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Research on Financial Risk Management for Electric Power
Enterprises

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Abstract

Primarily this paper emphasizes the importance and standard process of financial risk engineering for electric power enterprises, and then identifies the risks which are most likely to occur in business activities. In addition, this paper established an index system for financial risks. Taking Linfen Power Supply Company as an example, this paper analyses its financial status, and discovers two key issues in its business activities. Finally some proposals are provided to handle these problems.

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Introduction

The electric power enterprises play a significant role in not only the state economy security but also people's daily life and the stability of the society. Once electric power enterprises are in financial crisis, the entire economic will be in dilemma. Therefore, it is important to monitor the electric industry, analyze and evaluate its financial status, and use financial risk engineering to quantify the operational financial risks brought by the environment in order to effectively avoid the financial risks^[1].

The financial risk is the probability of loss inherent in financing methods which may impair the ability to provide adequate return. The risk management of electric power enterprises complies with the general risk management process, including financial risk identification, financial risk measurement, and financial risk control.

The financial risk management processes of electric power enterprises are as below:

- Financial risk identification

Financial risk identification refers to distinguishing risk events and discovering potential causes before risk occurs. It is a key element in risk management.

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- Financial risk measurement

Financial risk measurement makes use of various prototypes or methods to quantify the financial risks, which provides accurate data to prevent and control financial risks.

- Financial risk control

On the basis of the financial risk measurement, financial risk control means to take appropriate strategies and preventions to mitigate and transfer risks.

Financial risk Identification

Financial risk identification for electric power enterprise

- Policy risks

Policy risks are the risks arise from the government's financial policies which are related to the enterprise operation activities. Electric power enterprises as the giant state-owned enterprises, their operation and development are seriously affected by the government policies. Moreover, considering social responsibilities, electric power enterprises inevitably face policy risks^[2].

- Investing and financing risks

As the basis of national economy, electric power enterprises should carry out large scale investment of fundamental construction which is required by the policies. However, in their business operation, risks may be high if the enterprises don't take careful consideration of fair return, in time and stable return of investment^[2].

- Informatization risks

As the power market is continuing to be deeply reformed and the development of commercial market, the State Grid has started "SG186" project which puts ERP system into use as its core part and changes financial management pattern of electric power enterprises. Therefore, planning and constructing the ERP system will play a key role in financial risks management for electric power enterprises.

- Nature risks

Nature risks refer to those risks caused by natural force which occur in commercial, productive and living activities, such as earthquake, tsunami and so on.

Causes of financial risks in electric power enterprise

Financial risks result from various factors which are mainly divided into following categories^{[3][4]}:

- Changing macro-economic atmosphere;
- Lack of risk awareness;
- Poor policy-making caused by unscientific method;
- Complicated internal financial relationship

Financial risk measurement

Financial risk index system

Financial risk measurement means to evaluate and quantify the effect and consequence of financial risks. This paper chooses 10 indexes to establish the system. Figure 1 shows the structure of this index system^[5].

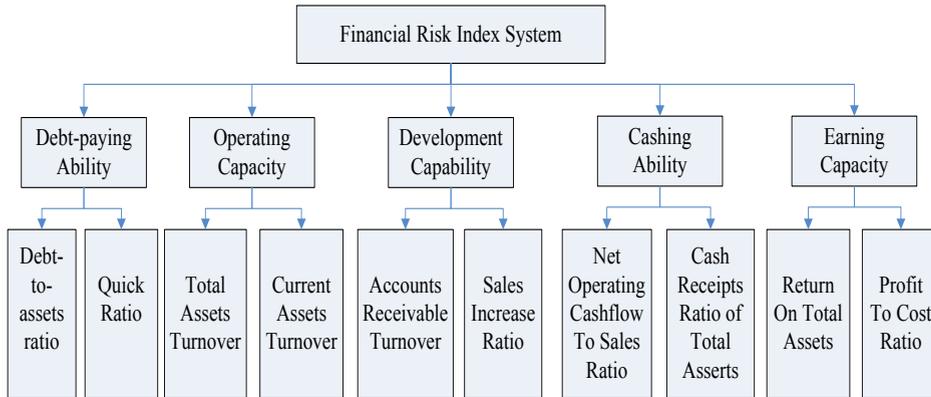


Fig. 1. Structure of financial risk index system

In the following parts, Linfen Power Supply Company’s data is used to analyze its financial status, and the results are shown in table 1.

Table 1. Result of financial status of Linfen power Supply Company

First Level	Second Level	unit	2008	2009
Debt-paying Ability	Debt-to-assets Ratio	%	100	100
	Quick Ratio	%	3.6	9.8
Operating Capacity	Total Assets Turnover	time	1.18	1.19
	Current Asset Turnover	time	149.52	371.82
	Accounts Receivable Turnover	time	342.25	1312.41
Development Capability	Sales Increase Ratio	%	-0.97	8.32
Cashing Ability	Net Operating Cashflow To Sales Ratio	%	0.60	-1.05
	Cash Receipts Ratio of Total Assets	%	0.73	-1.35
Earning Capacity	Return On Total Assets	%	80.87	82.35
	Profit To Cost Ratio	%	218.09	224.35

Debt-paying ability analysis

Figure 2 illustrates the change of debt-to-assets ratio and quick ratio from 2008 to 2009. Debt-to-assets ratio remains 100% over two years. Appropriate debt-to-assets ratio will stimulate the development of enterprises, while the exorbitant ratio will weaken debt-paying ability. When it achieves or supasses 100%, financial risk probably appears. The value of debt-to-assets ratio implies vulnerability of Linfen Power Supply Company in debt-paying. In this figure, we can also find out that quick ratio doubled from

2008 to 2009, which indicates the improvement of Linfen Power Supply Company in debt-paying. However, the value of quick ratio is far below normal, around 100%.

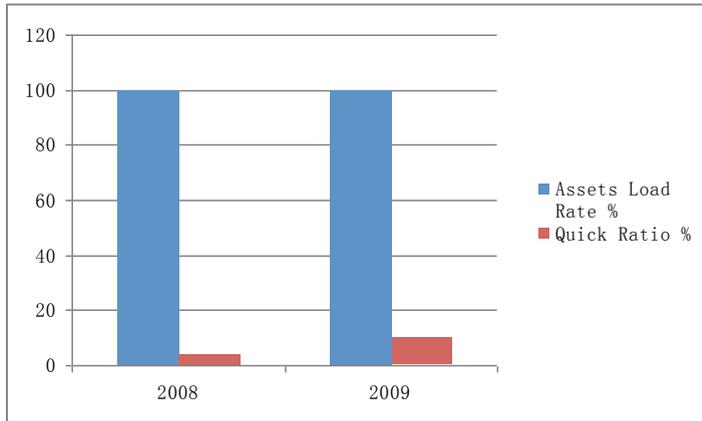


Fig. 2. Debt-paying ability analysis

Operating capacity analysis

As shown in figure 3, total assets turnover increased 0.01 from 2008 to 2009. From the standpoint of input-output, the enhancement of total assets turnover suggests higher efficiency in making profit in case of using the same quantity of assets. Compared with total assets turnover, current assets turnover ascended more sharply, which increased to 371.82 from 2008 to 2009. The growth rate was running at 148.7%. From the standpoint of accounts receivable turnover, the value increased from 342.25 to 1312.41 with net growth achieving 970.16, which implies the remarkable enhancement in efficiency of managing the accounts receivables.

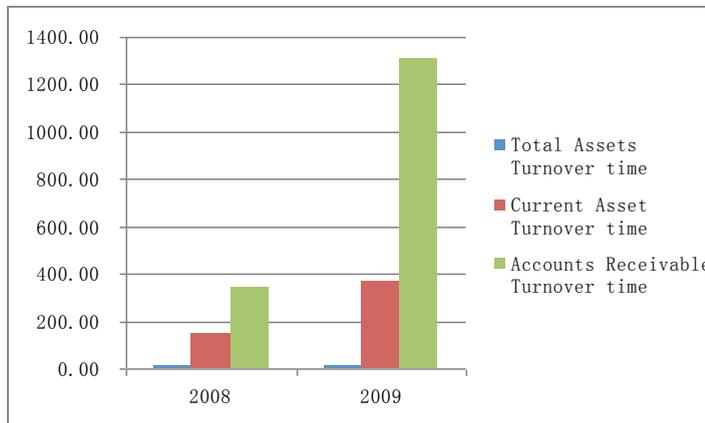


Fig. 3. Operating capacity analysis

Development capability analysis

As a result of financial crisis in 2008, sales revenue declined 0.97%, and sales increase ratio appeared minus. As financial economic environment improved in 2009, sales revenue increased from 3970.92

million to 4301.4 million, rising by 8.3% year-on-year. Figures mentioned above suggest that sales revenue will be affected strikingly by macro-economy atmosphere.

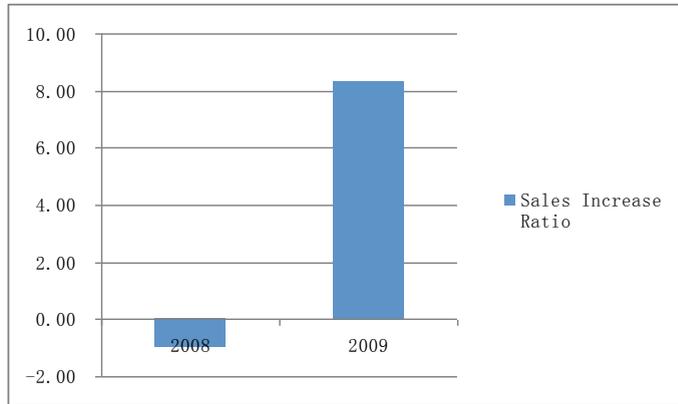


Fig. 4. Development capability analysis

Cashing ability analysis

Net operating cashflow to sales ratio reflects net cash amount exchanged by unit sale. As shown in figure 5, net operating cashflow to sales ratio lowered 1.65% from 0.6% in 2008 to -1.05% in 2009, which indicates the delay of cash recycling and reduction in cashing ability. Figure 5 also describes the decrease of cash receipts ratio of total assets, from 0.73% in 2008 to -1.35% in 2009, dropping by 2.09% year-on-year. Author Artwork

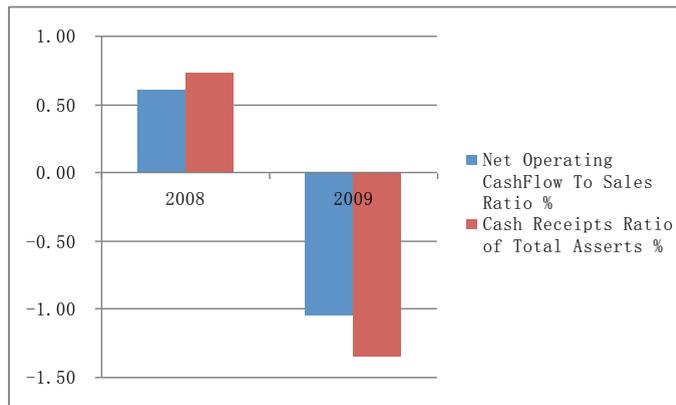


Fig. 5. Cashing ability analysis

Earning capacity analysis

In figure 6, it is demonstrated that both return on total assets and profit to cost ratio rose marginally from 2008 to 2009. The Increase of these two indexes helps to make more profit using the same quantity of assets.

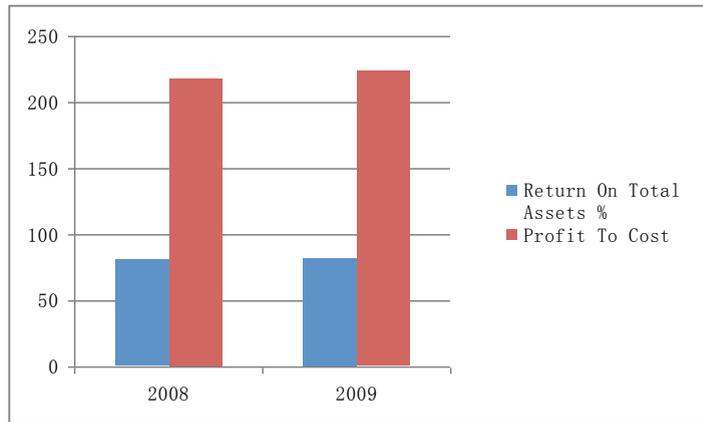


Fig. 6. Earning capacity analysis

Financial risk control

By summarizing above five kinds of analysis , two main problems are discovered:

- High debt rate may result in difficulties in paying off debts and refinancing.
- Decrease of operating cash flows may cause reduction of cashing ability.

In order to deal with these problems, preventions and control strategies, including risk retention, risk averse, risk restraint, risk diversification and risk deflection, are supposed to be taken based on above analysis . Some preventions and control strategies which may help electric power enterprises to control financial risks efficiently are as follows^[4]:

- Exploring new methods for electricity charge recycling and prevent payment risks caused by disability to recycling electricity charge.
- Ascertaining the goal of financial risk management and preventing risks of natural disaster effectively.
- Perfecting decision-making system of investment to control investing risks..

Conclusion

We describe the standard process of financial risk management of electric power enterprises in this paper. Besides, Linfen Power Supply Company is an example for discussing and analyzing financial status of electric power company, and some shortcomings in commercial activities are discovered. Some suggestions are also given to dealwith those problems.

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