

MA Jun on the Importance of Environmental Risk Analysis to Financial Institutions

At the Environmental Risk Analysis Seminar held in Beijing on July 17, 2017, MA Jun, Chairman of the Green Finance Committee under China Society for Finance and Banking (hereinafter “Green Finance Committee”), Chief Economist of Research Bureau of the People’s Bank of China and Co-Chair of G20 Green Finance Study Group introduced the international and domestic situations which prompted this seminar, discussed the scope, methods and purpose of environmental risk analysis, and offered his insights on how financial institutions should carry out environmental risk analysis.

This article is written based on Dr MA Jun’s speech.

I. Background of the Seminar

This Environmental Risk Analysis Seminar is hosted by the Industrial & Commercial Bank of China (ICBC) under the guidance of the Green Finance Committee. Supported by the Energy Foundation (China), B20 China Business Council and China Urban Finance Society, this seminar was held in light of the following domestic and international backgrounds:

1. Domestically, financial institutions are implementing environmental risk analysis as required by the Guidelines for Establishing the Green Financial System released by China’s seven ministerial agencies

With China’s green finance showing rapid development over the past few years, in August 2016, seven ministerial agencies including the People’s Bank of China (PBoC, China’s central bank) promulgated the Guidelines for Establishing the Green Financial System (“Guidelines”), setting forth 35 clauses on green finance incentives such as central bank relending, local government discount loans and guarantee and green funds. These incentives will reduce the financing cost for green projects to some extent. The Guidelines also contains a host of market mechanisms and capacity development programs, including the support and guidance for financial institutions to carry out environmental risk analysis.

Financial institutions are ultimately expected to carry out environmental risk analysis as an internal procedure to achieve the following objectives: first, to attract more financial resources to green industry and divert financial resources away from polluting and carbon-intensive sectors to promote the transition towards green economy without requiring additional public funds. This is particularly important for many developing countries

including China as the governments in these countries tend to have limited fiscal resources to subsidize green industry. The second objective is to help financial institutions identify, quantify and avoid environmentally related financial risks, enhance their risk resilience and thus increase the robustness of financial system.

2. Internationally, the G20 Green Finance Study Group are calling upon global financial institutions to carry out environmental risk analysis.

During China's presidency in 2016, the G20 included green finance in the agenda of Finance Track and set up the G20 Green Finance Study Group ("GFSG") co-chaired by the PBoC and the Bank of England. Last year, the GFSG made seven recommendations, all of which were written into the G20 Leaders' Communiqué Hangzhou Summit, including one aiming to promote international communication on environmental risk analysis. During Germany's presidency this year, the GFSG identified environmental risk analysis and environmental data availability as two important items of research. Shortly after the conclusion of the G20 Hamburg Summit this year, the GFSG's recommendations to encourage environmental risk analysis and improve public environmental data availability and applicability have been written into the G20 Hamburg Action Plan.

After the Hamburg Summit, Germany's Federal Ministry of Finance and the PBoC published the GFSG's G20 Green Finance Synthesis Report 2017 and a few other background reports on their respective websites. We have distributed the Chinese and English editions of the G20 Green Finance Synthesis Report 2017 and three background reports of the GFSG as part of the material pack for this seminar. The background report of environmental risk analysis elaborates in detail the environmental risk analysis carried out by 10 international institutions, while the background report of environmental data availability introduces various PAED (publicly available environmental data) cases and potential usage.

This seminar is part of programs for the implementation of the G20 consensus on environmental risk analysis. Our objective is to encourage more financial institutions including banking, insurance, investment fund and brokerage institutions to carry out this task. Another important prerequisite for environmental risk analysis is to learn about and apply specific analytical methods, models and instruments. Institutions represented here today include China's ICBC, the International Institute of Green Finance of the Central University of Finance & Economics, China Re (Property), BNP Paribas, UBS, GIZ and RMS from Europe, Sumitomo Mitsui Banking Corporation (SMBC) from Japan, China Water Risk from Hong Kong and S&P's Trucost and many others. These forerunners in the field have all gained extensive experiences in developing environmental risk analysis models and methodologies.

Aside from models and methodologies, environmental risk analysis and, in particular, environmental stress tests also require another important prerequisite, namely data. This includes not only the required data disclosed by companies for the assessment of the environmental situation, but also public environmental data for future projections, including predicted scenarios of climate change, the probability of natural disasters, the forecast of energy policy and energy transition and the potential impact of new technological developments within energy sector. A selection of specific recommendations on improving environmental data availability have been included in this year's Green Finance Synthesis Report, for example, the GFSG has invited the UNEP and OECD to formulate guidelines for the release of public environmental data. This is a task that is currently in progress.

II. Scope, Methodologies and Purpose of Environmental Risk Analysis

1. Definition of Environmental Risks

Environmental risks can be divided into the following categories: first, physical risks including a number of climate-related natural disasters and events such as drought, forest fire, flood, hurricane and the risk of a rising sea level. With growing carbon emissions and global warming, the probability of these events will increase - in some cases, dramatically increase. Other physical risks include various types of pollution, particularly cases of water and soil pollution. Every year, there are over 500 incidents of pollution in China. Moreover, water scarcity caused by excessive consumption, climate change and pollution have also become a typical example of the risk that environmental pollution poses. Many areas of northern China, India, Central Asia, the Middle East and North Africa are facing increasing serious problems with water scarcity. Water scarcity will cause water tariffs to increase. In some regions, water tariff may be raised tenfold in the future.

The second type of environmental risk is that posed by transition. This type of risk is usually related to environmental change caused by human factors such as government policy and technology. For example, clean energy - which is developing rapidly thanks to favorable policies introduced in various countries - will reduce the demand and profitability of fossil fuels such as coal and petroleum, forcing some companies to exit these sectors. While this presents a crisis for the more-traditional coal, petroleum and thermal power sectors, it represents an opportunity for new energy industries.

These challenges and opportunities arise from changes in policy. In addition, carbon trading is another important policy-induced change. As an example, China aims to create a nationally unified carbon market by the end of this year that covers 40% of its total carbon emissions. It is my personal opinion that China could become the largest carbon market in the world after a

few years. If the price of carbon greatly increases, carbon-intensive industries such as thermal power, iron and steel, cement, chemical engineering and building materials will face downward risks but low-carbon industries and companies committed to reducing their carbon emissions will benefit. According to the World Bank, the carbon price is likely to increase tenfold in the upcoming decade.

2. How Environmental Risks Become Risks for Financial Institutions

Financial institutions including banking, insurance and asset management institutions may also face risks such as valuation, credit, legal and business risks arising from environmental and climate change. Regarding the environmentally-related valuation risk, according to a study by the Central University of Finance & Economics (CUFE), if the carbon price sees a tenfold increase, the share prices of carbon-intensive companies held by insurers and asset management companies are likely to fall by 70% to 80%. This represents a typical valuation risk. Regarding the environmentally-related credit risk, according to a stress test conducted by the ICBC, the NPL ratio or loan delinquency ratio will increase for traditional high-polluting industries such as iron and steel, cement and thermal power due to the changing environmental policies and stricter law enforcement in the future. Regarding the environmentally-related legal risk, those who are impacted by any environmental incident will sue the polluting company and its investors. Today, some experts will discuss soil pollution. In the US, over 100 banks were sued for participating in financing related to soil pollution. In terms of the business risk, environmentally-related natural disasters such as flood, earthquake and tsunami may lead to disruptions in business, which is a typical example of this type of business risk. For the liability side of insurers, business loss will be incurred if the increasing number of climate change-induced catastrophes is not fully reflected in the premium rates of catastrophe insurance. This type of risk may be referred to as “liability side risks”.

Most of the environmental analyses completed were conducted by financial institutions such as banks, insurers and institutional investors to demonstrate how environmental factors could lead to their own business risks. Some public institutions including the Bank of England and some European regulators also have to begin investigating whether climate and environmental factors may lead to systemic financial risks. Due to insufficient quantitative analyses, a definitive conclusion has yet to be drawn. However, based on the initial results of research, climate change is likely to become a factor of systemic risk for the insurance sector; for institutional investors and banks, an excessive concentration of asset allocation in polluting and carbon-intensive sectors may give rise to major potential risks. Since mass bankruptcies are likely to occur in seriously polluted areas, the environmental risk exposure of local banks also deserves special attention.

In this year's G20 Green Finance Synthesis Report, we called upon the public sector to perform an environmental risk analysis. The "public sector" here refers to national central banks, financial regulators, finance ministries and international organizations responsible for financial stability (such as BIS and IMF), as well as major sovereign funds and pension funds. We believe that not only should the private sector conduct environmental risk analysis but the public sector is also responsible for increasing awareness of this issue and provide the positive guidance for the private sector.

Many experts have asked whether financial regulators should respond to environmentally-related financial risks. I believe that the regulators have already responded and may respond even more in the future to such risks. The Governor of the Bank of England, Mark Carney, made a public appeal to regard climate change as a source of financial risks. The French Energy Transition Law requires financial institutions to disclose environmentally-related information. In the Guidelines on Green Finance, China's seven ministerial agencies, including the Central Bank, have clearly indicated their support for banks and institutional investors to perform an environmental stress test and required the creation of a mandatory environment information disclosure system for listed companies and bond-issuing companies. According to the division of responsibilities released by the seven ministerial agencies for the implementation of the Guidelines, the Green Finance Committee is required to organize experts to formulate a Study Report on Environmental Risk Analysis Methods for Financial Institutions to be implemented as industry practice. If the analysis of financial institutions and synthesis information suggests that climate and environmental factors may lead to significant financial risks in certain financial subsectors and regions, regulators may intensify environmental risk monitoring, evaluation and management, requiring the disclosure of environmental information and environmentally-related financial risks and paying more attention to the mitigations of environmental risk exposure.

3. Methods for Environmental Risk Analysis and Estimation

Today's speakers will discuss at least a dozen analytical methods, including sensitivity analysis and scenario analysis for stress test and PD, DCF, VAR and actuarial method from a financial perspective. Many of these methods and instruments measure the changing valuation and investment return of assets held by financial institutions or the changing probability of default for these assets under given environmental and climate change scenarios (such as carbon price/water tariff hike; rising probability of natural disasters; changing energy demand caused by temperature change by no more than 2°C). A number of other methods are intended to lay out how changing environmental factors affect the cost, profit, capital and business sustainability of listed companies.

These methods are highly technical. Despite the technicality of discussions at this seminar, our message to the public is clear and straightforward: environmental risk analysis as an important instrument of financial analysis already exists and has been performed by some institutions; other financial institutions should learn about and apply these methods to prevent environmental risks.

4. Performance and Effects of Environmental Risk Analysis

Let me use the following examples to illustrate how the results of environmental risk analysis should be utilized and what effects would be achieved.

For the banks, environmental risk analysis will help them shift towards “green credit”. If the NPL ratio is found to increase in environmentally high-risk areas, banks will raise interest rates on loans in these areas to cover potentially additional credit cost. In doing so, banks aim to prevent credit risks and stay robust. For the economy as a whole, the result is that fewer loans are granted to polluting industries and more loans are issued to green industries, thus promoting the green transition.

For asset management companies and insurance asset management business, a typical purpose of environmental risk analysis is to influence investment allocation. For a company that has invested heavily in the assets of polluting and carbon-intensive industries, if a stress test reveals that these assets are likely to depreciate by a few dozen percentage points in the future, the company must reduce investment in these high-risk sectors and allocate more assets to green sectors. As shown by empirical studies, green investment offers a higher long-term return compared with mainstream indices - a key reason is that green screening (or environmental risk analysis) helps investors reduce downward risks stemming from environmental factors. While asset management companies avoid risks by adjusting their asset allocation based on the results of environmental risk analysis, the economy as a whole shall also benefit from a boost to green transition.

From the liability side, environmental risk analysis helps insurers to increase financial sustainability by setting appropriate premium rates for environmentally-related insurance products such as catastrophe insurance, agricultural insurance, property insurance and environmental pollution liability insurance. If an insurer underestimates the probabilities of climate change-induced natural disasters and pollution incidents, it risks setting premium rates too low to cover losses from any future claims. By conducting environmental risk analysis, insurers will be able to reduce losses and stay robust. For the insured companies, appropriate premium rates serve as an indicator of the probability of environmental incidents and may discourage them from business activity in high-environmental-risk sectors.

III. Overcoming Challenges to Environmental Risk Analysis

Environmental risk analysis is also faced with some difficulties and challenges, as reflected in the following areas:

Firstly, many financial institutions are not fully aware of the importance of environmental risk analysis. Not many financial institutions in China are aware of financial risk analysis. The ICBC has carried out research on this topic for over two years and the Industrial Bank of China is following suit. A few other banks have also expressed interest. Yet there are more than 20 large banks and national shareholding banks in China. There are thousands of small banking institutions including local commercial banks, rural credit unions and township banks, most of which have never even heard about environmental risk analysis. A few Chinese asset management companies including China AMC started to participate in the stress test. However, there are at least 100 publicly-traded funds and tens of thousands of privately offered funds in China, most of which are yet to participate in the stress test. Internationally, while many large financial institutions in Europe and America have taken the lead, a large number of small and medium-sized financial institutions still need to join the circle. In emerging markets, environmental risk analysis remains a new concept for many institutions.

Secondly, the methods and instruments are not fully prepared. Many instruments and methods have been introduced at today's seminar but some of them are only initial results and need improvements to increase applicability. Some instruments are highly academic and not user-friendly, making it difficult for financial institutions to use.

Thirdly, different studies lack comparability. Many banks, experts and companies have worked out their own scenario assumptions and stress test conditions and employed their own methods for the expression of results, which lack comparability.

Fourthly, data availability is inadequate. Since the environmental information disclosure system of Chinese companies is incomplete, our next priorities are to implement mandatory environmental information disclosure for listed companies and bond-issuing companies in China and promote the TCFD's (Task Force on Climate-related Financial Disclosures under the FSB) voluntary principles for climate-related financial risk disclosures abroad. Regarding public environmental data, it is not true that we don't have the data. In fact, a lot of data are available but not properly utilized due to the high cost of research and poor availability. Much remains to be done to improve in this area as well.

Fifthly, public sector is absent. If the central bank and other regulators also get involved and

conduct environmental risk analysis at systemic, industry and regional levels, they will serve as good examples for private sector to follow suit. I believe China is working towards this direction. As an industry academic organization with government background, the Green Finance Committee is also trying to increase public sector's awareness of environmental risk analysis. The GFSG is also promoting the awareness of this issue among the public sectors of various countries.

Sixthly, domestic and international communication and discussions are insufficient. The methods, instruments and data for environmental risk analysis are largely public goods. Although there are tens of thousands of banks across the world, not every bank needs to develop its own stress test method, which is costly and unnecessary. It is advisable to develop a few common methods to be used as globally-shared industry practices. This requires domestic and international exchange and cooperation to be increased.

Addressing these problems and challenges requires the joint efforts and cooperation of governments, regulators, financial institutions, international organizations and other stakeholders. Regulators should send a clear signal to encourage and support financial institutions to carry out environmental risk analysis. Financial institutions should enhance awareness, invest human and financial resources and build capacity. The G20 and other relevant international organizations should organize more international seminars to share experiences and support each other in the development and communication of methodologies. NGOs and other social organizations should also extend support to financial institutions regarding capacity building and proactively take part in communication and promotion.