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Summarization and Analysis on Commercial Bank Risk Management

RÉSUMÉ ET ANALYSE DE LA GESTION DES RISQUES DES BANQUES COMMERCIALES

Zhou Yunfeng[1] **Feng Junwen** **Li Xiaoyan**

Abstract: Risk management of commercial banks is an important part of their operation activity. The risk management development of commercial banks in the world is a process from single risk management to integrated risk management, while the risk management technology has been developed from qualitative analysis to comprehensive measurement and analysis with various quantitative methods. Currently, the world advance commercial banks already have more mature ways and results in concepts, organization settings and risk management technologies. For the late development of risk management in our country, a scientific and complete risk management system has not been established. At present stage, we are making efforts in introducing and establishing a scientific risk management system step by step.

Key words: Commercial bank; risk management; risk management technology

Résumé: La gestion des risques est une partie importante des activités d'opération des banques commerciales. Le développement de la gestion des risques des banques commerciales dans le monde est un processus qui va de la gestion simple à la gestion intégrée, quand la technologie de la gestion des risques a développé de l'analyse qualitative à la mesure globale et l'analyse avec des méthodes quantitatives diverses. Aujourd'hui, les banques commerciales avancées du monde ont déjà plus de méthodes et résultats mûrs en concept, organisation et technologie de la gestion des risques. A cause du développement retardé de la gestion des risques dans notre pays, un système scientifique et complet n'a pas encore été établi. Actuellement, nous sommes en train de faire des efforts pour introduire et établir pas à pas un système scientifique de la gestion des risques.

Mots-Clés: banque commerciale, gestion des risques, technologie de la gestion des risques

1. INTRODUCTION

Risk exists in each and every step of bank operation. The process of commercial banks providing financial service contains the bearing and control of risk. Since the production of commercial banks, risk accompanies them always. Therefore, commercial bank risk management was born an important part of commercial bank operation. A summarization and analysis on the historical development and current status of commercial bank risk management will make clear the development direction of commercial bank risk management, and suggest suitable measures. This paper reviewed and summed up the development history of commercial bank risk management, and also provided a summarization and evaluation on the advanced technologies of commercial bank risk management, as well as on the current development status of world advanced commercial banks and Chinese commercial banks.

Brief development history of risk management of world commercial banks

[1] School of Economics and Management, Nanjing University of Science and Technology, 210094, China

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Commercial bank risk management is to predict, avoid, eliminate or transfer the operation risk by means of risk analysis, risk prediction, risk control, etc., in order to decrease or avoid economic loss and to guarantee the security of operational capital as well as financial system. [2]

Commercial bank risk management is a product in the deepening understanding of financial risk. The brief development history of commercial bank risk management can be summed up into following phases:

The first phase is the time before 1960's, when the commercial bank risk management mainly focused on the risk management of asset operation and liquidity keeping of bank assets.

The second phase is the time between 1960's and 1970's. During this period, commercial banks emphasized on borrowing capital to keep or increase asset revenue to scale, which created conditions for banks expanding operations, but also increased bank operation risk. For the change of principal operation of bank development, the key point of bank risk management was transferred from original asset operation risk management to debt risk management.

The third phase is the time between 1970's and 1980's. During this time period, the international market interest rate fluctuated greatly, which caused the unsuitability of single asset risk management or debt risk management. The asset-debt risk management theory was generated, focusing on the coordinated management of asset operation and debt operation. In this phase some relevant financial derived tools appeared and developed to some extent. The former risk management technologies mainly include debt operation management, asset operation management, asset-debt integrated management and gap management, etc. From the option pricing model presented by Black—Schole—Merton in 1973, the real quantitative risk management has started to develop on the basis of these theoretical models.

The fourth phase is the time of 1980's, with a new promotion in the concept and technology of bank risk management and a deeper understanding on risk. Moreover, the changes of market environment, including the fierce competition in bank industry, small interest difference between deposit and loan and the expansive use of derived financial tools, presented the restrictions existing in the original asset-debt risk management theory. Under this situation, a series of thoughts and technologies of off-balance sheet risk management theory, financial engineering, etc have been gradually used in commercial bank risk management. It further enlarged the commercial bank operation range by applying applied mathematics, informatics, engineering, etc to risk management, which deepened the implication of risk management as management science. In the beginning of this phase, because of the influence from global debt crisis, banks started to focus on the prevention and management of credit risk. In 1988, "Basal Capital Accord" came out officially and kept being completed. This Agreement quantifies risk by regulating different weights for different types of assets, and thus regulates capital allocation. It is the milestone of modern risk management, and the way of analyzing and controlling risk by centering capital adequacy ratio has become the basis of modern bank risk management, which means the further completion and unification of commercial bank risk management and financial supervision theory, as well as the basic formation of a comparatively complete risk management principle system in international bank field.

The fifth phase is the time of over 20 years after 1980's. The gross economic value of the world grows rapidly and economic mode develops greatly, which causes the fast expansion of operation types and scales of commercial banks as well as the great development of risk management mode and content of international bank industry. With the fierce competition in financial field, financial innovation made bank operation more diversified and complicate, which raised new requirements for bank risk management. In addition, the occurrence of a series of bank crisis made the bank industry know that the loss was no longer caused by single risk. Almost the theory and practice achievements of commercial bank risk management of this phase were all included in "New Basal Capital Accord". Basal committee publicized the suggested drafts in June of 1999 and in 2001 representatively, and passed the final draft of "New Basal Capital Accord" in June of 2004. The "New Basal Capital Accord" completely inherits the supervision principles represented by Basal Capital Accord of 1988 and continues on centering capital adequacy ratio and focusing on credit risk control. But it starts to transfer from single capital adequacy restriction to the three combined restrictions of minimum capital requirement, supervision and investigation and market principle regulations in bank risk supervision and management. Basal Capital Accord attempts to make the bank competition become the competition of bank risk management abilities, with the content of risk recognition, measurement, assessment, control and risk culture.

2. SUMMARIZATION AND EVALUATION ON MAIN RISK MANAGEMENT SYSTEM AND RISK MEASUREMENT TECHNOLOGIES OF MODERN COMMERCIAL BANKS

Generally speaking, there are two stages in the development of commercial bank risk management

[2] Liu Jin. Research on Risk Management of Chinese Commercial Banks [J]. Economic Research, 2006, 4: 76～77.

technologies:

1st. Risk measurement and statistics method, assuming there was a single risk source which is consistent with the risk.

2nd. After realizing there were multiple risk sources in reality, measurement method was corrected, and a measurement method for the sum of all risks and risk sources was obtained.

2.1 Summarization and evaluation on risk management system of commercial banks

Commercial banks are mature in western developed countries, while the commercial banks in our country adopt classifying control strategy, mainly involves two aspects: asset-debt management and credit appraisement. Quantitative analysis system is mainly introduced from commercial banks of developed western countries. Therefore, this paper only introduces risk management methods and technologies of modern western commercial banks. There are three typical commercial bank risk management methods: value at risk (VaR), Total Risk Management (TRM) and Enterprise-Wide Risk Management (ERM).

1st. VAR (Value at Risk): this method, under normal market condition and within a given confidence interval, is used to estimate and measure the market risk and possible maximum potential value loss of any financial asset or securities portfolio in a given time period. The risk management method system based on this measurement method is to meet a risk management requirement of measuring the all risks faced by financial institutions or portfolios by a quantitative standard.

JP-Morgan Company first suggested this method. Because of its scientific, practical, accurate and integrative features, it is well received commonly in the international financial field including supervision departments, and soon becomes one of the risk management standards. Comparing with traditional risk measurement technologies, such as due time method, sustained scheduled time method and indentation analysis method; it is more scientific and applicable. Nevertheless, VaR has an obvious restriction that it can only measure market risks under normal condition, and it cannot quantify sudden risk, credit risk, operation risk, legal risk and strategic risk. The VaR risk calculation method of financial asset or portfolio is to forecast the price fluctuation and correlation by means of statistic analysis based on the revenue characteristics in the past. However, history data can not always be a good guidance for future trend. At present, back testing is used for checking the validity of VaR model, while pressure test and scene analysis are also used to cover its deficiency.

2nd. Total Risk Management(TRM), on the basis of single variable (i.e. Probability) in current risk management system, introduces two other elements: price and preference, attempting to achieve the equilibrium optimization of objective computation and subjective preference of risk management in 3P system. TRM system can not only manage the basic financial tool risk, but also manage the possible risk of derivative tools, and thus realize the complete control of risk, opening up a new way for financial risk management. TRM method overcomes the basic weakness of financial risk management technologies including VaR, and makes systematic and dynamic decisions by combining three key elements of price, probability and preference in financial risk management, and tus realizes the equilibrium of financial risk and risk preference, enabling investors to achieve maximal benefit at the risk they would like to take. More importantly, it enables the institution principal composed of single decision-makers to take an optimized control over the risk in risk management, instead of suffering too much risk loss caused by any single decision-maker’s activity. However, TRM also has difficulties. The most important one is that no systematic method on deciding the risk preference of decision-makers, especially in deciding the risk preference of institution principal, which to some extent affects the actual application of this method.

3rd. The core concept of Enterprise-Wide Risk Management (ERM)is to manage all business divisions with different levels and all risks with different kinds within the whole institution. Along with the development of banking, people realize that the risk of commercial banks is not single risk as credit risk or market risk anymore. Instead, it is a combination of all kinds of risks including credit risk and market risk, etc. The financial crises urge people to focus on integrated model of market risk and credit risk and the quantification of operation risk. Thus, ERM model drew people’s attention, and there came out the various new models integrating market risk, credit risk and other risks. ERM system requires risk management system not only to deal with market or credit risk, but also to handle other risks. Furthermore, ERM requires risk management system to deal with all kinds of financial assets and asset portfolios related to these risks, as well as various business units that carry these risks. ERM thus makes every employee have a consistent and unified understanding of risk policy and management system, to ensure the continuity and consistency of data, measurement and control. ERM system initiated by several largest USA banks and securities agencies is still in its primary stage, but it will become the standard risk management method of large-scale banks. The establishment of ERM system requires integration of business divisions, standardization of procedures, as well as a new system for promoting the centralized control and risk management. The ERM method is a revolution for risk management concept, for that it shows a new direction for bank risk management: personnel’s talent is more important than risk model’s quality.

2.2 Risk measurement technology of commercial banks

Risk measurement is a nuclear part of risk management; there are four main risk measurement methods:

2.2.1 Value at risk (VAR). Among all risk measurement methods, VAR is the most attractive one. In the past few years, many banks and law constitutors started to consider it as a criterion on risk measurement in the whole industry. It features with that it sums up the risk of all asset portfolios banks into a simple number, and uses currency unit to show the core of risk management—potential loss. The VAR is actually supposed to indicate the maximal loss in next stage of bank investment portfolios under the condition of a given probability.

2.2.2 Risk-adjusted return on capital (Raroc). Raroc is the ratio of return and potential loss or VAR value. The banks that use this method make the decision of capita use based on the present value of profit with the capital investment risk, instead of the absolute level of profit. Every bank knows the relationship between risk and return. In an investment, the greater the risk is, the bigger the expected profit or loss is. If a loss occurs to an investment, it will corrode bank capital, even lead to bankruptcy. Though banks are sensitive to capital corrosion caused by investment loss, they must realize the purpose to take this risk is to earn profit. The key to this problem is to find a proper balance point between risk and return, which is also the principle of Rarco. Raroc depends on the amount of potential loss, i.e. risk value, the bigger which is, the bigger the present value of investment return.

2.2.3 Credit Metrics. In 1997, American J.P.-Morgan Corporate other international banks ---Deutsche Morgan Grenfell, Bank of America, Bank of Switzerland, Union Bank of Switzerland and BZW jointly promoted the first securities portfolio model in the world only for bank credit loan risk evaluation (Credit Metrics). Based on the credit rating, this model calculates the probability of default of a loan or a group of loans, and then calculates the probability that loans above transfer to be bad debt at the same time. It attempts to indicate the bank capital reserve value necessary for the condition that some or whole credit loan portfolio is facing the risk of credit rating change or default by calculating VAR value. The model almost covers all the credit loan products, including traditional commercial loan, letter of credit and letter of honor, securities with fixed return, commercial contracts as trade credit loan and receivables, as well as market-driven credit loan products including swap contract, future contract and other derivative products, etc.

2.2.4 Stressing test method. VAR calculation above is based on stability and continuity, and once great market and price fluctuation occurs, the effectiveness of the model above will be weakened. However, the stressing test method can calculate the VAR value under extreme circumstance by means of historical simulation, which is an important supplementary tool.[3]

3. THE CURRENT STATUS OF RISK MANAGEMENT OF WORLD ADVANCED COMMERCIAL BANKS AND THE ANALYSIS

There is a long development history of west commercial banks. Through decades of development and practices, they have many advanced concepts and methods. These banks pay more attention to the management of all risks in the global range, emphasize that risk management should be throughout the whole process of banking operation, nurture positive risk management culture, and also apply mathematic models for quantitative analysis on risk to measure the bank's risk bearing capacity as a whole. Inside the bank, risk management is becoming the self-consciousness and activity of all staff from profound theory.

At present, risk management of advanced commercial banks has developed into the stage of quantitative management, to balance and control the contradictions between risk and return, and to form and perfect the mode of enterprise-wide risk management. The current status of risk management can be described in the following aspects:

3.1 In the aspect of risk management concept, world advanced commercial banks has formed scientific risk management concept. They think that people should manage risk positively and initiatively, and get return by improving the risk management and control ability. From the nature, the goal of commercial banks is to gain the minimal profit within controllable risk. Mr. Wriston, the former chairman of CITI Bank considered banks as organizations that earn their profit by risk treatment ability. At present, the most senior decision-making board of many large banks have included risk management into their strategic development plan, and considered it as a part of bank internal management. Risk management has risen to the level of bank development plan, and the boards will be responsible for the establishment of risk management policies directly.

3.2 In the aspect of risk management mechanism, world advanced banks are provided with complete and effective risk management mechanism. It includes: risk recognition mechanism for analyzing risk source and causes and distinguishing risk category of and damage degree; risk alarm mechanism, mostly for risk alarming, risk information transmission and risk database establishment; risk decision-making mechanism, for

[3] Wan Lu. Risk Management of Foreign Modern Commercial Banks [J].Academic Exchange, 2005, 3: 128～131.

establishing and implementing risk management rules, making risks indicators and risk prevention strategies; risk prevention mechanism, for carrying out risk prevention activities, reallocating and transferring risk, and then preparing the report on risk management evaluation.

3.3 In the aspect of organization setting, modern advanced commercial banks have independent risk management department, and risk management is becoming more regular and systemized. Corresponding to the risk management rising to the level of bank development plan, an internal risk management system is formed in modern banks, led by board and risk management committee, centering independent risk management department and being close to all operation departments. Modern risk management system focuses on the close contact and information communication between risk management department and all operation departments, as well as on the independence of risk management department and its complete systematic feature of risk management. The proper separation of risk management decision-making with operation decision-making changes the traditional management system that risk management decision-making was subjective to operation decision-making with profit as the primary goal. Meanwhile, the risk management system centering independent risk management department is founded on the basis of management regularization and systemization, which further strengthens the risk management ability of commercial banks in complicate circumstances. For example, the CITI, HSBC etc have set up special risk management committees under the boards. The CITI risk managers keep close relation with those of business department and functional departments, and their activities are throughout the whole process of bank's operation; the risk management of HSBC is the responsible of different operation departments, and the risks manager should carry out the risk management policies of own department on one hand, and coordinate and cooperate with other departments on the other hand, to maximize the performance of risk management.

3.4 The enterprise-wide risk management is emphasized. Being different from traditional risk management that focused on credit risk, modern bank risk management also pays attention to other risks, such as market risk, liquidity risk, operational risk and legal risk. It not only treats possible capital loss as risk, but also deems bank reputation and personnel loss as risk, for which the concept of reputation risk and personnel risk are put forward. Besides, with the trend of more and more internationalized operation, commercial banks pay more attention to the integrative measurement and management of the risk bearing in global range, to systematically prevent all possible adverse events from happening anywhere in the world.

3.5 In the aspect of risk management culture, modern commercial banks are nurturing risk management culture inside the banks. Bank management team and risk management staff in different levels should be involved in specific risk management and know well about basic risk measurement methods chosen by the bank, while staff in any position should have risk prevention consciousness, and tae risk factors into consideration with self-consciousness in any events. A mechanism focusing on both inspiration and penalty has been formed, to punish the people who are responsible for the loss of bank caused by default operation and neglect by responsible confirmation, and to provide effective inspiration to people who are professional and responsible, and effective in risk prevention and elimination. HSBC and CITI Bank inspire senior risk managers with stock option, while DEUT and BOTK use career inspiration and material inspiration. This kind of risk management culture benefits the unification of risk management and bank operation as well as risk prevention and business exploration. It makes risk management not only guarantee the safety and profitability of bank assets but also promote the stability operation and development of bank business, preventing the phenomenon of "supervision paradox".

3.6 In the aspect of risk management technology, international advanced banks laid more and more emphasis on quantitative analysis, and risk management technology tends to be quantified with models and IT. The latest IT technology is adopted to set up information management system, and lots of mathematic statistic models are applied to identify, evaluate and monitor risks, and thus to realize the collection, transmission and coordination of risk information. It indicates the objectivity and scientific feature of risk management, and makes risk management decision making an activity combining artistic and scientific factors. For instance, Morgan Chase Bank, together with other advanced banks as Bank of America, Bank of Switzerland, etc., take the lead of promoting Credit Metrics Model, etc. in 1997.

4. THE CURRENT STATUS OF RISK MANAGEMENT IN CHINESE COMMERCIAL BANKS AND ITS ANALYSIS

Due to the late development of commercial banks business in our country, and several years' planned economic system, presently the risk management of commercial banks in our country is still in the primary stage, with immature organization system and risk management technology. The general condition can be described and evaluated in the following aspects:

4.1 In the aspect of risk management concept, the commercial banks in our country are forming a correct risk management concept, by the practice and experience of own business development and by learning risk management concept of world advanced commercial banks. The commercial banks in our country consider risk management as an important part of banking business. However, the misleading ideas of risk management in the past make it take a long time's effort to lay advanced and correct risk management concept in the minds of bank staff. Despite that many banks have realized the importance of commercial bank risk management theoretically in mind, many banks in practice and operation still pass on the ideas that: operation scale is too much emphasized; risk management is put on the opposite side of business development mistakenly, with the thought that risk management is to make business staff in trouble, and without considering risk control same important with profit creation; some risk managers simply think that risk control means less business, and avoids risk bearing by denying business, which cause the failure of many available business and the decrease of anti-risk ability of banks. In recent years, commercial banks of our country are trying to set up correct risk management concepts. These efforts will predictably last till the scientific risk management concept is rooted in every staff's mind of banks.

4.2 In the aspect of risk management mechanism, commercial bank risk management is a systematic project, which needs the coordination of many factors, in order to reach the goal of lowering the bank risk. The commercial banks of our country have a certain risk management mechanism, but it is a simple mechanism of one stage, or a mechanism targeting at individual special risk as credit risk. Therefore, from the macro angel, our commercial banks still have the problem of missing risk management mechanism, which is indicated by incomplete risk management system, improper system implementation and imperfect monitoring mechanism, etc. The missing of this system will cause the lack of basic structure in effective operation of enterprise-wide risk management, and stand in the way of risk management system formation.

4.3 In the aspect of institution setting, our commercial banks have special risk management department for relevant function. For example, China Construction Bank, one of the four state-owned commercial banks, set up credit risk management department in Jan, 1999. Bank of China also has its special risk management division which, under the direct leadership of senior management team, is in charge of making market risk management policy, system and flow, suggesting market risk limits to senior management and doing allocation, adjustment and monitoring effectively, reviewing and verifying the system, models and parameters used in market risk measurement, and perform independent monitoring and management to the domestic and foreign branches and overseas subsidiaries bearing market risk. Agricultural Bank of China has a slow diversification development, but it also set up a risk management division recently.

Though our commercial banks have set up special risk management department in form, but risk management is not independent enough for too many disturbing factors. Despite of the established risk management committees, the commercial banks still cannot provide effective control on financial risk because of insufficient independence and authority, and unspecified risk bearing objects; risk management can only stay on the level of business decision making service with the objective of profit earning, and cannot rise to the strategic level of bank development. In addition, our commercial banks all implement the transverse management system with branch banks as calculation principals, which is inconvenient for being controlled by board and is easy to be disturbed by external factors, causing the posterior shortage of risk evaluation, control and supervision to the banks.

4.4 In the aspect of risk management content, our commercial banks are introducing enterprise-wide risk management mechanism step by step. Based on the foundation with sole focus on credit risk management in the past, the systematic management of market risk and operational risk is emphasized as well. Meanwhile, they are also attempting to include reputation risk into risk management system. From the current status of risk management development, it still focuses on credit risk especially on credit loan risk management, and other risk management systems are still immature, especially that the enterprise-wide risk management system is still in the stage of presumption and introduction, which is a long way from actual realization of enterprise-wide risk management.

4.5 In the aspect of risk management culture, our commercial banks already have certain risk management culture consciousness, and realize that they need to create good risk management culture, to promote the risk management work of whole commercial banks. However, at present, our commercial banks still haven't formed advanced risk management culture. Risk management departments and business departments seldom eliminate the culture differences by communication, and the conflicts between foreground and background are always solved passively instead of being solved by communication. Some staff even hasn't combined the risk management concept with regular bank work, and they even put risk management in the opposite side of business. In the aspect of reward and punishment, our commercial banks have own reward and punishment system, but it cannot be used properly with the incomplete risk management system.

4.6 In the aspect of risk management technology, our commercial banks' risk management technology is in a stage of mainly being based on quantitative analysis, combining it with qualitative analysis, introducing advanced qualitative analysis technology. At present, risk management of commercial banks remain at the level of asset-debt indicator management and position management, and the content of risk management is still a simple management with proportions, by comparing some proportion indicators calculated with some static financial data, and the analysis method is mainly book value analysis method, instead of market value analysis method. The internationally popular quantitative and management method still stays in the stage of theoretical introduction stage, and the internal risk testing, evaluation and control system consistent with business nature, scale and complication degree of commercial banks has not been established. Meanwhile, professionals familiar with risk management theories and risk measurement technologies are in shortage, and thus it's difficult to use advanced technology to identify, measure and monitor all kinds of risks.

CONCLUSION

This paper presents a brief review of the world commercial bank development history, and introduces some commonly-used advanced risk management technologies. From the aspects of risk management concept, risk management mechanism, risk management organization setting, risk management content, risk management culture and risk management technology, this paper makes a summarization, analysis and comparison to the current status of world advanced ban risk management as well as that of Chinese commercial bank risk management. It is concluded that, along with the expansion and enriching of economic development and commercial banking operation, commercial bank risk management has been developed from single risk management development into the enterprise-wide risk management of all kinds of risks, and the risk management technology is developing from quantitative method into more precise and advance quantitative direction. The risk management content is richer and richer, and its technology is more and more complicated. Our country will introduce advanced risk management concept and technology step by step, to establish enterprise-wide risk management system.

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THE AUTHORS

Zhou Yunfeng, Feng Junwen, Li Xiaoyan:

School of Economics and Management, Nanjing University of Science and Technology, Nanjing, Jiangsu, 210094, China.

Email: lixiaoyansw@yahoo.com.cn