

The Improvement of Accounting Information System Risk Management Based on Balanced Scorecard and REA Model

Han Yusheng

Qinghai Nationalities University, Xining, Qinghai, China

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Abstract: Accounting information system is the most important information system of enterprises. With the rapid advancement of information technology, the arrival of the network era has given a new meaning and vitality to accounting information systems. The establishment of accounting information system has brought huge advantages to enterprises, but it also bring certain risks to enterprises. Because of the introduction of information systems, the risks have new characteristics. Under such a competitive situation of survival of the fittest, risk management is the necessary condition for enterprises to achieve benign survival. Based on the balanced scorecard and REA model, this paper discusses the risks of accounting information systems and improves the risk management of accounting information systems.

1. Introduction

The rapid development of information technology has pushed human society into the era of knowledge economy from the era of industrial economy [1] [2]. In this context, as a "business language", accounting faces unprecedented challenges and challenges [3]. The development and application of information technology has continuously changed the role and content of accounting work [4].

As a downstream operation in the information value chain, the Balanced Scorecard can provide a performance evaluation framework for communication and measurement strategies as well as provide a basis for the design of system[5] [6]. The REA model is a database design conceptual model that provides database system and design tools for management accountants[7]. The combination of these two tools in the information system development and design phase can enable management accountants to play a new role in the field of information system[8] [9].

The risk management problem of accounting information system is a traditional but modern issue. The shortcoming of the internal control of traditional accounting information systems is that there is no organic integration of internal control processes and methods with information technology and the environment. The accounting information system has changed from the traditional model to the modern information model, but there follows the risk management problem. Based on the balanced scorecard and REA model, this paper explores the improvement of accounting information risk management.

2. Balanced scorecard and REA model

The Balanced Scorecard is known as the "Strategic Measurement System" and the "Comprehensive Performance Evaluation System", which was proposed by Kaplan and Norton in 1992 and has since been continuously enriched and refined[10]. From the perspective of conceptual design, the Balanced Scorecard can be used often as a performance evaluation framework[11]. Andy Neely et al pointed out that "there is no doubt that the Balanced Scorecard is one of the most widely recognized performance evaluation frameworks."

In essence, the Balanced Scorecard is a combination of a series of leading but backward performance evaluation indicators designed to reflect the company's strategy[12]. The basic principle is a "balanced" performance evaluation system should includes not only the backward indicators (financial indicators) that convey information about the company's past business

activities, but the leading indicators (non-financial indicators) that reflect the financial performance drivers. Therefore, the balanced scorecard is a combination of financial indicators and non-financial indicators. Non-financial indicators indicate the implementation process of the company's strategy, while financial indicators reflect the execution results of the company's strategy.

The REA model is a conceptual modeling tool that supports the design of information systems. The so-called conceptual model refers to a data model that reflects the real world situation in a highly abstract way. This model is machine-independent, and its description of the reality is easy to understand and explain. The REA model has many features that help it become an effective management accounting tool. First, it can reflect the duality of economic operations, that is, the inflow and outflow of resources, as effectively as “debits and credits” in the traditional accounting. In addition, it provides a conceptual framework for management accountants to help them summarize company characteristic and business activities, as well as design a database from a comprehensive perspective of the company to meet the needs of internal and external information users.

The main idea of the REA model is to model the important resources, events, participants and their interrelationships of the enterprise. The relevant content of all of business events of the enterprise is stored in the database based on its original semantics rather than the borrowing or loan form of human processing. The REA model is shown in Figure 1.

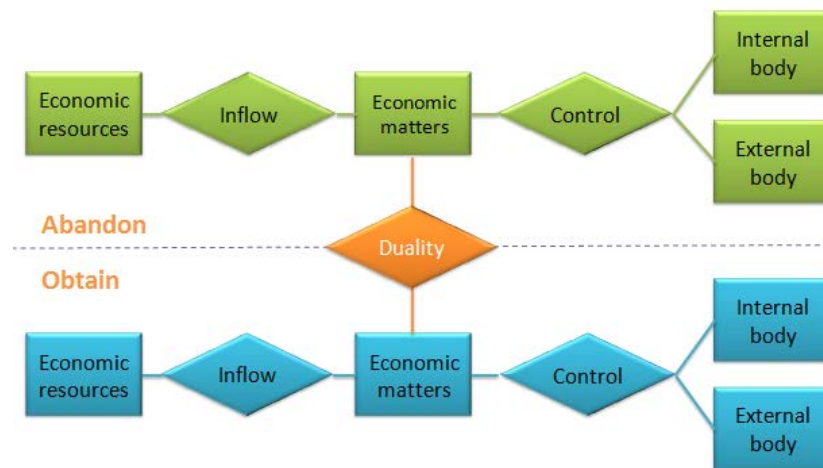


Figure 1. REA model

With the development of database, network technology and management science, scholars from various countries have also carried out a series of researches on the basis of the original REA. For example, Geerts & McCarthy [2] added the concept of operation to the REA model to form a REA model of the value chain and collect the organization. All events are related to business processes.

3. Improvement of Risk Management in Accounting Information System

The primary goal of accounting system security is to protect system resources from damage, replacement, theft, and loss. Specifically, the following security requirements should be met:

(1) Confidentiality. Confidential or sensitive data is kept secret during the process of storage, processing, and transmission, and is guaranteed to be accessible only after the user has authorized it.

(2) Integrity. The system ensures that the information in the system is in a complete and undamaged state, preventing tampering and corruption, as well as loss of information caused by unauthorized access, component failure, or other errors.

(3) Reliability. The support system provides a continuous and reliable service in a complex network environment.

The accounting information system belongs to a branch of the information management profession and is also a kind of computer information. The accounting information system can be developed on the basis of the computer network, the new research and processing of the file data of

various accounting types, so this is a simple, fast and efficient information.

The main factors affecting the risk control of enterprise accounting information system are the following three aspects: first, the importance of enterprises to the risk control of accounting information systems, second, the development process of enterprises, and third, the internal leadership style of enterprises. In other words, the leadership style, the development status of enterprises, and the importance that enterprises attach to the risk control of accounting information systems will play a decisive role in the risk control of corporate accounting information systems. Figure 2 shows the importance of accounting information systems in different periods of the enterprise.

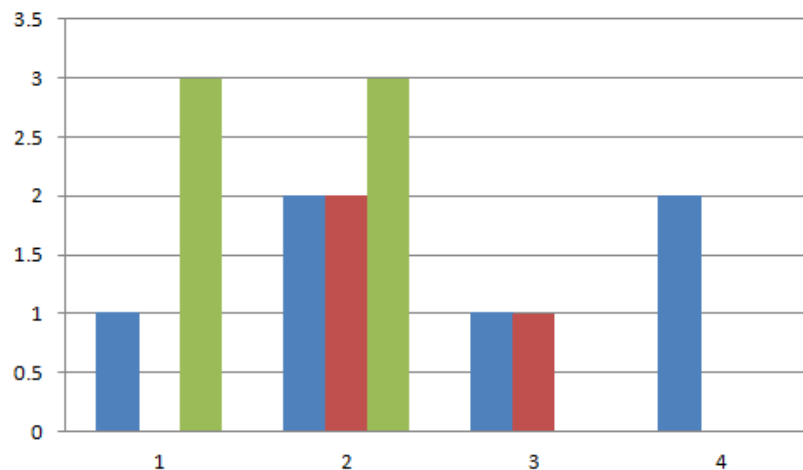


Figure 2. The importance of accounting information systems in different periods

It can be seen from the figure that enterprises in a stable development period pay more attention to the risk control of accounting information systems.

The enterprise risk control objectives mainly include the following three parts: First, reliability objectives. It can ensure the accuracy of financial accounting information, and various types of output information, so it can make property and materials complete and safe. Second, the efficiency goal. It can ensure the smooth implementation of relevant policies to improve efficiency of operation, and ultimately achieve the desired goals, which have a strategic significance in risk control. Third, legality objectives of the process of risk control implementation. It must be guaranteed to be in harmony with national laws and regulation to ensure the safety of its own laws and regulations. As a part of the enterprise, the accounting information system should support the enterprise, so it should be consistent with the objectives of its control, and further broaden on this basis. The accounting information system provides necessary information for the company to achieve its goals, so it is consistent with the long-term strategy of the company.

4. Conclusion

The development of information technology provides sufficient conditions for the development of accounting information systems with the REA model. With the development and maturity of network technology and database technology, the entire economic society will become a huge value network. REA accounting will become the mainstream form of accounting information system and enterprise information system design and application in the future. Risk management of accounting information system has also become an important issue. Based on the Balanced Scorecard and the EPA model, this paper improves the risk management of accounting information systems.

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