



Research on Environmental Risk Management of City Commercial Banks

JIAYI FAN, LI XIE AND FENJING WANG

Institute of Disaster Prevention, Yanjiao Town, 065201, PR China

Email: fyj92@163.com

Abstract: In terms of Chinese city commercial banks, because of the short period of truly market-oriented management, there is still a large gap between them and overseas banks in environmental risk management, especially in the key link of environmental risk assessment. Therefore, in this thesis, by studying the specific practice of large and medium-sized domestic city commercial banks in environmental risk management, combined with the current development state and existing problems in environmental risk management in China, the author puts forward relevant suggestions, which is of great significance for Chinese city commercial banks to improve environmental risk management methods, reduce credit risk and develop sustainable finance.

Keywords: *environmental risk management, city commercial banks, Quantitative evaluation.*

1. Introduction

Financial risk management has been one of the major tasks of city commercial banks. Only by effectively prevent financial risk can the assets safety of city commercial banks be guaranteed so as to obtain stable profits. City commercial banks of the early time laid much emphasis on market risk, credit risk and operational risk, but didn't pay attention to environmental risk [1]. However, with the increasing influence of environmental factors on the sustainable operation of financial institutions, large financial institutions have gradually included environmental risk into their management system. Besides, they have also established organizations specialized in managing environmental risk and strengthened professional ability training of relevant staff. On a global scale, many contents about the environmental risk management of city commercial banks come from the practical experience of world's famous large financial institutions and organizations such as Citibank and ABN. Among the practical experience, it includes the formed equator principle.

In terms of Chinese city commercial banks, because of the short period of truly market-oriented management, there is still a large gap between them and overseas banks in environmental risk management, especially in the key link of environmental risk assessment [2]. Therefore, in this thesis, by studying the specific practice of large and medium-sized domestic city commercial banks in environmental risk management, combined with the current development state and existing problems in environmental risk management in China, the author puts forward relevant suggestions, which is of great significance for Chinese city commercial banks to improve environmental risk management methods, reduce credit risk and develop sustainable finance.

2. International Principle for Environmental Risk Management of City Commercial Banks

With the idea of sustainable development gradually enjoying popular support among the public, the banking industry starts to think about the influence of non-financial factors on credit business. Such awakening greatly shortens the gap between the financial industry and the environmental protection industry[3]. The agreement of these two in material basis, ethical basis and social basis (Figure 1) has promoted the financial industry to practice the idea of sustainable development and increasingly attach importance to the management of environmental risk.

In October, 2002, 9 city commercial banks including Citibank and Barclays Bank attended the meeting held by ABN and International Finance Corporation in London. In the meeting, by researching the financing cases with environmental argument provided by the city commercial banks, they discussed the problems of social and environmental influence under the project financing pattern. Citibank proposed to formulate a framework to solve these problems. Soon afterwards, based on the guarantee policies of International Finance Corporation, the working group established by those banks created a set of environmental and social risk guideline. This guideline is the prototype of equator principle. Since its birth, during more than 10 years' development, equator principle has experienced two revisions. The latest equator principle III was officially introduced in June, 2013. By the end of 2014, there were 80 financing institutions from 34 countries which officially announced to adopt and carry out equator principle 26. These banks are called "equator banks", whose distribution is shown in Figure 2.

Equator principle includes prologue, scope, method, statement of principle, disclaimers and attachment.

Here we will mainly introduce prologue, scope, method and principle.

(1) Prologue

The prologue mainly has a brief explanation of the reasons why the equator principle financial institutions adopt equator principle, which will lay emphasis on elaborating the significance and purpose of equator principle from the perspective of client benefit.

(2) Scope

Equator principle is applicable to all industries around the world, which specifically supports the following 4 types of financial products: the project financing and consultation service whose total fund cost is above 10 million dollars; the project financing whose total fund cost is above 10 million dollars; company loan used for the project which accords with four standards (including the form of buyer's credit in export finance); bridge loan, whose length of maturity is less than 2 years and plans to refinance by using the project financing or company loan used in projects expecting to accord with relevant standards above[4].

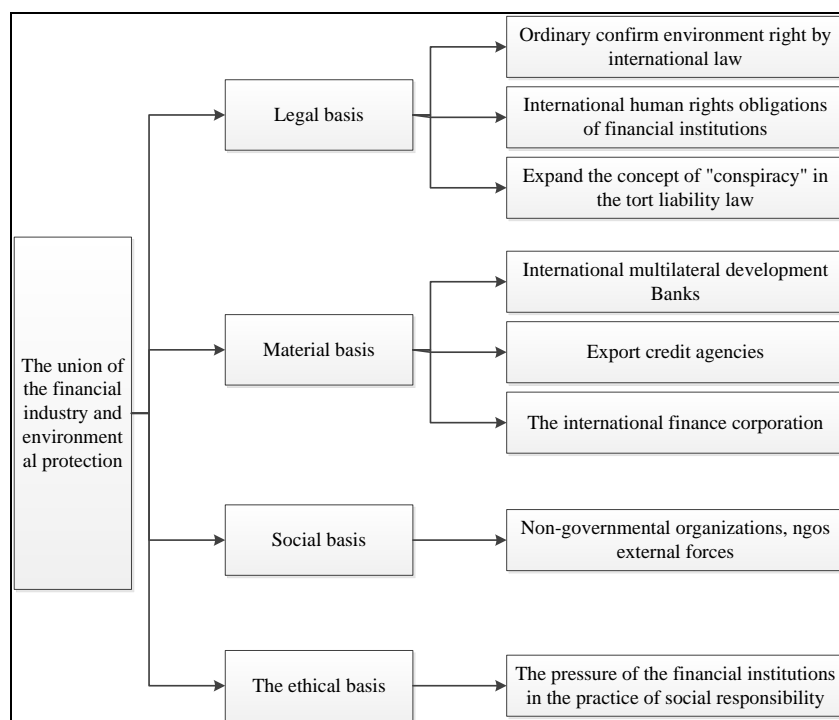


Figure 1: The financial industry and environmental protection with foundation

(3) Method

EPFI only provides project financing and company loan used in projects which accord with item 1 to item 10 of the principle.

(4) Statement of principle

This part includes 10 principles, which is the core content of the international standard of equator principle, which covers the specific standards of project review and classification, basic requirements of environmental and social assessment as well as applicable selection criteria. These 10 principles together establish the basic direction of financing institutions to carry out equator principle and define the operation steps of credit authorization.

3. Construction of Environmental Risk Assessment Method of Chinese City Commercial Banks

3.1 Legal support system and reference standards of atmospheric environment risk assessment of thermal power plant project

It summarizes laws and regulations related to environmental protection of Chinese thermal power industry, which shows the strict requirements of Chinese environmental laws and regulations on pollution prevention as well as energy saving and emission reduction of the thermal power industry. It is a major legal basis for Chinese city commercial banks to manage the atmospheric environment risk in the thermal power industry[5].

3.2 Quantitative evaluation of atmospheric environment risk of thermal power plant

In terms of atmospheric environment risk assessment of the thermal power industry, the first step that city commercial banks should take is the quantitative evaluation of air pollutants, which mainly includes the emission concentration evaluation of smoke, sulfur dioxide and nitric oxide. The qualitative evaluation in the next step can't be taken until the project has passed the quantitative evaluation of air pollutants. If the quantitative evaluation is unqualified, city commercial banks should directly deny the project's

loan application. According to the existing facility types in Chinese thermal power plants, and mainly take the four facilities—coal-fired boiler, oil-burning boiler, gas-fired boiler and gas-fired turbo set as the reference of itemizing, and provide the national standard emission limit of various pollutants. In the evaluation process, the major information that city commercial banks need to obtain is the specific value of pollutant emission, which requires the thermal power plant to have a set of advanced pollutant emission monitoring system. The author suggests that

aimed at the environmental risk regulation after operation, the thermal power plant operator can negotiate with city commercial banks to make use of part of investment to establish professional dispatch network, realize the integrated transmission of operating parameters of pollutant monitoring facility, and take advantage of platforms like internet to share data with environmental risk management departments of city commercial banks, which will greatly facilitate the city commercial banks' quantitative management of environmental risk.

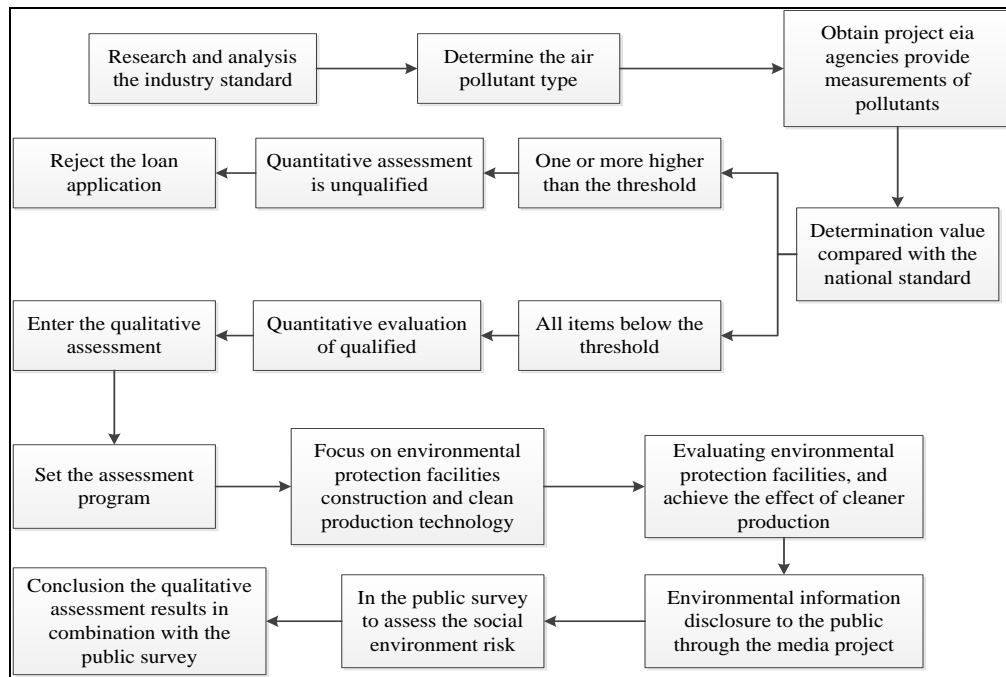


Figure 2: City commercial banks thermal power project specific process of atmospheric environmental risk assessment

3.3 Construction of atmospheric environment risk assessment process of thermal power plant project

Through quantitative evaluation and qualitative evaluation of the cases above, the author constructs the specific process of atmospheric environment risk assessment in thermal power plant project (Graph 3), which is divided into two steps. Step 1: Quantitative evaluation. Firstly, based on the detailed analysis of the project industry and research of relevant national standards, city commercial banks should confirm major air pollutant types (commonly including sulfur dioxide, nitric oxide and smoke); secondly, city commercial banks can consult professional environmental impact assessment agencies to obtain the estimated value of pollutants (in the design stage, the predicted value of pollutants is usually provided by the project designer); lastly, through the comparison between the measured value and the national standard limit, work out the quantitative evaluation result of the atmospheric environment risk. Once qualified, it can enter the stage of qualitative evaluation. Step 2: qualitative evaluation. Compared with quantitative evaluation, qualitative evaluation is

more flexible. In this stage, city commercial banks can design appropriate qualitative evaluation forms according to their business features and emphasis of investigation. The author proposes to lay stress on the investigation of two aspects in the qualitative evaluation[6]. Firstly, investigate the project's environmental protection facilities and clearer production technology, particularly the actual effect of clearer production technology on reducing energy consumption and pollutant emission; secondly, in qualitative evaluation, evaluate the social and environmental risk of the project and obtain local residents' basic ideas of the project construction by timely disclosing the project's environmental information and carrying out public investigations. The measurement result of qualitative evaluation is flexibly determined by city commercial banks. Only when the project completely passes the investigation of quantitative evaluation and qualitative evaluation can city commercial banks offer the final result of the atmospheric environment risk evaluation of the thermal power plant.

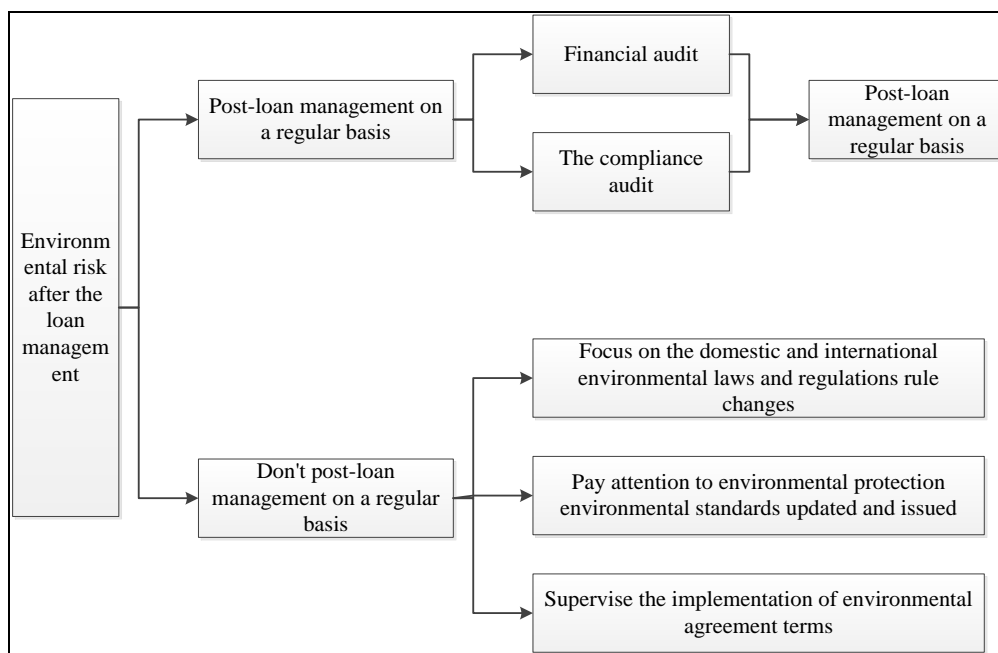


Figure 3: After the environmental risk of commercial bank credit supervision measures

3.4 Evaluation Result Analysis

Through quantitative evaluation and qualitative evaluation of the atmospheric environment of S Power Plant, it can be seen that firstly, the air pollutant quantity of the power plant is far lower than the national limit, so the quantitative investigation is qualified; secondly, from the qualitative evaluation from of atmospheric environment risk, we can see that one the one hand, this project possesses a series of advanced environmental protection technology, which can not only reach the purpose of reducing atmospheric pollution, but also actively promote the atmospheric environment protection technology, and on the other hand, as the project location is far from the residential area and the thermal power industry doesn't involve toxic substance pollution, so from the perspective of public evaluation, there is almost no dispute and the public support and recognition of this project is relatively high, so there is little social and environmental risk involved in the atmospheric environment risk. to sum up, we can draw a conclusion that the atmospheric environmental risk of S power plant in N province is relatively low.

However, what calls for special attention is that all data selected in the evaluation process above come from the project designer. The conclusion of city commercial banks in environmental risk assessment before loan is not changeless. After formal operation of the project, city commercial banks should also strengthen their monitoring over the pollutant emission and environmental protection facilities of the project in the lending process. If there is any change in relevant national standards related to the project, city commercial banks should also follow up timely and lay emphasis on the supervision of the project party's compliance manifestation. Besides,

atmospheric environmental risk is only a part of the natural environmental risks, and there is also noise environmental risk, water environmental risk and fuel chain risk. Therefore, the conclusion of qualification drawn in this case is only aimed at the atmospheric environmental risk evaluation of the project. Finally, only when all types of environmental risks are qualified can they represent that S Power Plant passes the overall environmental risk assessment of city commercial banks.

4. Conclusion

Environmental problems like climate warming, atmospheric pollution and water pollution are becoming increasingly prominent, so environmental protection has become an important factor for governments of all countries to consider when formulating economic policies. The environmental risk management of city commercial banks is just the reflection of national environmental policies in the financial field, which represents the intersection of environmental problem and financial industry and embodies the humanistic care spirit of financial industry under the background of sustainable development. The core of the sustainable development is to stress the harmonious coexistence of economic society and natural ecology. Under this theoretical background, to develop and improve environmental risk management measures has become the consensus of the world's financial industry. In China, many city commercial banks haven't disclosed their specific business process of environmental risk management outwards, and the city commercial banks that have already introduced environmental risk management measures are mostly forced by the national policies, which are lacking in subjective initiative in managing environmental risk; though

those banks have ever made some achievements in environmental risk management policy, information disclosure, ability training and team construction, there is still large promotion space, especially lack of environmental risk assessment methods aimed at different industry projects. As a result, the environmental assessment opinion given by national environmental protection administration becomes the only basis for the credit approval of some domestic city commercial banks. In this thesis, based on the current situation above, starting from the theoretical basis of environmental risk management of city commercial banks, combined with the current environmental risk management situation of Chinese city commercial banks, the author explains the content of environmental risk of city commercial banks, analyzes the agents of environmental risk management of city commercial banks and clears up the processing steps of city commercial banks' environmental risk management. As the first step in city commercial banks' environmental risk management, aimed at the thermal power plant project with high environmental risk, this research constructs quantitative evaluation method and qualitative evaluation method of atmospheric environmental risk, and combined with actual case of the thermal power plant industry, offers applicable argument, which is of certain reference value.

Through the elaboration and analysis above, the author believes, in order to improve the environmental risk management of Chinese city commercial banks, we should start from macro aspect and micro aspect. Firstly, it is necessary to formulate general rules of management, refine industrial guidelines, and at the same time, city commercial banks should give full play to subjective initiative, strive to improve the environmental risk assessment ability of different industries, strengthen process management of environmental risk and intensify construction so as to create a microenvironment for environmental risk management. All in all, the development and perfection of the environmental risk management of Chinese city commercial banks is a progressive process. Chinese city commercial banks have to explore again and again on the premise of transforming the development ideas and find new problems through specific practice. Only in this way can we narrow the gap with environmental risk management level of city commercial banks in developed countries and probe out advanced methods and valuable experience applicable to the environmental risk management of Chinese city commercial banks.

Acknowledgments

Project: Technological research and development plan in Langfang City. Project, Supported Supported by the Fundamental Research Funds for the Central Universities. Number: 2013023129.

References

- [1] J. Salazar, "Environmental Finance: Linking Two World," Presented at a Workshop on Financial Innovations for Biodiversity Bratislava, Volume 12, Issue 3, PP 18-24, 2012.
- [2] S. Radelet, J. Sachs, "The onset of the East Asian Financial Crisis," NBER Working Paper, Volume 12, Issue 3, PP 133-162, 2008.
- [3] M. Jeucken, "Sustainable Finance and Banking: The Financial Sector and the Future of the Planet," Earthscan Ltd, Volume 14, Issue 13, PP 183-195, 2001.
- [4] O. Weber, "Sustainability Benchmarking of European Banks and Financial Service Organizations", Corporate Social Responsibility and Environmental Management, Volume 12, Issue 22, PP 70-84, 2005.
- [5] M.E. Porter, M.R. Kramer, "Strategy & Society: the link between competitive advantage and corporate social responsibility," Harvard Business Review, Volume 8, Issue 12, PP 78-92, 2006.
- [6] L.E. Preston, "The corporate Social-financial performance relationship: a typology and analysis," Business and Society, Volume 36, Issue 4, PP 419-429, 2007.
- [7] S. Tisma, A. Boromisa, "Environmental Finance and Development," Routledge, Volume 5, Issue 23, PP 24-39, 2012.
- [8] A. W. Preston, "Small The era of sociology," The American Journal of Sociology, Volume 1, Issue 1, PP 1-15, 2013.
- [9] O. Sheldon, "The Philosophy of Management," Bath, England: Sir Isaac Pitman & Sons, Volume 12, Issue 3, PP 18-24, 2012. S. Labatt, R.R White, "Environmental Finance," John Wiley and Sons, 2002 : . Volume 9, Issue 8, PP 37-38, 2002.
- [10] A. W. Preston, "World Commission on Environment and Development," Oxford University Press, Volume 14, Issue 23, PP 12-14, 2009.
- [11] Altunbas Y., Evans L., and P. Molyneux, "Bank Ownership and Efficiency", Journal of Money-Credit and Banking, Vol.33, No.4, pp. 926-929, 2001.
- [12] A. N. Berger, A. Saunders and J. M. Scalise, "The Effect of Bank Mergers and Acquisitions on Small Business lending", Journal of Financial Economics, Vol.50, No.2, pp.187-229, 1998.
- [13] Berger. Allen N. Richard J. Herring, and Giorgio P. Szego, "The Role of Capital in Financial Institutions", Journal of Banking & Finance, Vol.24, No.19, pp. 39-43, 2000.
- [14] Barth, J. R., Caprio, G. Jr., and R. Levine, "Bank Regulation and Supervision: What Works Best? ", Journal of Financial Intermediation, Vol.13 , No.2, pp. 205-248, 2004.
- [15] Diamond. D*W, G. Rajan, "A theory of bank capital", Journal of Finance, pp. 59-117, 2000.

- [16] David Rowe, "Basel II: time for action", Risk 9'6, pp. 428-435. March 2004.
- [17] F. Modigliani, and M. Miller, "The cost of capital corporation finance and the theory of investment", American Economic Review, Vol.48, No.3, pp. 261-297, 1958.
- [18] F. Modigliani, and M. Miller, "Corporate income taxes and the cost of capital: a correction", American Economic Review, Vol.34, No.53, pp. 433-443, 1963.
- [19] Gorton, G., and R. Rosen, "Corporate Control, Portfolio Choice, and the Decline of Banking", Journal of Finance, Vol.23, No.50, pp. 1377-1420, 1995.
- [20] Haubcnstock Michael, "The Evolving Operational Risk Management Framework", The RMA Journal. Vol.12, No. 12, pp.18-21, 2001.
- [21] H. Moore., "Debt and seniority: An Analysis of the Role of Hard Claims in Constraining Management", American Economic Review, No.85, pp. 567-583, 1995.