Financial Risk Assessment of Listed Enterprises in Marine Engineering Equipment Manufacturing Industry

Xiaolin Zhang

ABSTRACT

With the rapid development of the economy and the times, the marine engineering equipment manufacturing industry has become an inevitable trend of development. In particular, in terms of the economic management of enterprises, major enterprises have strengthened the speed of their marine engineering equipment manufacturing industry and development, which has provided the necessary prerequisites for further development of the economy of the enterprises. First, the economic management of the marine engineering equipment manufacturing industry of enterprises is analyzed. In accordance with the problem of the economic management circulation and its timeliness, the marine engineering equipment manufacturing industry is used to carry out analysis on the whole process. In addition, the preemptive earliest deadline first scheduling algorithm is combined to optimize the deadline for economic management, response time, and so on in a dynamic manner. Finally, in view of the financial risk assessment of listed enterprises, experimental comparison and analysis are carried out. On this basis, the suggestion for effectively obtaining user demand and reducing time cost is put forward to the enterprises.

ADDITIONAL INDEX WORDS: Response time, economic management of enterprises, innovation strategy.

INTRODUCTION

The financial risk assessment of listed enterprises is a new fusion method that is established on the basis of information exchange and integration (Abaei et al., 2018). It not only can integrate the data information of enterprises, but also can integrate the technology, experience, and even economic management and team culture that are preserved in the organizations (Hu et al., 2007; Luo et al., 2014). From the perspective of high-level economic management services, the financial risk assessment of listed enterprises has gradually become an important means of eliminating redundant and worthless information in economic management engineering (Faghih-Roohi, Xie, and Ng, 2014). In particular, for regional enterprises, the performance of their corporate financial risk assessment of listed enterprises process is presented as promoting the organic integration of various internal and external management of the enterprise organization across time and space through learning, introduction, extraction, and transmission, so as to form a circular flow state of fresh economic management in accordance with certain rules or process requirements. Hence, the analysis of economic management innovation for multiple innovation subjects is the key to improving the quality of decision making and enhancing the core competitiveness. From the perspective of organizational collaborative innovation, the successful completion of the financial risk assessment of listed enterprises process relies on the integration innovation system of the enterprises to provide a stable and suitable external environment. Therefore, it is particularly important to reconstruct economic management from the chaotic state to the orderly stratification that is characterized by the correction of the enterprise connection relationship. As a research trend, the quality in the completion of the financial risk assessment of listed enterprises has determined the level of economic management flow optimization of the enterprises and the efficiency of regional innovation improvement (Jin et al., 2015).

The whole process of economic management innovation of enterprises is analyzed in this paper by using the marine engineering equipment manufacturing industry. In addition, the earliest deadline first (EDF) scheduling algorithm is combined to carry out real-time scheduling modification and simulation experiments on the economic management deadlines and response times with the clock constraints, so as to achieve the goals of reducing the time cost of economic management innovation, improving customer satisfaction, and further promoting the economic management of enterprises for comprehensive improvement in innovation intensity.

TREND AND STRUCTURAL CHARACTERISTICS OF FINANCIAL RISK ASSESSMENT OF LISTED ENTERPRISES

Self-Organizational Stratification and Reconstruction

In the process of the financial risk assessment of listed enterprises, the economic management attribute, the profit tendency, and the goal of innovation income owned by the enterprise entity have determined the scale of the network enterprise economic management innovation and the law of
self-organizing evolution and reconstruction. To represent the hierarchical structure model for the economic management new strategy system of the enterprises, three enterprise-connected local subsystems E, F, and G and a common affiliate enterprise D (regional core research and development institution) that provides them with the innovative economic management sources can be established, as shown in Figure 1 as the following: E, F, and G all contain different functional enterprises such as the enterprises with the economic management absorption conversion function, learning and digestion function, transmission and economic management application service function, and so on. Among them, enterprises e1, f1, and g1 stand for the core enterprises of each subsystem and undertake the task of absorbing and transforming the innovative economic management obtained from the research and development. In addition, they are at the first level of the subsystem. Guided by core enterprises, each enterprise relies on its own division of task and resource endowment characteristics in the economic management innovation analysis, and integrates economic management integration and innovation layer by layer in terms of the innovation factor input, economic management technology exchange, and gap economic management services. In this way, the financial risk assessment of listed enterprises will be maintained in an orderly and stable state. However, because of the influence of various distributed heterogeneous economic management innovation requirements and time cost, the economic management flow state transition of the aforementioned enterprises will be subject to dynamic adjustment and changes.

Characteristics

In the enterprises, to meet their own economic management innovation and innovation communication needs, each functional enterprise seeks to establish a strong economic and weak communication relationship by entering into strong or weak connection with the other enterprises. In terms of the internal subsystem E in Figure 1, the core enterprise e1 at the first level absorbs the innovation research and development economic management of the transformation-related innovation enterprise D; the economic management learning digestive enterprises e2 and e3 are controlled by the enterprise e1 at the same level, and they make up for their own gaps and undertake the intermediary transfer tasks by leaning and digesting the innovation economic management in e1. The economic management application service enterprises e4, e5, e6, and e7 are located in the second level of E and are controlled by the upstream enterprise e8 to carry out the service innovation activities. It is assumed that when the associated core enterprise e4 between the two levels collects the economic management innovations generated by the second level, it will send a unified economic management demand signal to the upstream enterprises. If the economic management stored in e2 can meet the demand, the corresponding economic management will be transferred downward in a timely manner; otherwise, this economic management demand signal will be transmitted layer by layer and searching for innovative economic management that meets the requirements will be carried out until the core research and development institution D is identified; the enterprise D carries out economic management research, development, and processing in accordance with the gap demand of feedback. At this point, D should be required to feed back the innovation economic management developed to the demanding enterprises at the first moment to further carry out step-by-step screening and distribution. It can be seen that the process of making up for the economic management innovation is to complete the innovation economic management innovation step by step. In addition, the communication task has the characteristics of dynamic variability, hierarchy, analysis, and timeliness (Zhang et al., 2014).

Generally speaking, financial risk assessment of listed enterprises is dynamic and changeable with the changes in the collaborative innovation environment of the enterprises. In addition, the innovation environment is restricted by financial risk assessment of listed enterprises, although the analysis and time dimension constraints involved in economic management innovation are more noteworthy. In the process of response to market demand, the effectiveness of economic management elements is declining, the feedback of economic management innovation demand is lagging behind, and there is lack of timeliness in the economic management implementation.

ECONOMIC MANAGEMENT OF ENTERPRISES BASED ON THE MARINE ENGINEERING EQUIPMENT MANUFACTURING INDUSTRY

In the marine engineering equipment manufacturing industry environment, clock constraint is the main factor considered in the innovation of enterprise economic management. Therefore, each time the economic management innovation occurs in the system, a clock constraint is associated. The formalized feature of this clock constraint is shown as the following: For a finite set of clock variables, the syntax of the set of clock constraints is \[ H := x - c \leq y - c = h_1 \land h_2 \text{true} \], in which \( b(c, \leq, \neq, >, \geq) \). In addition, when the clock interpretation meets the clock constraint \( h \), it is denoted as \( v \models h \). In economic management innovation, the clock variable can be reset to zero simultaneously with the transformation of the enterprise economic management innovation. The formal interpretation of the enterprise economic management exchange conversion clock variable is as the following: An interpretation of the clock on the set \( X \) of clock variables is a mapping \( v : X \rightarrow T \) that assigns a time value to each clock. The sets of all the interpretations with the clock on the \( X \) is \( T^X \). Let \( t \in T \), and

Figure 1. Diagram of economic management innovation in the enterprises.

Journal of Coastal Research, Special Issue No. 98, 2019
the clock interpretation \( v + t \) is defined as \( (v + t)(x) = v(x) + t \), in which \( \forall x \in X \). When \( |X| = n \), the interpretation of the clock can use the symbol \( (T_i)_{1 \leq i \leq n} \) to indicate \( v(X_i) = T_i \). For a subset \( \lambda \) of the \( X \), \( (\lambda - 0)v \) is used to stand for such clock interpretation; for each \( x \in \lambda \), \( ((\lambda - 0)v)(x) = 0 \). In addition, and for each \( x \in X / \lambda \), \( ((\lambda - 0)v)(x) = v(x) \).

When the system performs economic management, each time the enterprise has a clock-constrained economic management innovation process, a simple multichannel constraint fuzzy model submodel can be formed. In this model environment, the operational form of enterprise economic management can be described by a sextuple \( [L, L_0, E, X, I, E] \) in the marine engineering equipment manufacturing industry. In the model, \( L \) stands for a set of the economic management innovations (locations) that are finite; \( L_0 \subseteq L \) stands for a set of the initial economic management innovation (location) in the economic management; the set of finite tokens (input alphabets) on the economic management innovation events is denoted by \( E \); \( X \) stands for a set of the finite clock variables; \( I \) stands for a mapping that designates a time constraint in the \( H(X) \) for each economic management innovation designation; \( E \subseteq L \times E \times H(X) \times 2^L \times L \) stands for an economic management innovation event.

ANALYSIS OF THE ECONOMIC MANAGEMENT INNOVATION IN THE MARINE ENGINEERING EQUIPMENT MANUFACTURING INDUSTRY

From the marine engineering equipment manufacturing industry of the enterprise, a variety of economic management clock constraints have been derived. If the economic management is not completed within the specified time constraints, it will result in a lack of enterprise economic management innovation, a reduction in the time value of regional innovation economic management, and so on. Even if the economic management is completed just within the deadline, there is still room to further optimize and shorten the response time of the task. Therefore, a real-time dynamic scheduling strategy must be adopted for economic management in the model to modify and reduce the response time of the task as much as possible. EDF is a typical preemptive dynamic priority scheduling algorithm that assigns the priority of a task in accordance with the deadline of the real-time task release; hence the task with the earliest deadline has the highest priority. The priority of the preemptive EDF scheduling task is changed over time. For each schedulable time, the order in which the real-time periodic tasks are scheduled will be dynamically adjusted in accordance with its earliest deadline.

For the real-time scheduling and optimization of the economic management set, it is necessary to determine the execution order of each economic management task under the premise of meeting the clock constraints of each task, while endeavoring to ensure that all the tasks can be scheduled within the shortest response time. It has been proven in the real-time task sets (including the periodic and acyclic tasks) with arbitrary release time, execution time, and deadlines.

When the preemptive EDF algorithm is used to schedule the economic management, to simplify the complexity of the algorithm, the aforementioned three tasks can be converted into the preemptive synchronous periodic tasks, that is, \( f_1, f_2, f_3 \), in the second frame respectively, and their periods are \( T_1, T_2, T_3 \), respectively. Hence, the real-time scheduling optimization can be carried out in accordance with the deadline for the release of the tasks.

SIMULATION COMPARISON ANALYSIS

Through the research on the financial risk assessment of listed enterprises based on the fusion marine engineering equipment manufacturing industry, it can be concluded that there are a total of 72 economic management innovation tasks in this system that are analyzed as a set \( f \) of the economic management set in the simulation experiment (Gibbs and Browman, 2015). It is assumed that the period value of each task is limited to an integer from 1 to 500. The above analysis method for the changes is used to calculate the minimum deadline \( D_{\text{min}} \) for each task and obtain the maximum deadline shrinkage factor \( T \), for a single task at the same time, the comprehensive critical shrinkage factor \( T_{\text{max}} \) for the deadline of the task set, as well as the economic management innovation rate of the enterprises. Therefore, through the application of the MATLAB programming tools, simulation and analysis are carried out on these 72 economic management parameters to obtain the comparison relationship between \( T_{\text{max}} \) and the economic management innovation rate of the enterprises.

From the analysis, it can be known that the comprehensive critical contraction factor of the economic management set in the enterprises is constantly increasing with the increase in the economic management innovation rate of the enterprises. Before the enterprise economic management innovation rate is up to 85%, the increase range of \( T_{\text{max}} \) accordingly is relatively mild, whereas after the utilization rate is up to 85%, the increase range of \( T_{\text{max}} \) has a transitional change. When the utilization rate is 100%, \( T_{\text{max}} \) is equal to 1, and the scheduling modification for the economic management deadline is not successful. In accordance with the gradual change trend in the slope of this curve, it can be roughly determined that the point of inflection where the economic management innovation rate of the economic management scheduling effect is in the optimal state is at 80–85%. When the enterprise economic management innovation rate is greater than 85%, the increasing trend of \( T_{\text{max}} \) becomes steep, and the room for the modification and shortening of the corresponding task deadline becomes smaller (that is, \( D_{\text{min}} \) is getting closer and closer to the initial value), so that it is impossible to carry out optimization and regulation on the time cost of the economic management.

CONCLUSIONS

The basic goal of the financial risk assessment of listed enterprises is to provide the enterprises with multiple connections with the management model they require, so as to help them continue to enhance their core competitiveness. However, the design process of the financial risk assessment of listed enterprises needs to be based on the orderly and nonredundant network connection structure as the premise. Hence, through the self-organization reconstruction method, the regional financial risk assessment of listed enterprises is upgraded into a kind of enterprise management model that is conducive to the economic management exchange and innova-
tion. In such enterprises, the marine engineering equipment manufacturing industry is used to carry out analysis and modeling control on the time-dimension constraints of the economic management innovation compensation process of the enterprises. However, through the simple modeling process, it does not necessarily guarantee the high quality and timeliness for the completion of the tasks. In this this paper, the preemptive EDF scheduling algorithm is used to carry out global scheduling on the economic management of the enterprises, which not only can meet the needs of the innovative economic management in the enterprises but also can reduce the response time of the tasks as much as possible, so as to improve the innovation efficiency of the company.

ACKNOWLEDGMENTS

This work was supported by National Social Science Fund’s general project “Theoretical and Empirical Research on Decentralization Reform, Control Rights Allocation and CEO Corruption Governance in Corporate Mergers and Acquisitions” (17BGL060), thanks to the Xi’an University of Science and Technology Doctoral Startup Gold Project Grant (6310118042).

LITERATURE CITED


