The Construction of Risk Management Control System for Commercial Banks: From the Perspective of the Management Team

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Risk management control (RMC) system is of vital importance to firms, especially the commercial banks. However, the existing models of risk management are always built from the perspective of financial regulators and neglect the practicability within the organization. In order to better facilitate the enterprise risk management (ERM), this paper is trying to construct a new framework of RMC system from the standpoint of the management team. The foundations of our design are COSO ERM report, as well as multi-disciplinary theories and methods, such as economy, psychology, and behavior. We establish a three-component RMC system for commercial banks, which include setting RMC standards, monitoring RMC execution, and rewarding results from standards execution. Then, we introduce an extended three-factor RMC system model. This system and its extended framework are meaningful and referential for both theory and practice of commercial banks’ risk management.

Keywords: commercial banks, risk management control (RMC) system, the components

Introduction

Risk management is pushed to the cusp due to the world financial crisis since 2008. Robert S. Kaplan, a Baker Foundation Professor of Harvard University, expressed concern about the firms’ ability to manage and control risk by comparing the 2007/08 risk management failures with those in the 1980s. In response to the deficiencies in financial regulation revealed by the late-2000s financial crisis, the third of the Basel Accords was developed by the Basel Committee on Banking Supervision. Basel III, which is based on Basel I and II, strengthens bank capital requirements and introduces new regulatory requirements on bank liquidity and bank leverage. However, scandals still come out one after another, leading to huge losses. Reviewing the big scandals, for example, the well-known bankruptcy of Barings International Bank and the rogue-trading scandal of UBS, we can find that the problems are similar: irregularities, illegal transactions, frauds, and so on. It seems that both the risk management of the banks and the monitoring of the regulatory authorities are ineffective. Therefore, how to build up an effective and efficient risk management control (RMC) system to improve core competence is a perennial subject of debate for the commercial banks.

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In such background, we determine our research topic. First, we discuss the definition of risk and the needs of a more scientific and operable RMC system from the standpoint of the management and the institution designer. Then, under the guidance of multi-disciplinary theories and methods, we construct a three-component RMC system and an extended RMC model, which can satisfy the risk management needs of commercial banks and guide the RMC practice. The rest of this paper is organized into five sections. In section two, we review the prior literatures on RMC system. The third section is an overview of our three-component RMC system. The commercial bank’s RMC system design is presented in section four and an extended framework is illustrated in section five. The final section provides a summary and conclusion.

**Literature Review**

**Risk and RMC**

Prior to the construction of our RMC system, the concept of risk should be clarified since it can be defined in many ways. From the perspective of the management team, we think that the most scientific definition of risk is stated in the Enterprise Risk Management-Integrated Framework (the ERM report) published by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in 2004. “An event is an incident or occurrence from internal or external sources that affects achievement of objectives. Events can have negative impact, positive impact, or both. Events with negative impact represent risks” (COSO, 2004, p. 2). Accordingly, we define risk as the possibility that an event will occur and adversely affect the achievement of objectives. This definition explicitly points out that the risk hampers the achievement of organizational objectives, which come from the organizational strategy. Therefore, if the objectives can be translated into management control standards, risk can be measured by the variance between standards and the actual results.

This definition not only points out that managing and controlling risk are aiming at ensuring the achievement of organizational objectives, but also indicates that the organizational objectives come from organizational strategy. That is, strategy is the fundamental of the RMC standards. However, it is never mentioned in other definitions of risk. For example, in financial risk management, the expected earning is always used as the RMC standard while nobody knows where the expectation comes from.

To sum up, RMC means designing an effective and efficient mechanism to minimize the variance between actual results and the expectations so that the organizational objectives can be achieved.

**Theoretical Development of RMC**

The theory of RMC involves both finance and accounting. As an independent discipline, risk management is an important research area in finance since the early 20th century. The economic boom of the world and the swift development of mathematics, computer science, and other nature sciences provide great impetus to the development of the risk management theory. However, in the classical textbooks, risk management is always defined as a process. Few take a holistic view of the enterprise risks, and they focus on developing the techniques of risk measurement. It is mainly due to the essence of finance, which is dealing with the tradeoff between risk and return. The Basel Capital Accord is the most important literature about the financial risk management, which represents the theoretic forefront. It emphasizes that the (core) capital adequacy ratio is the key index to measure the capacity of risk management in commercial banks. It holds the view that commercial banks should precisely measure multiple risks through improvement of risk measurement methods and make adequate risk provisions to cope with the risks.
In accounting, risk management is part of the internal control. The internal control derives from the internal check, which aims at preventing the financial cheating and fraud, and is an important research area in accounting. In recent years, the researchers begin to explore a more integrated framework to manage enterprise risks and the COSO frameworks of five components (COSO, 1992) and eight components (COSO, 2004) were developed.

Comparing the risk management research in finance and accounting, we find that the financial risk management emphasizes a precise measurement of risks and forming the result control standards, while the internal control researchers mainly focus on the process control. Researchers in the two areas both make contribution to the theoretic development of risk management. However, these studies have not been integrated to guide the practice of the ERM. Organizations, especially the commercial banks, still cannot build up an integrated RMC framework. Although the COSO framework is becoming more and more popular, and it is also the reference to Chinese regulators, it still has imperfection: It is designed from the standpoint of regulators (including the auditor) to emphasize the internal control system and its judgment, and ignores the practicability in the organizational view (The Research Team of the Internal Control Process Modification of ASIMCO Technologies, 2001). As a result, the theoretical framework cannot guide the organizations to manage their risks well. Besides, just as we discussed above, the RMC system is designed to ensure the achievement of organizational goals, which is not mentioned in the COSO ERM report. Obviously, the COSO framework cannot satisfy the need of the commercial banks. Therefore, it is worth exploring a scientific and practical RMC system from the standpoint of the management team for the commercial banks.

**Three-Component System of RMC**

According to the COSO report, there are four objectives of the RMC system for commercial banks, which include strategy, operations, reports, and compliance. The key point of designing the RMC system is ensuring the achievement of organizational objectives efficiently and effectively. Yu (2011) claimed that the mechanism design theory, SCI (i.e., information, cybernetics, and systematic theory), and incentive theory constitute the theoretical fundamentals of the RMC system design. The mechanism design theory calls for an effective and efficient system to ensure the information efficiency (information quality and quantity) and the incentive compatibility. The SCI focuses on the information efficiency, while the incentive theory focuses on the incentive compatibility. Together, they provide an integrate guidance of our three-component RMC system design.

The property of the RMC system depends on the components of the system. According to the cybernetics theory, the RMC system should have controlling standards and execute controls correspondingly. The realization of controls depends on the information feedbacks. These mean that the superiors need to do two things. The first is standard-setting, which demonstrates the demand of information. The second thing is monitoring the RMC execution, which ensures the information quality. In order to satisfy incentive compatibility, the RMC system should also reward the results from the standards execution, which can refer to the incentive theory. The keys of designing the incentive contract are: (1) make sure the personal objectives are in conformity with the organizational objectives; and (2) internalize the employees’ motivation so that they can adjust their behavior voluntarily and actively.

Therefore, an integrated RMC system for the commercial banks should include three components: (1) setting RMC standards, including strategy alignment, original standards determination, and the standards decomposition; (2) monitoring RMC execution, including measuring, comparing/analyzing, and designing the feedback reports; and (3) rewarding results from standards execution, which means deciding the reward resources and paying for the results.
The Components Design for Chinese Commercial Banks

Atkinson, Kaplan, Matsumura, and Young (2011) pointed out that there are two control modes: result control and task/process control. The RMC in commercial banks also includes the two modes, which must be considered adequately when designing the three-component RMC system for Chinese banks.

Setting RMC Standards

There are two modes of RMC, and accordingly, the RMC standards should also include result control standards and the task control standards. Both result control standards and task control standards come from the strategy of the commercial bank. As stated in COSO ERM report, the objectives of the commercial banks should also include four levels: strategic level, operations level, reports level, and the compliance level. The objectives can be translated into result control standards and the task control standards by balanced scorecard and business process improvement (BPI)/business process reengineering (BPR).

Setting the result control standards. The result control standards are the performance measurement system with the guidance of balanced scorecard principle and methods, including the financial measurements which are budgetary measurements or measurements prepared by budgeting, and non-financial measurements which contain customer, internal process, and learning and growth measurements. Because the commercial banks are highly regulated, the regulatory files should be considered first when establishing the performance measurement system.

The financial measurements. For the commercial banks, the compliance objectives must be achieved first of all, so the regulatory risk management measurements must be incorporated into financial measurements first. For Chinese commercial banks, the main references are two files published by the China Banking Regulatory Commission (CBRC): Commercial Banks Risk Supervision Core Indexes (Core Indexes) and Commercial Bank Supervision Rating Internal Guidance (Internal Guidance). The two files set two measurements systems and the computing methods of the capital adequacy and the risk come from the Basel Capital Accord.

The Core Indexes includes 22 quantitative measurements, which are categorized into risk level, risk migration, and risk compensation. The measurements of risk level are static measurements and can also be classified into four categories: liquidity risk measurements (including liquidity ratio, core liability ratio, and liquidity gap ratio), credit risk measurements (including non-performing assets rate, non-performing loan rate, a single group customer credit concentration, a single customer loan concentration, and the generalized correlation ratio), market risk measurements (including cumulative foreign exchange open positions and interest rate risk sensitivity), and operational risk measurement (including operational risk loss ratio). The risk migration measurements are dynamic measurements and can be classified into two categories: the normal loan migration rate (including the normal loan migration rate and the special-mentioned loan migration rate) and the bad loan migration rate (including subordinate loan migration rate and doubtful loan migration rate). The risk compensation measurements are classified into three categories: profitability measurements (including cost-to-income ratio, return on assets (ROA), and return on equity (ROE)), reserve adequacy measurements (including asset loss reserve adequacy ratio and the loan loss reserve adequacy ratio), and capital adequacy measurements (including core capital adequacy ratio and capital adequacy ratio).

Following the international CAMEL Rating System and considering the regulation practice of Chinese commercial banks, the Internal Guidance is designed to build up the CAMELS+ Rating System with Chinese characteristics. The system includes six aspects: the capital adequacy, asset quality, management, earnings,
liquidity, and market risk sensitivity, with both quantitative and qualitative measurements. The quantitative measurements include: capital adequacy ratio, core capital adequacy ratio, bad loan ratio, estimated loan loss ratio, a single customer credit concentration, the group customer loan concentration, provision coverage ratio, non-credit assets loss ratio, ROE, ROA, interest collection ratio, cost on assets, liquidity ratio, RMB excess reserve ratio, foreign exchange excess reserve ratio, the proportion of deposits and loans (domestic and foreign currency), the proportion of deposits and loans (foreign currency), and net lending and borrowing capital ratio.

Besides the above financial measurements, the commercial banks should set other key financial measurements on the basis of the strategy and the business focus. From the perspective of maximizing the shareholders’ value, there are some other financial measurements, such as scale measurements (including the assets, average deposit balance, revenue, revenue per person, intermediate business income, and so on), to evaluate the absolute value of asset, liability, income and revenue, growth measurements (including growth rate of assets, growth rate of revenue, growth rate of net income, and so on) to evaluate the growth ability of the bank, and some other typical financial measurements for banks such as net interest margin, economic capital (EC), economic value-added (EVA), risk adjusted return on capital (RAROC), and so on.

Obviously, the Basel Capital Accord is guiding the banks to measure the risk management result control standards precisely, especially to measure the risk levels and capital adequacy. However, the financial measurements are not enough for the whole RMC system building, and it is necessary to introduce non-financial measures which are the drivers of the financial measures to ensure the long-term organizational goals.

The non-financial measurements. As the principle of balanced scorecard, the measurements of customer, internal process and the growth and learning aspects are the drivers of the financial measurements and should be introduced into the measurement system as the strategic readiness. Some typical measurements of the customer level include: customer satisfaction, customer complaint ratio, customer retention, market share, customer penetration, and so on (Dutta & Manzoni, 1998).

In the internal process aspect, Kaplan and Norton (2004) classified the internal processes into four clusters: operations management, customer management, innovation, and regulatory and social. They figured out that the critical internal processes are strategic themes and important for value creation. For the commercial banks, the most important internal process is compliance management, and the measurements include internal control and compliance management assessment, internal audit assessment, swindle prevention control, construction of the party conduct and of an honest and clean government, and so on.

The measurements of the learning and growth include: corporate culture building, employees satisfaction, internal cooperation, team building, training, maintenance of the IT infrastructure, and so on.

Building up the result control standards system within the commercial banks. The above statements are about the result control standards for the whole bank, and it is necessary to set result control standards for all departments and employees. The bank-level measurements must be decomposed into all the members, all the units, and all the levels of the bank, so as to translate the strategy into the specific performance measurements. In this way, risk management and control can become the daily jobs of everyone. The effective and efficient translating tools are strategy map and balance scorecard introduced by Kaplan and Norton (1996; 2004). The strategy map helps to develop strategic themes so as to form key performance measurements to supplement the bank-level result control measurements.
Setting the process control standards. The process control standard is the internal control system, which covers the whole operation and management. There are a lot of internal processes, which are illustrated in the form of flow chart, words, and forms in the internal control policies. The policies of the internal control system have internal logic relations because of the processes. As a result, the policies are actually designed based on the ideas of processes. Each internal control policy should include the following components: the controlling objective, description of the process, description of the activities in the process, description of the risks in the activities, the controlling activities, the person in charge, and the documentation and forms. The controlling objective is derived from the decomposition of organizational objectives.

According to Harrington and Lomax (2000), a good internal control system should have four features: (1) effectiveness, which means that the internal control system should satisfy the needs of the users (including customers); (2) efficiency, which means that the allocation of the resources by the internal control system is efficient, including capital, human resource, time, and so on; (3) flexibility, which means that the internal control system would be adjusted when the external environment changes; and (4) operability, which means that the internal control system can really provide field guidance.

The theory of internal control emphasizes formal policy and procedures to execute internal control, which is reflected in the COSO reports. Obviously, compared with the theory of financial risk management, the theory of internal control guides the banks to set process control standards rather than the result control standards.

Monitoring RMC Execution

Both information theory and cybernetics imply that the information and control are integrated. The execution of control needs information and the control system runs in accordance with the running of information. The controllers pass information to those who are controlled by setting controlling standards; and those who are controlled pass information to the controllers when they are monitored. It is obvious that monitoring the control execution is realized by information feedback.

There are three ways to implement monitor mechanism. First, the information system can automatically monitor the users. On one hand, the management can get real-time information from the system. On the other hand, the monitoring equipment also plays an important role. The effectiveness and the efficiency of this way depend on the building of the information exchange platform. Second, the performance feedback report is the most important monitoring way, which includes four parts: measuring the performance variance, analysis of the variance, analysis of the responsibility to the variance, and suggestions on improvement actions. Third, the risk management functional departments and “three lines of defense” also play an important role in the monitor mechanism. The relating departments in Chinese commercial banks include risk management department, internal control and compliance department, and internal auditing department.

Rewarding Results From Standards Execution

The reward system includes two main parts: deciding the bonus-penalty resources and linking the performance evaluation results to the resources. The reward system can guide and adjust behavior of the employees when the personal objectives are not in accordance with the organizational objectives. The performance evaluation mainly considers the result standards, because the process standards execution results are actually included in the result standards.

When deciding the bonus-penalty resources, according to the Maslow’s hierarchy of needs, the resources should include not only material reward but also mental reward, such as promotion, training, and so on.
There are two key points when linking the result control standards to the bonus-penalty resources. Firstly, the weights of the financial indexes reflect the tradeoff between long-term objectives and short-term objectives. Excessive emphasis on financial indexes may cause short-term behaviors of the managers which go against the long-term performance of the company and lead to future risks. Secondly, the objectivity/transparency of the payments scheme of the bonus is also important. The objectivity/transparency refers to the bonus payments based on the formal performance evaluation results. The degree of objectivity/transparency depends on the subjective performance evaluation by the superior. When the subjective performance evaluation weighs too much, the subordinate may have negative emotions which go against the organizational objectives.

The Extended RMC System

The three-component RMC system neither includes the environment of the RMC nor incorporates the operational results of the system. However, in the previous literature such as COSO report, the control environment is incorporated into the RMC model. Actually, according to the behaviorism, the RMC system can be personified and extended into a system with antecedents and consequences. The behaviorism includes the classic behaviorism and intervening variable theory.

The classic behaviorism refers to the “stimulus-response” model proposed by the American psychologist Watson (1913). It shows that the human behavior depends on the environment, and it responds to the environment stimulus. According to classic behaviorism, we can get a “simply” extended RMC system model (see Figure 1). The system is composed of three parts, which include the environment factors of the RMC system, the RMC system, and the results of the RMC. In general, the environment factors include the internal environment factors (the attitude of the management, recognition of the employees, skills of the professionals, and the corporate culture) and external environment factors (economic mechanism, the markets, the technology development, and national culture). The system includes setting RMC standards (strategy alignment, deciding the overall standards, and decomposing the standards), monitoring RMC execution (measuring, comparing/analyzing, and designing the feedback report), and rewarding results from standards execution. The consequences of the system include economics consequences (the corporate profits, personal income), psychology consequences (personal satisfaction, company coordination), and sociology consequences (the distribution of powers, fairness). The model shows that the characteristics of the RMC system with its operation consequences are influenced by the environment.

However, in practice, RMC systems with the same characteristics may cause different consequences, which can be explained by the theory of the intervening variables proposed by the American psychologist Tolman (1951). The theory of the intervening variable indicates that the individual behavior is the compound function of the environment and the individual characteristics, which remedy the defects of the classic behaviorism that neglects the differences among the behavioral subjects. Accordingly, the environment factors also play an important role in the operation process of the RMC system. Then, we can get a more completed extended RMC system as shown in Figure 2.

Figure 2 shows that the RMC system operation process is influenced by the environment composed by the superior, the subordinate, the information producer, and the information processor.

The extended RMC system model contributes to the empirical research of RMC. With this model, when the system characteristic variables are decided, the relations and the impacting path of the environment variables, the characteristic variables, and the consequence variables can be explored.
Figure 1. The “simply” extended RMC system.

Figure 2. The extended RMC system.
Conclusions

The paper firstly discusses the definition of risk, briefly reviews the literature about RMC, and outlines the existing RMC system models, including COSO framework, which are always built from the perspective of financial regulator and neglect the practicability within the organization. Because of these, with the guidance of multi-disciplinary theories and methods, such as economy, psychology, and behavior, we establish an RMC system for commercial banks with three components: setting RMC standards, monitoring RMC execution, and rewarding results from standards execution. According to the regulatory files and the practice of the commercial banks, the paper illustrates the three components of the RMC system in detail and outlines the key points when designing the components of the RMC system for Chinese commercial banks, which promotes the risk management for the banks.

Moreover, on the basis of behaviorism in psychology, the paper extends the RMC system into a model consisting of antecedents, intermediates, and consequences, which is a good reference for the practice and research of an RMC system for commercial banks. The extended model makes sense in two aspects when optimizing the RMC system in commercial banks: first, the extended model shows that the system design is influenced by the macro environment and the characteristics of the commercial bank, which must be considered when designing the system; second, the management can improve the model when observing the results of the RMC system operation.

Besides the practical utility, the extended RMC system model also contributes to the theoretical development for the RMC, which can also be the empirical research framework. The model actually shows that the extended RMC system is constructed by three groups of variables, including the environment, system characteristics, and the consequence. The correlations and the impact pathways among the three groups of variables can be analyzed under the extended model.

References