On Early-Warning System for Chinese Real Estate

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Abstract

As the pillar industry in national economy, sound and stable development of real estate economy plays a significant role in a country's national economy. In this article, the definitions of real estate early-warning system made by domestic and foreign scholars, early-warning methods as well as the construction of early-warning index system are reviewed in details.

Keywords: Real estate, Early-warning system, Review

Introduction

Ever since 1990s in China, housing commercialization inspired by housing reform and accelerated urbanization process have greatly promoted the real estate industry to grow into the pillar industry of national economy. During the course, some problems such as imbalanced supplies and demands, inharmonious development of real estate economy and national economy have arisen. In order to regulate real estate economy, the government has taken some measures, including   encouraging real estate economy at the end of 2008, regulating and controlling real estate in 2009 and implementing more strict measures to regulate and control real estate after 2010. In order to scientifically predict the fluctuation trends at the real estate market, a scientific and perfect early-warning system should be established.

1. The Definition of Real Estate Early-Warning System

Risk warning begins in macro economy. The early-warning system for real estate, a branch of this field, is not as mature as the economic early-warning system. Therefore, a variety of opinions are claimed by different scholars, hence no mature and universal definition for real estate early-warning system.

Grecksch (1997): "real estate early-warning, belonging to economic early-warning system, refers to an analysis on the historical development of the real estate industry with the guidance of relevant scientific theories and economic operation rules. Generally, index systems are established and chosen to reveal the internal relationship between specific indexes and the general situation and specific characteristics of the real estate industry, to accurately judge the changes in its overall development and specific characteristics, to analyze potential problems and take countermeasures, to form correct prediction and evaluation on its future tendency and take relevant coordinative measures, hence promoting constant and sound development of this industry."

Yanbing Ye and Lieyun Ding (2001) define this term from the perspective of establishing an early-warning index system for the real estate industry. "Real estate early-warning system is to reveal the internal relationship between specific indexes and the general situation and specific characteristics of the real estate industry by selecting and establishing index systems, to enable supervision departments to form correct judgment on general economic development through their continual monitoring of some indexes and then to form reasonable prediction and evaluation on its future development based on the guidance of scientific theories, analysis on the historical development of this industry as well as the basic rules of economic operation in other industries, hence taking coordinative measures as early as possible, promoting constant and desirable development of industry economy to the largest degree and avoiding unfavorable situations or incidents.

Taking into consideration the above opinions as well as the reality of China' real estate early-warning, I define this term as: 1) applying and summarizing some basic rules for real estate economy by analyzing its historical development and referring to experiences from relevant or similar industries based on the theories of real estate economic cycle; 2) recognizing and revealing changes in the real estate industry based on selecting and establishing index systems; 3) predicting future development trends, providing reference for government's

actions to coordinate national economy industrial structure and to guide sound development of real estate industry by constantly monitoring relevant indexes, offering theoretical evidence for the establishment of relevant policies, fulfilling investors' and the public's demands for the general situation, internal structure and development of real estate, improving their decision accuracy degree on investment opportunity and structure, grasping investment opportunities and avoiding investment risks.

2. Macro-Control of Real Estate Early-Warning System

The macro-control of real estate early-warning system is reflected as follows:

2.1 Such a real estate early-warning system reflects the differences between prosperity and overall trends. The application of this system helps real estate administration departments to obtain valuable information on the development and structure of real estate, to learn about the ratio between real estate and macro economy. Effective allocation of rare resources must be formed in order to coordinate the industry structure of national economy and ensure the sound development of real estate. With such a system, central and local governments are able to take reasonable adjustments in regional structure by analyzing and comparing the development of real estate in different regions.

2.2 The early-warning system can inform investors of the general development and structure of the real estate industry, hence helping them to optimize their investment opportunity and structure. In addition, potential investors can learn about the development trends of real estate market and then seize opportunities while avoiding risks.

2.3 early-warning reports can offer optimized consultation for real estate agencies, hence improving the accuracy of consultants' judgment on the future development of the real estate market and their profit from agency services.

3. The Composition of Real Estate Early-Warning System

The real estate early-warning system is composed of emergency, source, factor, omen, range and degree.

3.1 Emergency

Emergency refers to what is to be monitored and reported, such as some unusual changes in the development of real estate.

3.2 Source

This refers to the source of emergency consisting of two aspects: entogenous source and ectogenous source. Entogenous source means the changes resulting from the organic combination of internal elements such as investment scale and structure as well as the level and structure of cost and supply; ectogenous source refers to the effect of interaction among some external factors such as macro-economy situations and policies closely related to real estate, nature, environment and so on.

3.3 Factor

This refers to one or more factors influencing the changes in emergency.

3.4 Omen

This means some indexes chosen in a certain way which best reflect emergent situations based on description and summery of emergency.

3.5 Range

Here this refers to the changing range of omen indexes.

3.6 Degree

This means the degree of emergency. The forecast of this aspect depends on a comprehensive calculation of many omen indexes, providing judgment on emergency and forecast of its seriousness.

The research thought of real estate early-warning system can be shown in Figure 1.

4. Research Methods for Real Estate Early-Warning

Haibing Gu (1993) thinks that the methods for economic early-warning can be divided into black early-warning, yellow early-warning, red early-warning, green early-warning and white early-warning.

Green early-warning gives warning signals according to the growth situation of factors; white early-warning refers to having prediction based on basic emergency with measurement techniques. Due to their special characteristics, these two methods are excluded in our study on early-warning methods for real estate.

4.1 Black Early-Warning

In this method, the fluctuation rule in the time sequence of emergency factors is employed to issue early-warning. This method has been employed by quite a few Chinese scholars such as Guozhao He (1996), Xiaoyu Wang (2000), Lieyun Ding (2003) and so on. Instead of omens, this method only takes in the fluctuation rule in the time sequence of emergency factors. Based on a comprehensive analysis, this method is not fit for real estate early-warning system. First of all, this specific early-warning system for real estate is a multi-index one intended to monitor and predict all indexes directly influencing real estate economy while black early-warning can only reflect early-warning factors. Second, black early-warning must be established on the time sequence of early-warning factors to judge the future development direction of real estate. Whereas, due to the short history of Chinese's real estate, China's real estate economy has no obvious regular fluctuations or no stable fluctuations in this limited period.

4.2 Red Early-Warning

This is a qualitative early-warning system to combine different predicators' and experts' knowledge and experience to form an overall analysis on favorable and unfavorable aspects influencing early-warning factors based on omens and a variety of social environment factors. Since the real estate early-warning system is intended to judge and monitor a series of quantitative indexes and to predict future trends, such a qualitative method doesn't seem desirable.

4.3 Yellow Early-Warning

This method, having early-warning according to omen indexes, can be divided into three types:

4.3.1 Index Early-Warning

In this method, the time difference among relevant economic variables is employed to reveal the trends of prosperity. Composition and diffusion indexes should be established to monitor and give early-warning on economic activities.

Diffusion Index (DI) basically regards the rising or declining movement of indexes as a process of prosperity's spread and filtration and controls general economic prosperity by combining them. This index can combine the fluctuation of different variables to reflect that of macro economy and turning points in economic cycles but cannot clearly show the degree of changes during the course.

In order to compensate for DI's shortcoming, Shiskin of U.S. Department of Commerce and Professor Mur in NBER compose Composite Index (CI) which is intended to show the degree of changes in prosperity with the combination of the change rate of different indexes sensitive to prosperity. CI can reflect the specific extent of economic fluctuations to a certain degree as well as predict the turning points in fluctuation.

Both Yunbin Liang (1995) and Xianzhen Yuan (1998) propose a basic idea about constructing early-warning report system and monitoring early-warning system. Both base their ideas on the theory of regular fluctuations to establish an index system for real estate prosperity to reflect such fluctuations from different perspectives and construct corresponding early-warning system, hence leading real estate to achieve rational development by correctly analyzing the operation track and predicting the future development of this industry. Jihong Huang, Zhanbo Lei and Chao Ling (2003) construct composition and spread indexes to monitor early-warning on economic operation. Taking inconsistent omens and unreliable emergency in the calculation of DI and CI, Bin Li, Lieyun Ding and Yanbing Ye (2003) improve traditional DI method, introduce the concept of accuracy comparison and choose more accurate indexes to have prosperity evaluation in order to eliminate the conflicts between the two indexes.

Index early-warning is fit for the prediction about whether macro national economy is prosperous or not while not so good for real estate early-warning system. First of all, this model is mainly determined by CI. Its rise or decline will lead to incomplete information. In fact, a variety of factors influence real estate economy with various effects and degrees. Although it can reflect the general tendency, CI may hide the abnormal fluctuations of some indexes. Second, index early-warning, based on CI, is lacking in monitoring analysis on individual indexes, hence likely to neglect some important indexes and hold up detecting the sources. Taking the above elements into consideration, we don't think this method is fit for real estate early-warning system.

4.3.2 Statistic Early Warning

In this method, changes in early-warning signs are employed to confirm early-warning level and analyze the early-warning degree of all indexes. Omen indexes are chosen first to confirm different warning grades according to relevant changes in these indexes and then form different degrees of comprehensive warning value

by confirming weight in accordance with importance.

Currently in China, some scholars have adopted this method in real estate early-warning research. For instance, Liming Zhao, Yongfei Jia and Weirong Qian (1999) propose a real estate early-warning system based on the statistic method which reveals both the fluctuation in economic activities and the comprehensive result of all indexes, monitors the fluctuation in both overall economic activities and individual indexes, hence confirming the goal and direction for real estate fluctuation coordination at the macro level. Lei Guo, Feng Wang and Changbin Liu (2003) monitor the development of Shenzhen's real estate, conduct a time different analysis on over ten selected indexes according to the theory of real estate regular fluctuations and monitor the operation track by combining individual indexes and comprehensive ones. Peng Hu, Changxue Yao and Shuping Zhong (2003) establish the sales rate as the standard circulation index and then get the indexes related to and prior to the standard circulation index through time difference analysis and then set up the real estate early-warning system.

4.3.3 Model Early-Warning

Based on statistic early-warning, model early-warning can be used to further analyze early-warning as a regression model. Lieyun Ding and Zeqing Xu (2000) take Wuhan as an example to introduce model establishment technology of computer information system into urban real estate economy early-warning. Lieyun Ding (2002) combines fuzzy system theory and neutral network theory and takes the influences of psychological elements on real estate market and takes popularity as input variable, hence making the early-warning model more practical. Staying at the preliminary stage of the research on monitoring and early-warning of real estate market, this method still needs to be improved in application.

Seen from the current research result, yellow early-warning is fit for the real estate industry since it can predict the grade of factors according to the grade of omens. However, statistic early-warning, with its clear logic and a combination of individual early-warning and multi-index early-warning, reveals the changes both in individual economic activities and in comprehensive emergencies. With the combination of pertinence and comprehensiveness, this method is more suitable for the early-warning research for real estate market.

5. Real Estate Emergency and Early-Warning Analysis

5.1 Real Estate Emergency

In accordance with the results of early-warning research, the warning zone can be divided into five categories: normal zone, hot zone, excessively hot zone, cold zone and excessively cold zone, which are expressed respectively by green light, yellow light, red light and bluish light and blue light, hence directly manifesting the early-warning condition of real estate.

5.2 Analysis on Real Estate Early-Warning

With the green light on, the real estate market is sound and stable in agreement with the credit growth rate in national economy; with less speculation, real estate prices climb stably. This is an ideal state for the operation of real estate. Government is expected to take measures to maintain such a stable growth.

Yellow light manifests relatively stable development with sort of hot growth. In a short term, this may develop into an excessively hot or stable growth. However, if the red light turns yellow, the real estate market cannot be further tightened; when the green light turns yellow, measures promoting growth cannot be adopted although those adopted in the green light period can remain unchanged. Meanwhile, future changes in real estate should be closely monitored to keep the market getting too hot. Red light refers to excessively hot real estate market where government and financial institutions must take precautious measures to cool down the market to the normal state.

Bluish light (cool zone) shows a real estate market remaining stable or in recession. When it turns green, the growth of real estate are relatively stable and measures can be taken to promote economic growth; when the green light turns bluish, measures should be taken to promote the development in real estate market.

If the bluish light turns blue, the real estate market hits rock bottom. It is high time that the government took effective measures to raise the growth rate of the real estate market.

6. Conclusion

The prediction and analysis of emergency is the purpose to establish real estate early-warning system. Since any industry cannot gain its development once separated from the general environment of national economy, our analysis and prediction of real estate warnings cannot be confined to the internal analysis on real estate economy but be spread to relevant fields as well as the general development of national economy.

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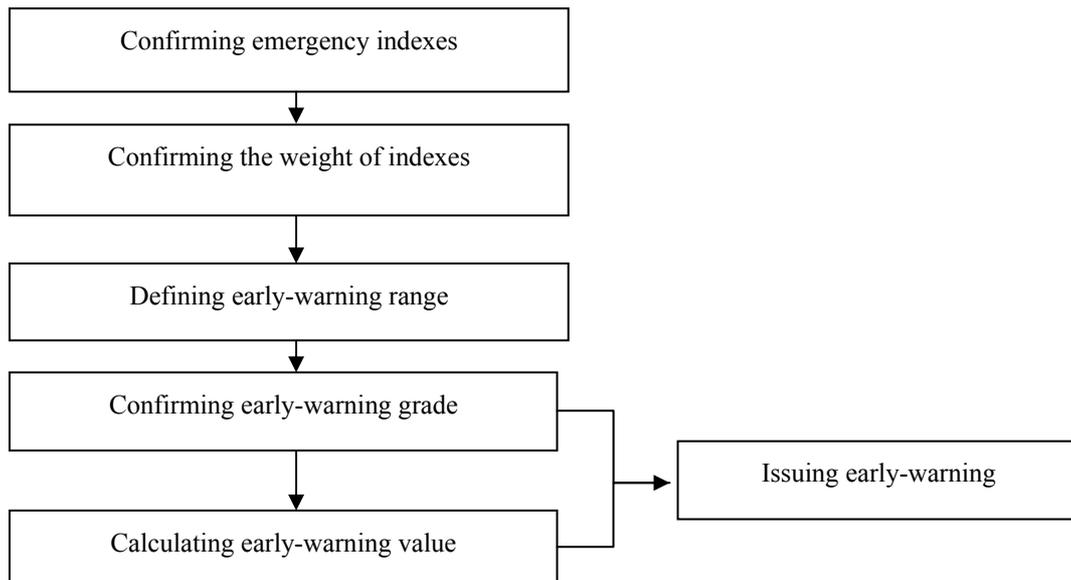Yuan, Xianzhen. (1998). Conception on Monitoring and Early-Warning System for Real Estate. *China Real Estate.*

Figure 1. Research Thought of Real Estate Early-Warning System