth rate, banks did not face liquidity difficulties due to the weak credit demand due to the COVID-19 pandemic. The open market (including buying

foreign currencies) neutralizes the money supply while supporting liquidity and controlling inflation and low interbank interest rates; banks can mobilize capital from this channel.

The banking system mainly mobilizes short-term capital (about 88% of deposits are with a term of 12 months or less) but still has to meet the needs of medium and long-term loans (over 52% of the system's VND credit balance). medium and long term) has put pressure on deposit rates. At the same time, the pressure to increase interest rates always exists because Vietnam has a sizeable economic openness, and fluctuations in the financial market, and world currencies have an intense and rapid impact on domestic interest rates and exchange rates.

4.2 Impact of Industry 4.0 on Vietnam's Currency Market

a. Impact on the Structure and Quality of Goods in the Market

The Industrial Revolution, 4.0, with technologies such as the Internet of Things, Big Data, and artificial intelligence AI, etc., have strongly impacted the structure and quality of goods in the Vietnamese currency market. Specifically:

+ E-wallet:

In the Vietnamese market, Fintech companies have fiercely competed for this lucrative market share when launching a series of branded e-wallets such as Momo, Samsung Pay, VTC Pay, Bankplus, Payoo, ZaloPay, IPay, Bao Kim, Vimo, Mobivi, along, Vi FPT, eMonkey, Pay365, TopPay, Ngan Luong, AirPay. This fact has made the e-wallet market in Vietnam's electronics industry thrive in both the number of wallets and users. In 2015, Vietnam had five e-wallets; by 2017, this number had increased to 20; by 2022, the SBV had licensed 40 e-wallets to operate. From October 2018 to October 2022, the number of e-wallet users has grown impressively: from 12.3 to 41.3 million (i.e., a sharp increase of 330%). Around 57% of Vietnam's adult population currently uses e-wallets, as opposed to just 14% at the end of 2018.

+ P2P Lending

P2P Lending (*Peer-to-peer lending*) is a new business model, an innovative service designed and built on a digital technology application platform to connect borrowers with lenders directly (investors) without going through financial intermediaries such as credit institutions or foreign bank branches. Accordingly, P2P Lending businesses provide an online transaction platform for borrowers to connect loans with lenders directly. The online transaction platform

records all borrowing and repayment activities (principal and interest) between the borrower and the giver in electronic and digitized tables.

Preliminary statistics from the State Bank of Vietnam show that Vietnam currently has about 100 P2P Lending companies (including companies that have been officially put into operation and some companies are in the testing

phase) such as Tima, Trust Circle, Borrow, Lendmo, Wecash, InterLoan. However, the number of enterprises operating P2P Lending may be more challenging to measure accurately because the management agencies have not yet organized official statistics on information related to the deploying enterprises. P2P Lending activities in Vietnam.

Table 2: List of some traditional P2P Lending companies operating in Vietnam

TT	Communication	Operation form	Customers	Investment amount (USD)	Headquarters/Year of Establishment
1	FIN	Traditional P2P Lending	Consumer loans	700.000	Hanoi
2	ELOAN	Traditional P2P Lending	Business households, SMEs	1.000.000	Ho Chi Minh City/2017
3	VAYMUON	Traditional P2P Lending	Consumer loans, business households, SMEs	1.000.000	Hanoi/2017
4	VNVON	Traditional P2P Lending	Consumer loans, business households, SMEs	10.000.000	Hanoi/2018
5	MOBILIZATION	Traditional P2P Lending	Consumer loans	500.000	Ho Chi Minh City
6	MONEY BANK	Traditional P2P Lending	Consumer loans		Ho Chi Minh City
7	MOFIN	Traditional P2P Lending	Consumer loans	1.000.000	Hanoi
8	INTERLOAN	Traditional P2P Lending	Consumer loan advance salary	1.000.000	Ho Chi Minh City
9	TIMA LENDER	Traditional P2P Lending	Consumer loans	5.000.000	Hanoi
10	LENBIZ	Traditional P2P Lending	Business households, SMEs	2.000.000	Hanoi/2017
11	DRAGONLAND	Bank connection	Individuals, Households, SMEs		Ho Chi Minh City
12	FE68	Traditional P2P Lending	Consumer loans		Quang Nam
13	VALIDUS VIETNAM	Traditional P2P Lending	SMEs		Singapore/Vietnam Branch 2015
14	BINANCE	Traditional P2P Lending			Vietnam2020

Source: Lender. vn

P2P Lending activities in the Vietnamese market are in the development stage, need to be improved in all aspects, and need to be placed under the close management of the management agency. In the coming time, P2P Lending activities in Vietnam are expected to contribute to financial inclusion, expand capabilities, and create more channels to access financial resources and lending methods to the economy. Especially for disadvantaged groups who have Internet access, thereby contributing to repelling the situation of "black credit."

+ Virtual currency, cryptocurrency

With the inevitable development trend of Blockchain technology, the emergence and development of cryptocurrencies (cryptocurrencies) are considered the future trend. As of September 2021, there are 6721 cryptocurrencies in the world, of which Bitcoin holds the largest market share. In Vietnam, the cryptocurrency market is also developing very actively. Vietnam now has more than 16.6 million crypto holders. Of these, about 31% own Bitcoin. Vietnam is the leading country in the world regarding crypto adoption for two consecutive years, 2021 and 2022. In addition, Vietnam is also the country with the second largest percentage of cryptocurrency holders in ASEAN after Thailand, and is one of the top 5 countries in Blockchain.

Vietnam is seeing a rapid increase in the use of digital currencies. However, the International Monetary Fund (IMF) has warned that their use in "emerging" countries could threaten the stability of the national economy and monetary system. In it, it can be said that taking advantage of the issuance of cryptocurrencies to raise capital illegally or perform fraudulent acts.

b) Impact on Financial Intermediaries, Primarily Commercial Banks

Vietnam is considered a potential market with opportunities

for digital banking development, with 99.33 million people (December 31, 2022), a young population structure (adults account for about 70%), at the same time, 85% of the population owns a smartphone, 72.1 million Internet users, the number of internet users accessing by smartphone is 95.8%. Recognizing the strong impact of Industry 4.0 on the banking sector, most Vietnamese domestic banks currently have a digitalization strategy and digital banking development orientation. Recent years have witnessed an explosion of digital transformation activities in the banking industry, with a sharp increase in online banking transactions and e-payments.

The development trend of digital banking of Vietnamese commercial banks is quite diverse, focusing on the following four areas:

+ Application of Artificial Intelligence (AI) in banking

Some banks have implemented AI with the main functions: Consulting customers with information about interest rates, exchange rates, products, and fee schedules..., answering customers' questions about locations, transaction fees, and card opening processes like TPBank with T'Aio virtual assistant application on Facebook Messenger and VietABank with Chatbox operating on Fanpage. In addition, some banks have automated the registration and service change processes by implementing SMART FORM, thereby reducing the time spent at the counter to an average of 3 - 5 minutes (excluding waiting time, scan, and approval time). Some other banks use software to analyze information of millions of customers and assess and forecast their debt repayment ability to make accurate lending decisions, like BIDV using integrated software—Watson integration designed by Five 9.

+ Combine banking service provision with big technology companies.

The financial and banking services provided by Big Tech

are diverse but have yet to be widely available. Specifically: Samsung Pay, Amazon (through an agreement to provide e-commerce services for VECOM), Alibaba (through its 83% ownership of Lazada), and JD.com (through a \$50 million investment in Lazada) Tiki). The big technology corporations in Vietnam (FPT, Viettel, CMC, VNG, BKAV, VC Corp) still mainly focus on the main field of technology; a few have access to the banking service supply segment through developing electronic payment tools, such as WePay (VC Corp), Zalo Pay (VNG), Bao Kim (VNP).

+ Switching core banking (Core Banking) and Cloud

This transformation is slow and formal and has yet to bring about commensurate efficiency mainly because commercial banks have had to prioritize resources for dealing with bad debt problems, and ensuring liquidity... meanwhile, the transformation requires considerable financial resources. Regarding data integration on the “core,” most banks have not yet deployed cloud computing due to sensitive data characteristics and complex and unsynchronized data systems. Only a few banks have completed putting data on a Private cloud like VietABank.

+ Development of digital banking applications and e-wallets
Banks providing banking services using modern digital technology are diverse, with many utilities for customers. VPBank with Timo Bank digital banking service and YOLO digital banking application; Vietcombank with Digital Lab digital technology transaction space; MBBank allows customers to transfer money via Facebook application; TPBank with the launch of the LiveBank automatic banking service; BIDV launched BIDV SmartBanking mobile banking application with QR Pay utility; Sacombank with Sacompay payment application, using 2-factor authentication method; OCB with OCB OMNI app; Techcombank launched a card product with contactless payment technology; or LienViet PostBank with a Vi Viet non-physical card.

4.3 Assessment of the Development Situation of the Market in Vietnam in the Context of the 4.0 Industrial Revolution

Outstanding Achievements

Firstly, money market management is done relatively well and keeps pace with the development of the money market. The legal corridor for the operation of the market has been established at various levels, from Laws and Ordinances to sub-law documents, responding promptly to the conditions of Industry 4.0.

Secondly, about the development and diversity of instruments and commodities in the money market: Financial instruments traded on the market are abundant, such as bills, treasury bonds, and corporate bonds, local government bonds, SBV bills, certificates of deposit, and some other valuables; in addition, some long-term bonds, such as government bonds, are also allowed to be traded on the market. The world's basic money market operations have also been applied in Vietnam, such as interbank deposits, repurchase contracts (Repo), discounting, and derivative operations (swap, forward, future, option) although yet to become famous.

Third, on the diversity and capacity of market participants: The composition of the Vietnamese currency market has developed to a higher degree with the formation of additional sub-markets. Participants, commodities traded on the market, and the operating turnover of money market

operations were expanded; market activities have been gradually modernized, meeting the integration requirements. The number of market participants has increased over the years, especially in the interbank and open markets with almost all types of credit institutions, from state-owned commercial banks, joint-stock commercial banks, and foreign banks to commercial banks-financial and insurance companies.

Fourth, the development of Industry 4.0 leads to the development of infrastructure to support market operations: Information technology infrastructure for transactions on the Vietnam Money Market has been gradually formed and has specific development steps; in which the critical role of the State Bank of Vietnam in creating an information technology infrastructure for transactions on the money market of Vietnam, thereby actively supporting the development of the money market. Vietnamese currency market.

Fifth, in terms of market size: There is an increase in market size, such as an increase in the number of members and transaction turnover in the period 2016-2021. Along with that, arbitrage activities on the market. The interbank foreign exchange market tends to increase.

b. Limitations

In addition to outstanding achievements, the development of the money market has many limitations, specifically as follows:

Firstly, in terms of money market management, there are still many limitations, the system of legal documents for the operation of the money market needs to be synchronized, and there are still many legal gaps in formulating policies for the money market. State Bank in Industry 4.0.

Secondly, about the development and diversity of instruments in the money market: Forms of transactions, all trading activities on the market are still limited to the traditional form of lending and deposits. The market for buying and selling a fixed asset (repo) has yet to develop. Hedging tools and operations in the money market need to be diversified, especially derivatives still need to be developed. The most popular on the interbank market are Government bonds, Treasury bills, SBV bills, and local government bonds. Other types of assets, such as commercial papers, bills of exchange, and promissory notes, have yet to become trading instruments on the market.

Third, on the diversity of market participants. The new participants in the Vietnam Money Market are mainly commercial banks, all of which aim to ensure liquidity, not currency trading. There is often a one-way situation in the market, where there is an excess or a shortage of available capital, so it often leads to a market freeze because there is a shortage of supply when there is demand or when there is a supply, there is no demand. The market has yet to form professional members such as brokers, market makers, credit rating agencies, etc., so market members have to spend a lot of time and money to meet your needs promptly. On the other hand, the need for more professional intermediaries (currency brokers) and reputable rating agencies has hindered the development of the secondary market for valuable papers issued by foreign investors. Issuers.

Fourth, the domestic and international money market linkage must still be high. The expansion and development of monetary instruments in foreign markets have yet to be implemented.

5. Conclusion

The money market is an essential part of the financial market, playing the role of receiving and transmitting the effects of monetary decisions from the State Bank to the supply and demand of the economy. The Industrial Revolution 4.0 has opened many opportunities, but at the same time, there have been many challenges to the development of the money market. Therefore, the study and proposal of solutions to develop the money market are significant in improving the efficiency of monetary policy management and market regulation in the current context. The solutions proposed in this study will be valuable references for managers in the process of market operation toward the goal of sustainable development of the currency market in Vietnam. Some solutions for the development of the Vietnam money market in the conference of Industrial 4.0.

Firstly, continue to improve the money market's legal framework consistent with Vietnam's financial-monetary strategy to 2030 and the Party and State's excellent policy on actively participating in the economic crisis. Industry 4.0: supporting digital transformation through facilitating business model promotion and governance in the direction of breakthroughs and innovation; Building and completing the legal framework for Fintech activities, digital banking, peer-to-peer lending, cooperation between banks-Fintech and Bigtech in data sharing (Open banking ecosystem-Open banking) to facilitate for credit institutions to deploy digital banking, promoting non-cash payments; Continue to improve institutions and regulations for non-banking credit institutions (including Fintech) to participate in safe and healthy consumer lending, contributing to stimulating healthy consumption demand; Proposing a method of legalizing bad debt handling when Resolution No. 42/2017/QH14 of the National Assembly expires in August 2022... At the same time, the SBV is studying and preparing a draft amendment to the Law on the State Bank, The Law on Credit Institutions, and the Law on Deposit Insurance, which is suitable for the new situation.

Secondly, Diversification of trading instruments and forms of trading on the money market: The diversification and standardization of financial instruments, including diversification of types, maturities, and international standardization, will be the key factors. Factors needing attention contribute to the development of money markets, significantly develop secondary calls for valuable papers, and encourage the use of negotiable instruments, repo, and derivative activities.

Third, create favorable conditions for establishing and developing brokerage firms in the money market: the establishment of currency brokerage companies in Vietnam will increase trading volume on the inter-bank market. Bank; reduce dependence on loans from the State Bank for credit institutions because when credit institutions lack available capital, they can look to these intermediaries to compensate for additional money.

Fourth, strengthen the link between the domestic money market and the international money market: Take advantage of the Fourth Industrial Revolution to develop plans to release several tools on the money market to foreign markets, take advantage of being able to use foreign currency capital to implement foreign exchange policies; Strengthen linkages with international currency markets in

formulating foreign exchange policies to create favorable conditions for the foreign exchange market in Vietnam.

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