Green Finance in Some Countries and Experiences for Vietnam

Author's Details:
[1]Thi Dung Nguyen [2]Mai Anh Phuong
[1] [2]University of Economics - Technology for Industries, Vietnam
Correspondence: **Thi Dung Nguyen**, 456 Minh Khai, Hai Ba Trung, Ha Noi

Abstract:
The objective of the article is to overview green finance in the field of banking in countries around the world from which to provide lessons for Vietnam. From the practical experience of international organizations and policies, laws on green banking, green finance of countries around the world, we have given lessons for Vietnam and Vietnamese banks to towards the country's sustainable development goals.

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1. Introduction

Green finance and green banking is still a relative new issue for the nations all over the world including Vietnam. Countries in the G20 group are the leading countries in building law and policy framework on green finance and have had initial success in implementing green finance activities such as green bond, green credit, etc. Learning from the experience of the advanced countries as well as from the demands of practice, Vietnam has been developing legal and policy framework on green finance. However, law and policy framework in Vietnam is only at the initial stage. Current law and policy on green finance includes National Green Growth Strategy, Vietnam Sustainable Development Strategy in the period of 2011- 2020; Clean Technology Use Strategy; National Action Plan On Green Growth in the period of 2014-2020; Action Plan of the Banking Sector to implement the National Action Plan On Green Growth toward 2020, Scheme on Green Bank Development in Vietnam. These laws and policies are more of orientation and still lack of specific rules and regulations for banks to implement green banking practices, hence, the State Bank of Vietnam is expected to promptly fill that gap.

Commercial banks with an important role in the financial system should be a leader in economy in implementing activities towards green finance. This not only contributes to enhancing the reputation and image of the bank in society but also making important contributions to sustainable economic development. However, Vietnamese commercial banks are not aware of their social responsibility through green banking activities by themselves. In this context, the State Bank of Vietnam should coordinate with the Vietnam Banks Association to develop Principles for banking membership. These Principles will define and affirm the banks' role and responsibilities in shaping a sustainable future. These Principles should be built on the basis of reference to the initiatives of the United Nations Environment Program - Financial Initiative (UNEP FI) to orient the bank's operations and banks should commit and monitor the implementation of the Principles.

2. Overview Green finance

2.1. Green finance in banking sector – perspective from international organizations:

The World Bank Group – International Financial Corporation (IFC)

Various financial institutions, international initiatives, standard setters, and regulatory bodies have developed their own approaches to green finance. Building on the work of the Group of 20 (G20) Green Finance Study Group, the IFC Climate Policy team has developed a new approach to assess and track green finance, focusing on the banking sector, to understand the current status of green lending and provide

recommendations on how to better align different approaches to measuring green finance. This will allow for analysis on a broader scale, which could result in better policies to mobilize additional green finance.

The IFC's approach bases on the bottom-up methodology. This approach first defines what is green at the project level, based on the intended use of the investment in the real economy, through the application of estimates for the respective green share per project. It then aggregates the numbers at the industry and country level. These results can be compared to green finance needs to identify gaps and action points.

Challenges lie in definitions, data, aggregation, and interpretation. Depending on the financial instrument under consideration, pure amounts invested need to be distinguished from the activities that are actually financed in the real economy. In this context, "green activities" need to be defined, often through finding suitable proxies, because definitions are either not available or inconsistently applied. The data needs to be aggregated across sectors and financial instruments, connecting different datasets. And finally, a valid benchmark needs to be applied (the demand for green investment, in this case) to derive a sufficient level of green finance.

An example about the application of the methodology to the loan market reveals some initial estimates:

- Define: The methodology is applied to a dataset on syndicated loans by Thomson Reuters. Green project finance is defined based on the industry of the borrower.

- Estimate: The green percentage of projects is applied to industry classifications using existing research figures: 100% green: clean energy; 0% green: oil and gas, petrochemicals, pipelines, coal power; 17% green: real estate; 13% green: Food and beverages, paper and forest products, agriculture; 10% green: Infrastructure and transport.

- Aggregate: The results are aggregated per industry and country of the borrower.

- Compare: 82% of all syndicated loans in 2014 financed projects in sectors with some green activities; Considering the US dollar value of all loans in 2014, almost 15% was green financing; Of all lending to projects with some green share, 41% of loans were for green real estate and 21% for infrastructure and transport (potentially because other industries use less project finance through loans); The United States has the largest share, with 35% of the total amount, followed by the United Kingdom with 8%. China and India have a biggest share among emerging markets, both with 4%.

Different datasets for the banking sector are accessible via international data providers such as BIS, Bloomberg, Bureau van Dijk, IFC, the International Monetary Fund, and Thomson Reuters. At the country level, aggregated data is available on total loan granted, the share of non-performing loans, outstanding debts, returns on assets, and so on. At the bank level, information on ownership structures of individual banks, mergers and acquisitions, and total loans is provided. The most relevant datasets contain the following data:

- Project-level information, which refers to the use of proceed or physical activity being financed, including information about financial amount, time frame and sometimes explicit details on that activity (production of X tons of steel, for example), and selected impacts (carbon and water footprint, jobs provided, and so on).

- Company-level information regarding the creditor and borrower for each loan, including their sector and location.

The figure below shows the different levels of available datasets and their respective financial indicators as well as data providers offering such information. It maps out how the approximation of green finance needs to happen at the project levels, capturing what is effectively financed in the real economy. The categorization into green and conventional finance per project can then be summarized according to the lender's (or borrower's) country of headquarter, and sector. This aggregated data can then be integrated into datasets at country of financial institution level:

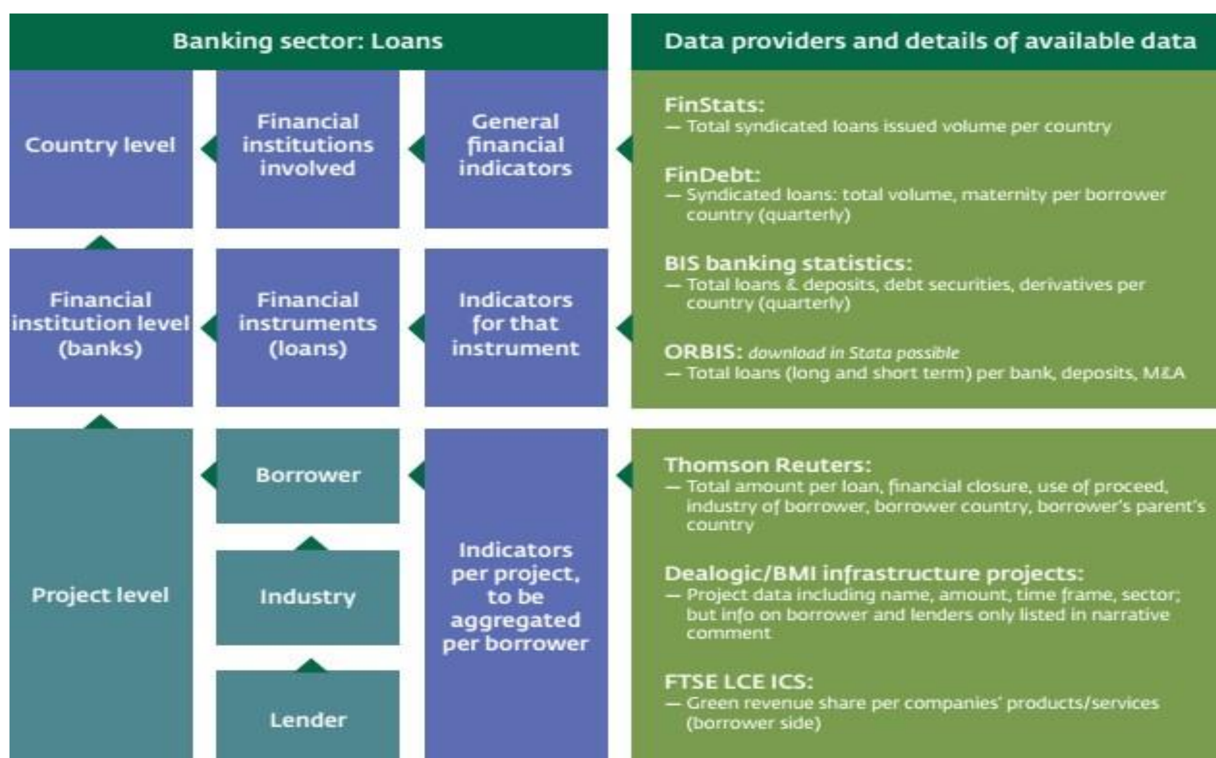

Figure 1: Data providers for the loan market, their data levels and indicators

Source: IFC (2017, p.13)

IFC shows that, current data availability limits the rigor of the analysis of existing green finance flows. Definitions and tracking are most advanced in the bond market and could serve as an example for other areas. For banking, loan tracking processes need to be improved and institutional investors need to implement clear decision-making criteria. To get a full picture of green finance, need to track "green" at the level of each project and cooperate between multinational organizations, national regulators, private financial sector, data providers and standard setters.

OECD

The OECD's approach focuses on the role of green investment banks (GIBs). This approach has been showed in the report of OECD "Green Investment Banks: Scaling up Private Investment in Low-carbon, Climate-resilient Infrastructure".

According to OECD, Green investment banks are designed to address local market and policy failures. Green investment banks as a means for governments to achieve ambitious climate objectives. The creation of a GIB can send a signal to the marketplace and other countries that a country or region is seeking to become a leader in scaling up private, low-carbon investments. GIBs are relevant for both developed countries and emerging economies as a tool in their domestic climate policy framework to help meet emissions, technology and infrastructure deployment and green investment targets. In addition, GIB experiences are also relevant for international climate finance as the tools they use and innovative approaches to mobilize private investment are often applicable or adaptable to various contexts. In emerging economies, GIBs may be able to work alongside multilateral development banks and other sources of public climate finance to de-risk infrastructure projects to enable private investment capital to flow. GIBs in some jurisdictions have mandates to deliver a positive financial return or achieve financial sustainability. Achieving such goals can increase political support for dedicating public resources to mobilize private investment in climate change mitigation, adaptation and resilience.

The United Nations Environment Programme Inquiry

The United Nations Environment Programme (UNEP) Inquiry Into The Design of a Sustainable Financial System was established in early 2014 to explore how to align the finance system with sustainable development, with a focus on environmental aspects.

UNEP has given five approaches to aligning the financial system (including green banking) to sustainable development. These approaches which are emonstrated in the UNEP Inquiry report, 2015 include Enhancing Market Practice, Harness Public Balance Sheet, Directing Finance through Policy and Upgrading Governance. The improved functioning of capital markets themselves is a strategic focus of policymakers. This is now extending to how capital markets can be enhanced to mobilize capital for the green economy.

- Enhancing Market Practice: Enhanced market practice has proved the most popular approach to internalizing sustainable development into financial decision- making. Disclosure of sustainability performance by institutional investors has also followed. In a large part, these measures to improve transparency in the financial system are linked with wider measures to improve governance, both within corporations and financial institutions.

- Harnessing the public balance sheet: Incentivizing sustainable finance through the use of the public balance sheet has been a feature in every country reviewed by the Inquiry. Most advanced in the use of fiscal instruments is probably the US, with a range of federal and state-level incentives focused mainly on encouraging investment in infrastructure. Tax relief on the income from municipal bonds is a long-standing feature, designed to encourage lending for investment in local infrastructure. Others are more specifically targeted at environmental finance, including tax credits for renewable energy investments and the tax-advantaged Clean Renewable Energy Bonds. Incentivizing private capital through the leveraged use of public funds (i.e. guarantee facilities) and public sector balance sheets has become core to the strategies of many development finance institutions and other government and international financing vehicles.

- Policy – directed performance: Measures that change the legal requirements facing financial institutions to meet policy goals are perhaps the most contentious, but are widely used, particularly in developing countries and also less explicitly in some developed economies. This cluster of approaches concerns policy measures that go beyond improvements to market practice or providing public financing, and introduces requirements, and in some instances prohibitions, that shift capital allocation. Such measures in effect introduce new performance criteria into financial decision-making, which might reduce or increase risk-adjusted returns.

- Upgrading governance architecture: Governance architecture can promote the development of a financial system that is sensitized to sustainable development. Financial governance is a multi-faceted, complex topic. On the national level, financial governance concerns the mandates, levels of autonomy and underlying institutional arrangements of governing institutions, including central banks and financial regulators. The Inquiry has examined the challenges of mandates, norms and capabilities of relevant governing institutions in taking sustainable development more centrally into account. Typically, particularly in developed economies, mandates of central banks and financial regulators, and most financial standard- setters, focus on financial and monetary stability, alongside varied aspects of market conduct. On the international level, examples of governance architecture include the governance arrangements of key international organizations and their process for agreeing to and implementing international standards (i.e. the Basel Committee on Banking Supervision). The Bank for International Settlements is typical in having to serve central banks in their pursuit of monetary and financial stability, to foster international cooperation in those areas and to act as a bank for central banks. The International Organization of Securities Commissions, similarly, exists to advance standards of regulation, oversight and enforcement in order to protect investors, maintain fair, efficient and transparent markets, and seek to address systemic risks.

2.2. Green finance in banking sector in some countries

2.2.1. G20 countries

G20 countries are taking a number of banking policy measures to support the greening of the banking sector. These measures fall into three categories: (1) facilitating market reform; (2) public finance and government-supported institutions, and (3) banking regulation.

Facilitating market reform:

Market reforms can involve regulatory measures to encourage banks to internalize the negative environmental externalities of bank lending and savings products so that the provision of unsustainable bank credit and investment is efficiently priced with the result that the costs for society are mitigated. Also, governmental subsidies that encourage excessive depletion of natural and energy resources should be curbed. Together, such measures provide a foundation for banks to develop a business strategy for providing an efficient level of green credit and investment.

In addition, some countries facilitate market reforms by providing stable long- term policy frameworks for important areas of the green banking system, such as renewable energy and energy efficiency. Switzerland uses a policy framework that aims to improve business conditions for the banking sector so that banks can flexibly assess environmental and social risks and determine if they are material. This policy was motivated in part by the experience of Credit Suisse involving negative publicity in 2014 arising from its involvement in a large deforestation project in Indonesia. This highlighted the importance for Swiss banks of conducting due diligence in assessing whether bank lending projects are considered based on sustainability criteria. Switzerland's long-term policy approach was developed further by the Swiss government's proposal in 2015 for a national energy strategy that would be implemented over the next 30 years; it aims to incorporate sustainability criteria into all areas of economic policy and regulation and to impose taxes, and eliminate subsidies for unsustainable economic activities.

Public Finance/Government-supported Institutions

In several G20 countries, national development banks play an important role in providing credit and long-term financing for large infrastructure projects for renewable and clean energy. Kern Alexander (2016) gave some examples about the stage of Turkey, Mexico, India and China. While Turkey and Mexico use national development banks to deploy savings and capital towards green investment, especially longer-term funding projects that do not receive adequate financial support from private, India uses state-owned banks to provide long-term funding for sustainable energy projects and to assist large-scale agricultural business in using more sustainable practices. Beside that, the four largest banks in China are state- owned and provide a substantial source of credit and long-term funding for large sustainable energy infrastructure projects and for smaller businesses engaged in sustainable economic activities. In these countries, national development banks and state-owned banks use financing from public sources to promote the greening of the banking system and to assist the development of new markets for green assets. Publicly owned banks and development banks also support the provision of private bank credit and investment for sustainable economic activity by leveraging private bank capital through on-lending activities and providing credit guarantees. Moreover, several developed countries, including the United Kingdom and the United States, have established green investment banks for the purpose of providing financing for renewable energy projects.

Banking Regulation

According to G20 Leaders Statement (2009), an important objective of the banking policies of G20 member states has been to complete implementation of the extensive financial sector reforms introduced following the global financial crisis. The G20 Leaders' Summit in Pittsburgh in 2009 identified the core aim of banking regulation to be "to generate strong, sustainable and balanced global growth". The Basel Committee revised the Core Principles for Effective Banking Supervision in 2012 to enhance the capacity of bank supervisors to monitor individual banking institutions and to take into account risks that threaten banking

system stability. Although the Core Principles do not explicitly address the financial stability risks associated with environmental sustainability, they provide a flexible and voluntary framework for bank regulators to identify, assess, and manage the potential systemic risks for the banking sector that are related to sustainability challenges. Moreover, the Basel Committee published in 2016 a range of good practices by banks and bank regulators about how to increase financial inclusion for economically and socially disadvantaged groups.

The following areas of banking regulation are relevant for policymakers to consider in addressing environmental sustainability challenges.

Disclosure

Bank disclosure of risks to investors is an important regulatory tool to support market discipline that can encourage banks to mainstream economically relevant environmental sustainability criteria into their business practices and to reallocate capital to more sustainable sectors of the economy. In G20 countries, banks and other listed companies are already required to disclose to investors all material financial risks regarding their economic performance.

Globally, over four hundred initiatives and voluntary disclosure frameworks across countries encourage companies and financial institutions to report E&S risk factors. G20 countries already use the Basel III pillar 3 market discipline disclosure regime that entails extensive disclosure obligations for banks covering quantitative and qualitative aspects of overall capital adequacy and capital allocation, as well as risk exposure and assessments. EU policymakers adopted the Disclosure Directive in 2014 that requires member states to require listed companies, banks and certain financial groups to disclose to the market non-financial information, including environmental sustainability risks and environmental sustainability information related to renewable and non-renewable energy, land use, water use, air pollution, greenhouse gas emissions and the use of hazardous materials.

Some countries have implemented the minimum requirements, but others have included a number of other entities such as investment companies, large non-listed companies according to precise size criteria, state-owned companies, pension funds, etc. For instance, France has adopted disclosure requirements that all listed companies (including listed banking companies) should disclose their carbon exposure as part of broader climate change reporting requirements.

While disclosure is an important regulatory tool to inform the market about the financial stability risks associated with climate change, other policy instruments to assess the risks associated with environmental sustainability challenges should be considered as well.

Bank Management

Most G20 bank supervisors use the Basel III pillar 2 Internal Capital Adequacy Assessment Process (ICAAP) as part of the Supervisory Review Evaluation Process (SREP) to assess the risk management and governance of banks. Under pillar 2, banks are required to identify material risks that affect the bank's stability and describe their risk management controls in addressing material risks. In Brazil, the Brazilian Banking Association has adopted voluntary standards based on the pillar 2 framework to enhance bank assessment of environment risks. Base on this, the Brazilian Central Bank published a mandatory Resolution 4327 in 2014 on the Social and Environmental Responsibility for Financial Institutions that requires banks to incorporate socio-economic factors into their risk governance frameworks. In doing so, each bank is required to do an assessment of its environmental risk exposure. Similarly, the China Banking Regulatory Commission (CBRC) adopted the "Green Credit Guidelines" in 2012 to encourage banks to conduct E&S risk assessments and to originate more green loans. France adopted legislation in 2015 that requires financial institutions to incorporate environmental sustainability risks into the institution's risk management strategy (Energy Transition Act, 2015).

Indonesia has taken a step in this direction with its regulatory body – the Financial Services Authority –

announcing a Sustainable Finance Roadmap in 2014 that would require all financial firms and banking in institutions to develop business plans and risk management strategies to offer green financial products and lending guidelines.

Governance

Enhanced corporate governance mechanisms are necessary to reduce the incentives for banks to take on excessive risks that can threaten the stability of the banking sector. In Russia, under Article 69 of the Russian Code of Corporate Governance, the board of directors of joint stock companies is required to assess the financial and non-financial risks that relate to environmental risks, as well as social, ethical, operational and other risks.

The EU Disclosure Directive can play a role in improving bank governance by improving bank transparency for investors regarding its involvement in unsustainable economic activity. Institutional investors are already beginning to ask banks about their efforts to mainstream sustainability challenges into their business models and their strategies to mobilize capital for sustainable economic activity.

The Basel Committee's revised Corporate Governance Guidelines for Banks adopted in 2015 include a number of key concepts that are directly aligned with the consideration and management of environmental and social issues, including:

- A recognition of the impact of banks on the broader setting in which they operate;
- A recognition of banks' accountability to a broad array of stakeholders;
- An emphasis on the need for an enhanced risk culture; and
- The call for ethical and responsible behavior.

The revised guidelines provide a set of principles for banks to incorporate environmental sustainability objectives into their management strategies and risk frameworks.

2.2.2. China

According to UN Environment report (2018, p.14), the development of green finance in China includes the following three stages:

The initial Stage (2007-2010): The policies on green finance (green credit, green securities and green insurance) were released. These policies focus on encouraging green credit, carrying out environment reviews for listed companies and piloting environmental pollution liability insurance.

The Consolidation Stage (2011-2014): Carbon emission allowance trading was piloted. Besides, the guidelines and the statistics system for green credit were issued. In addition, the authorities also try to promote an environmental pollution liability insurance pilot. In this stage, the role of some international organizations such as the International Institute for Sustainable Development (IISD), the Climate Bond Initiative (CBI), etc. were very important. They encouraged, promoted and coordinated with Chinese institutions to research about green finance. The Green Finance Task Force, which was initiated by the Research Bureau of the People's Bank of China and the UN Environment Inquiry in July 2014, released 14 Recommendations on Establishing China's Green Financial System.

The Implementation Stage (2015 till now): Most of the proposals made by the Green Finance Task Force were approved by the Central Committee of the Communist Party of China and the State Council and included in the "Integrated Reform Plan for Promoting Ecological Progress". These documents are considered as the strategy to establish the green finance system. After that, seven ministerial agencies including the People's Bank of China implemented the Guidelines for Establishing the Green Financial System, the world's first systematic green finance policy framework. At the domestic level, the green bonds market experienced rapid development and new breakthroughs were made in the innovation of various green financial products. The Green Finance Committee of the China Society for Finance and Banking (GFC) was formed along with other competent

institutions to promote green finance, marked progress was made in the R&D of green finance standards, evaluation mechanisms and environmental risk analysis, and capacity-building and training on green finance were carried out extensively. At the international level, as G20 president, China included green finance into the G20 agenda in 2016, an agenda that was retained and further explored by Germany in 2017, gradually forming the global consensus on developing green finance. Backed by concrete top- down policy measures and proactive market actions, China was able to implement the notion of green finance in all aspects of the industry with remarkable efficiency and became the leading force in green finance across the globe.

As noted in the G20 Green Finance Synthesis Report 2016, the development of green finance requires clear policy signals. China has developed a sound top- level design for green finance that will encourage market stakeholders to "green" the financial system and advance the transition towards a green economy. This top-level design encompasses national strategic documents, special policies and implementing rules. The latest progress and characteristics of China's green financial system are:

- Established strategic framework and policy guidelines for the green financial system:

+ Comprehensive plan for the top-level design: seven ministerial agencies jointly released the Guidelines.

+ Green finance reform and innovation pilot zones: Zhejiang, Jiangxi, Guangdong, Guizhou and Xinjiang.

+ Implementing rules for different sectors: Seven ministerial agencies will release specific implementing rules for different sectors.

- Included the theme of ecological civilization in the 13th Five-Year plan and clarified green investment and financing needs.

- Publicized green investment and financing concepts extensively in China.

Digital finance has further promoted green finance among the general public.

- The Green Finance Committee (GFC) of the China Society of Finance and Banking has played a crucial role. Since its inception in April 2015, all major banks and many large and medium-sized funds, insurance and securities companies joined the GFC. Currently, GFC members are managing two thirds of all financial assets in China and are playing a key role in facilitating the release of new policies, promoting the notion of green finance, product innovation and capacity-building.

Green finance pilot zones: Implementation with differentiated local practices.

On 14 June 2017, the State Council decided to set up pilot zones for green finance reform and innovation in Zhejiang, Jangxi, Guangdong, Guizhou and Xinjiang, followed by overall plans for each pilot zone jointly released by seven ministerial agencies. By establishing these five distinct pilot zones, China aims to explore different development models for the local green financial system against different backgrounds, thus offering diverse practical samples for promoting green finance across the country.

The five pilot zones achieved initial progress. At present, all pilot zones have made progress in supporting policies, organizational structures, products and services innovation, market construction and institutional development. Besides, other provinces/regions released policies on green finance. In response to the national top-level design for green finance, over 10 provinces and autonomous regions not covered by the pilot programme have released policy frameworks on green finance (UN Environment Report, 2018). Local GFCs played an active role in resource integration and coordination. Supported by national regulatory authorities, research institutes, medium and large financial institutions, the GFC has called on local financial institutions to carry out relevant training, exchange and cooperation, and has promoted best practices, exemplary cases and experiences in developing green finance. Currently, Xinjiang, Guangdong, Zhejiang and Gansu have all set up their own local green finance committees.

However, local green financial systems are faced with some problems as followings: (i) the definition for

"green" is not clear, so it is difficult for government, organizations and investors to identify green projects. In addition, because the development of green finance is separated, the majority of local financial regulators are inadequately informed of the latest development in green finance. Besides, local capital-building has been limited due to a shortage of institutions and professionals surrender to green finance.

Green credit: Solid foundation and sound development

Credit is at the core of financial resources allocation in China's financial system. So, green credit also serves as the foundation of China's green financial system. Currently, China's green credit has made the following progress:

- The policy system for green credit has been established. At the national level, an institutional framework consisting of guidelines, statistical system and evaluation system. Green credit performance evaluation is included into the Macro Prudential Assessment (MPA) system. In addition, green economy sectors have embraced various incentive policies to guide the investment of credit funds. At the local level, several pilot zones and some other provinces/autonomous regions have suggested the use of monetary policy instruments including re-lending and re- discount to encourage green credit.

- Banks have been active in promoting green transformation and products innovation. Since the signing of the Joint Undertaking of the Chinese Banking Industry Regarding Green Credit by 29 major banks in 2014, financial institutions in the banking industry have been active in offering green credit services and formulating their own policy framework. Under such a framework, they have developed over 50 green credit products, covering services such as accepting green assets as collateral or pledges, and financing energy efficiency, emission reductions and new-energy projects. Meanwhile, China Industrial Bank and the Bank of Jiangsu successively adopted the Equator Principles, helping them align with international standards on green credit.

Although initial progress, China also has faced the following challenges: (i) Insufficient use of interest discount, guarantees and other incentives with maturity mismatch to be solved; (ii) Underdeveloped capacity to identify and evaluate environmental risks, environment information disclosure and sharing mechanism are not good; (iii) there is a mismatch between green credit definitions and other green standards.

Green Securities

Establishing a green securities market is a major step in the transition towards a green economy. Up to now, China's green securities market has significant development as the followings:

- China has become a new growth driver in the global green bonds market and has become one of the world's largest green bonds markets. In 2016, China issued a total of RMB230 billion worth of green bonds in both the domestic and overseas market, accounting for 39% of global green bond issuance. In the first half of 2017, China issued 36 green bonds worth RMB77.67 billion (UN, 2018, p.18).

Third-party verification and rating market grow rapidly with increasing market credibility. Third-party verification agencies include accounting firms, credit rate agencies and consulting companies.

Environmental information disclosure has progressed steadily. Following the release of the Guidelines, the Ministry of Environmental Protection along with the China Securities Regulatory Commission and other competent authorities, have jointly facilitated environmental information disclosure for listed companies, and signed official cooperative agreements to promote mandatory environmental information disclosure, incorporating green securities into the institutional and legislative structure.

- Green enterprises are enthusiastic about Initial Public Offering (IPO) financing and follow – on offerings. With increasing policy support for the listing of environmental enterprises, in the first half of 2017, China has a significant increase in the number of green enterprises engaging in IPO financing, particularly in

the field of pollution control.

In spite of the great growth potential, China's green securities market faced to some problems: (i) difficulties in the implementation of green bond incentives, especially preferential measures; (ii) Lack of a unified green bond standard under the supervision of multiple regulators; (iii) without a specified and binding framework for environmental information disclosure, the majority of listed companies have yet to fully disclose their key information.

Green Insurance

In the narrow sense, green insurance usually refers to environmental pollution liability insurance, while in the wider sense, it can be extended to cover a variety of insurance schemes related to environmental risk management, including climate insurance that highlights environmental risk resilience and innovative insurance products that provide safeguards for low-carbon solutions. Green insurance is intended to help address environmental degradation and ecological protection, reduce the socioeconomic consequences of natural disasters, as well as support green investments through its insurance credit enhancement and financing functions. As a long-term mechanism to address environmental risks, China's green insurance system has seen constant improvement:

- The mandatory pollution liability insurance system continues to make steady progress. At the national level, the Measures for the Administration of Mandatory Pollution Liability Insurance, jointly released by the Ministry of Environmental Protection and China Insurance Regulatory Commission are undergoing public consultation and will soon be promulgated as China's first systematic regulations on mandatory pollution liability insurance, with many localities introducing guidelines or piloting implementation schemes.

- Catastrophe insurance starts to play an important role in the disaster relief system and Product and service innovation increasingly drive the green economy (UN, 2018, p.21). Product innovation is reflected in the innovative extension of the insurance coverage of environmental risk (such index-based climate insurance, technology insurance and solar radiation index insurance) and the established linkage between green insurance and other green-related qualifications so as to fulfill credit enhancement functions for green products (such as green building insurance, "government-bank-insurer) cooperative agricultural loans and guarantee insurance for patent pledge financing).

- The environmental risk management capacity of the insurance sector continues to improve. The application of new technology has allowed insurers to develop an environmental risk assessment model for quantitative analysis based on historical claims data, as well as employ real-time risk monitoring and control technologies.

2.2.3. Singapore

Singapore, a well-established financial hub in Asia, aims to be a hub for green finance in Asia (Chang, 2019, p.1). Singapore focuses on three key areas with respect to green finance: the deeper integration of environmental, social and governance (ESG) issues into financial institutions in Singapore, more R&D in ESG products and the expansion of available green finance products and growth of the asset class in the region (Tan, 2017, p.3). The Singapore government pushes ESG integration in the financial sector (Tay and Sim, 2017, p.14). The Singapore Exchange (SGX) has also mandated strict compliance with the ESG principles for all listed companies starting in 2018.

The Association of Banks in Singapore (ABS) published the ABS Guidelines on Responsible Financing on October 8, 2015 and revised the guidelines on June 1, 2018. Responding to a call for promoting a low-carbon future following the Nationally Determined Contribution by individual countries to the Paris Agreement 2015, the ABS published the guidelines to support more transparent "Environmental, Social and Governance (ESG) disclosures". The disclosure adopts a comply or explain basis in reporting.

The Scope of responsible financing considers the ESG criteria more explicitly and includes the industries

with elevated risks to which the banks should pay attention and take account. The environmental criterion includes "greenhouse gas

emissions, deforestation and forest degradation, loss of biodiversity and critical ecosystem services, water, air and soil pollution and contamination, and resource efficiency. The social criterion covers "labor standards, community relations and stakeholder engagement, human rights, health and safety, food security, other necessities of local communities and indigenous people. The governance criterion handles corporate ethics and integrity, reputation, management effectiveness, risk management and reporting. The industries with elevated risks are agriculture, chemicals, defense, energy from fossil fuels, forestry, infrastructure, mining and metals, and waste management. These industries have a higher priority when responsible financing policies are formed with respect to their business models and the level of exposure to the risks.

Following the scope of responsible financing, there are three principles on responsible financing: disclosure of senior management's commitment to responsible financing, governance on responsible financing and capacity building on responsible financing.

The first principle has four specific rules, according to which banks are to: (1) publish their management position and organization support on responsible financing together with their strategies; (2) publish their Chairman's or CEO's commitment to support and implement responsible financing; (3) publish their responsible financing policy framework; (4) publish the above information in their Sustainability/Annual Reports and make them available on their websites.

The second principle of governance on responsible financing has two specific rules, according to which banks: (1) are to allocate resources with clear roles and responsibilities to support the implementation of responsible financing; (2) must ensure governance and internal controls that support responsible financing are implemented by either having a separate set of responsible financing policies and procedures or embedding responsible financing practices into their existing policies and procedures.

The third principle of capacity building on responsible financing has two specific rules: (1) banks are to raise staff awareness and build management capacity on responsible financing by training staff and inculcating an ESG mind set; (2) the ABS will work with the relevant stakeholders such as international organizations, regulatory bodies, non-governmental organization and civil society to conduct seminars for bank staff to strengthen the management of prevailing issues and trends related to responsible financing.

3. Experiences for Vietnam

The countries which have been chosen to demonstrate about law and policy on green banking above are gaining the initial success in practicing green banking activities. The most important factor that leads to the countries' initial success is the government's clear strategy on green finance especially green finance in banking sector. According to these strategies, a law and policy framework has been issued to facilitate the banking activities towards green banking. In addition, the government also has received the international organizations' help in issuing law and policy. Some experiences which Vietnam can learn from as following:

The definition for "green" in law and policy need to be clear to help banks, international organizations and corporations identifying green projects more easily.

Strategic, collaborative initiatives such as the Green Finance Task Force can be effective.

Strength in openness to using a range of instruments, including fiscal, legal, regulatory and administrative, as well as soft policy guidance, to encourage market innovation and alignment.

The success of efforts to greening the banking system is contingent on levels of financial system development and broader environmental regulatory contexts. Green banking policy priorities must be seen in the context of economy-wide environmental and social issues – including the effectiveness of regulatory and policy mechanisms to promote green growth and mitigate pollution. Assessing the system-wide costs and benefits of green banking stands as a priority for further research at the country level.

Potential in linking green finance to overall financial market development Enhancing corporate governance mechanisms in banks to not only reduce the incentives for banks to take on excessive risks that can threaten the stability of the banking sector but also promote E&S risk management.

Enhancing banks disclosure of risks to investors to support market discipline that can encourage banks to mainstream economically relevant environmental sustainability criteria into their business practices and to reallocate capital to more sustainable sectors of the economy.

SBV need to use Basel III pillar 2 - Internal Capital Adequacy Assessment Process (ICAAP) to assess the risk management and governance of banks including E&S risk.

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