

Risk Control and System Paradigm of Nonlinear Financial System Based on Chaos Theory

Wenjun Shi^{a,*}, Yanfeng Ding, Qiaoling Chen, Guoliang Cai

Institute of Applied Mathematics, Zhengzhou Shengda University of Economics, Business&Management,
Zhengzhou, Henan, 451191, China

^a sdjxswj@126.com

*corresponding author

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Abstract: At present, financial risk events have multiple trends, multiple factors affect each other, and the disposal environment has undergone significant changes. However, because of the complexity of economic risk outbreak and development, the traditional management theory can not make satisfactory explanation and effective prediction of financial risk, and the conclusion of the research often deviates from the reality, which raises a major challenge to the traditional management theory, and also puts forward a severe test to the ability of financial risk management. Therefore, how to perfect the financial risk management system, promote the innovation of financial risk management, and better protect the property safety of the people is a major subject before us. Financial risk is a nonlinear and complex evolution process chaos theory is a new science to study nonlinear system and its evolution. The understanding of social phenomenon is different from the traditional science. Chaos theory reveals the inherent law of financial risk about complex phenomenon. This not only provides a new way for us to re-examine and respond to economic risk management, but also provides a new theoretical basis for us to construct a more scientific and reasonable economic risk management system.

1. Chaos Theory provides a New System Paradigm for Research on Financial Risk Management

It is urgent to establish a scientific financial risk management mechanism. This paper discusses chaos theory to provide a new system paradigm for the study of financial risk management, analyzes chaos theory and financial risk theory, examines financial risk management mechanism from the perspective of chaos, and puts forward ways to solve financial risk decision-making problems from the perspective of chaos.

It is of great theoretical and practical significance to use chaos theory to study economic risk and its management, and it is a new method of financial risk management, which is not only necessary but also feasible. The complexity of financial risk and financial risk management makes it more operable to develop economic risk management theory. Chaos theory holds that complex phenomena have simple and clear internal laws. According to chaos theory, complex financial risk has higher order, which strongly supports the development of economic risk management theory.

1.1. Chaos Theory Provides a New Systematic Research Paradigm for Financial Risk Management

The paradigm is the theoretical system of the hypothesis and facts of the research object, the hypothesis of the research object is different, the research result is also different, the financial risk management is a system engineering involving many fields, and the management of the financial risk from the point of view of the system is the inherent essential of the financial risk management. The study of financial risk management based on chaos theory has become the focus of modern managers. However, under the influence of the limitations of Newton's scientific paradigm and

research methods, it tends to a stable thinking paradigm of linearization, security, analyticality and strict logical analysis, which aims at achieving a stable balance. Although the system management theory developed on this basis plays an important role in promoting the development of management science and the practical application of management theory, it can not explain and solve many complex phenomena and problems well. The rapid development of complexity science provides a new theoretical framework for the transformation of system management savings. On the one hand, the human understanding of financial risk and the concept of financial risk management have gone through four important steps: fatalism and passive theory, empiricism and prudence, system theory and synthesis theory, essentialism and prevention theory.



Figure 1 Financial risk management

1.2. The Realistic Environment Needs New Social Management Theory

Although our country has certain financial management mode, on the whole, the government has not carried on the comprehensive and comprehensive management of the financial risk from the angle of system management, especially the early warning, prevention, disposal, management and understanding of the financial risk. Pay attention to the resolution of financial risk, ignore the early warning and reconstruction of financial risk, the mechanism is endless. In addition, there are still questions such as weak financial risk consciousness, low efficiency of financial resource allocation, low participation of social resources, uncoordinated management organization and system, and insufficient rescue ability. These problems are the important sources of frequent financial risk events and serious consequences. Therefore, it is very important and tight to understand the characteristics and causes of financial risk events, to study and explore the rules of financial risk management on this basis, and to improve the ability of financial risk management. Chaos theory is a new study of nonlinear systems and their evolution. The understanding of social phenomena is different from that of traditional subjects. Chaos theory holds that complexity has inherent regularity and provides strong theoretical support for exploring the leading factors and corresponding management methods of financial risk evolution.

2. Risk Control of Nonlinear Financial System Based on Chaos Theory

The combination of chaos theory and financial risk management is a new way to resolve financial risk. This is evident in the way financial risk is made. From the perspective of decision-making organization, we can solve the dilemma of financial risk decision-making, and take corresponding countermeasures for decision makers.



Figure 2 Financial system

2.1. Innovation in Financial Risk Decision-Making Organizations that Lack Flexibility in the Face of Environmental Change

If an organization wants to adapt to a complex environment, it must consider how to de-signal and reform the organization according to the principles of chaos theory. environment and its internal environment; develop in the direction that is most beneficial to the organization itself, and strengthen the self-organizing ability of the internal structure. Traditional financial risk decision-making organizations fail to meet the requirements of economic risk management decision-making organizations for the following reasons, the internal system is rigid, and the structure lacks flexibility. Nowadays financial institutions should do the following: first, rational and flexible allocation of power. Risk and local government appropriate decision-making power, improve their ability to participate in decision-making, clearly strengthen their macro-control role; secondly, the design of decision-making organization boundary should have certain confusion and flexibility, can better mobilize the enthusiasm and initiative of all aspects. adapt to the fragments of competition in the complex environment revealed by chaos theory. Third, regarding the establishment of decision-making bodies, there should be a flexible allocation mechanism for senior decision makers and professional technicians who are seriously deficient in financial risk decision-making.

2.2. To Improve the Financial Risk Decision-Making Model that Relies too Much on Rational Thinking

The sensitivity of chaos theory to the original environment to the financial risk decision-making and forecasting model which is too dependent on rationality. then input data to predict the relationship between the trend of financial risk and the situation; from the chaotic phenomenon, it can be seen that a rational decision model can accurately predict the existence of financial risk in a short period of time, but it can not be accurately predicted for a long time. Aiming at a large number of long-term financial risk events and complex overall factors, strengthen the subconscious, rational thinking and other irrational factors in the financial risk decision-making process of effective use and predictors. reflecting the characteristics of chaotic thinking, it influences the prediction from the decision maker's psychology and personality, so that we can understand the core of the event creatively in an instant, and get the correct decision order in the best decision.



Figure 3 Financial risk

2.3. Renewal of the Concept of Financial Risk Decision-Making Leadership that Separates the Whole From the Partial Relationship

Chaotic theory emphasizes that the system and all its properties can not be attributed to a single element. Therefore, under the overall macro-decision-making method, decision-makers should recognize the transnational nature of financial risk events from the strategic level, and pay attention to the prominent characteristics of financial risk, such as the increase of financial risk, the increase of financial risk events in complex societies. given that they should conduct a comprehensive and in-depth study of the financial risks associated with globalization and information. It is also necessary to know that all financial risks are gradual, fully taking into account the possible development direction of financial risks, and to prevent the spread of financial risks.

3. The Establishment of Chaotic Thinking and Innovation of Financial Risk Management

The Financial Risk Management System is a complex and chaotic system. Therefore, effective financial risk management for government departments and further management innovation need to be carried out from the following aspects:

3.1. Grasp Financial Risk Management With an Open and Innovative Vision

In order to solve the financial risk events scientifically, we must deal with the financial risk management from the angle of open innovation. To deal with financial risk from the angle of opening is to promote the development of financial risk management, and to learn the chaos of financial risk management in developed countries, because to improve the level and level of financial risk management in China and to innovate the perspective of financial risk management is to examine the chaos of financial risk management in China on the basis of the relevant experience from abroad, combining with the national conditions and reality in China, and finally to establish a way to deal with financial risk in China, and to realize the fundamental transformation from reducing paradigm to reducing paradigm.

3.2. Efforts to Build Responsive Financial Risk Management Models

Response frequency is an important part of financial risk management, traditional financial risk management model seldom considers the identity and feelings of customers or consumers. According to chaotic theory, financial risk management system is closely linked to other systems (such as economic system, political system, financial institutions, financial institutions, financial institutions, financial institutions, etc.). In the process of managing financial risk, the government can not only emphasize the rationality of human being, the death of personality, ignore the diversity of financial risk management, the singularity and availability of public products, but also regard the goal of financial risk management as a customer; Perfect flexible and diverse services, realize the transformation from simple linear production to comprehensive production based on chaotic characteristics, perfect the structure, and establish a financial risk management model.

4. Conclusions

Chaos theory and economic risk management have a high degree of internal consistency, it is very necessary and feasible to use chaos theory to solve the problem of financial risk management. At the same time, this study also provides a lot of new letters for the innovation of financial risk management. Financial risk management is controllable, and its random phenomenon accords with certain rules, which requires us to carry out financial risk management from the overall point of view of the system. Financial risk management theory is a new direction in the future.

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