

# The Construction of Evaluation Index System for Financial Management of Coal Enterprises

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**Abstract**—This paper briefly discusses the construction principles and basis of evaluation index system for financial management of coal enterprises, and deeply explores the detailed design and model construction of the system, hoping to bring some inspiration to the relevant industry insiders.

**Keywords**—coal enterprises; evaluation index system of financial management; maturity

## I. INTRODUCTION

### A. Construction Principles

In the construction of the evaluation index system for financial management of coal enterprises, we should clearly distinguish the financial management ability from the financial ability in terms of the financial management ability of coal enterprises, and recognize the close relationship between the enterprise financial management ability and the financial management environment and strategies. To ensure the scientificity and operability of the system, the construction of evaluation index system for financial management of coal enterprises should follow the operability principle, comparability principle, dynamic principle, scientific principle, systematic principle and materiality principle. The concise and efficient system, and real and effective results can be better guaranteed.

### B. Construction Basis

We should regard the financial management framework and the key process of financial management as the basis in the construction of the evaluation index system for financial management of coal enterprises. The key processes of basic support conditions are: “talents and employees → financial organization management → policies and procedures → systems and information tools”. The key processes of value driver factors are: “financial planning and execution → performance and decisions → transaction processing → closing, consolidation and reporting → capital and risk → compliance, control and enterprise governance” [1].

## II. DETAILED DESIGN AND MODEL CONSTRUCTION OF EVALUATION INDEX SYSTEM FOR FINANCIAL MANAGEMENT

### A. Detailed Design

Based on the above analysis, this paper designs the evaluation index table for financial management of coal enterprises as shown in "Table I". It is not difficult to find that the evaluation index system for financial management of coal enterprises studied in this paper is composed of 10 first-grade indexes and 40 second-grade indexes.

TABLE I. EVALUATION INDEX TABLE FOR FINANCIAL MANAGEMENT OF COAL ENTERPRISES

First-grade Indexes	Second-grade Indexes
C1 financial planning and execution	C11 supporting conditions, C12 planning implementation and review, C13 planning making, C14 planning environment analysis;
C2 performance and decisions	C21 budget, C22 financial analysis, C23 cost management;
C3 transaction processing	C31 tax administration, C32 cost expense management, C33 assets management, C34 receivables and payables management, C35 general ledger management;
C4 closing, consolidation and reporting	C41 closing, C42 consolidation, C43 external reporting;
C5 capital and risk	C51 risk management, C52 capital budget/plan, C53 capital investment management, C54 working capital management;
C6 compliance, control and enterprise governance	C61 financial management and control, C62 continuous compliance, C63 management of stakeholders;
C7 talents and employees	C71 financial personnel management, C72 development of financial talented person and personnel;
C8 financial organization management	C81 organizational performance, C82 business cooperation, C83 financial organization structure, C84 financial organization function, C85 financial organization positioning;
C9 policies and indexes	C91 policy formulation, C92 supporting conditions, C93 system abolition, C94 revision and update, C95 execution and inspection, C96 frame system;
C10 systems and information tools	C101 financial system planning and implementation, C102 information and data management, C103 application of systems and information tools, C104 system maintenance, C105 supporting conditions;

B. Model Construction

1) *Determination of evaluation index weight:* In order to facilitate the operation with coal enterprises, we adopt the expert scoring method in setting the evaluation index weight. We will introduce 10 internal and external experts from intermediary professional institutions, enterprises and other units in different levels and dimensions, including 6 internal experts and 4 external experts. In light of development strategy requirements and financial management level of coal enterprises, the weight of different indexes can be defined. The index weight determination model is shown as Formula (1), where  $w_{ij}$  is the weight of the  $j$ th index of the  $i$ th grade, and  $w_{nij}$  is the weight of the  $j$ th index of the  $i$ th grade given by the  $n$ th expert [2].

$$w_{ij} = \frac{1}{10} \sum_{n=1}^{10} w_{nij} \quad (1)$$

The weight table of financial management evaluation indexes of coal enterprises, as shown in "Table II", can be obtained based on the actual expert scoring.

TABLE II. WEIGHT TABLE OF FINANCIAL MANAGEMENT EVALUATION INDEXES OF COAL ENTERPRISES

First-grade Indexes and Weights	Second-grade Indexes and Weights
C1(0.05)	C11(0.4), C12(0.3), C13(0.2), C14(0.1);
C2(0.20)	C21(0.4), C22(0.3), C23(0.3);
C3(0.10)	C31(0.3), C32(0.2), C33(0.2), C34(0.1), C35(0.2);
C4(0.05)	C41(0.2), C42(0.4), C43(0.4);
C5(0.10)	C51(0.3), C52(0.3), C53(0.2), C54(0.2);
C6(0.05)	C61(0.4), C62(0.3), C63(0.3);
C7(0.10)	C71(0.5), C72(0.5);
C8(0.10)	C81(0.3), C82(0.2), C83(0.2), C84(0.2), C85(0.1);
C9(0.15)	C91(0.1), C92(0.2), C93(0.2), C94(0.2), C95(0.2), C96(0.1);
C10(0.10)	C101(0.2), C102(0.1), C103(0.3), C104(0.1), C105(0.3);

2) *Establishment of evaluation criteria:* According to the degree of maturity of financial management development, this paper divides the index evaluation criteria of financial management of coal enterprises into five levels, and they are the leading level, the optimizing level, the normative level, the development level and the initial level from high to low. "Table III" is the score table of maturity level evaluation.

TABLE III. MATURITY LEVEL EVALUATION SCORE TABLE

Levels	Main Features	Scores
F1 leading level	It has sound financial management functions and complete financial management framework system. Core indexes have the characteristics of integration, standardization and automation. Flexible incentive mechanism and responsibility definition of financial organizations can better meet business needs, and high level of information tools can continue to contribute to corporate value;	81-100
F2 optimizing level	It has sound financial management functions, complete financial management framework system, and clear standards for policies and indexes. The financial personnel have a high level of business ability and quality, which can provide greater support for the enterprise's operation and management decisions. It has applied the operation mode of shared service center and outsourcing.	61-80
F3 normative level	The functions of financial management are basically sound, and financial management system framework is preliminarily established. Relatively clear financial management responsibilities can basically meet the needs of enterprise operation. However, most of the transactions are mainly dominated by manual operation, and the financial management efficiency is insufficient.	41-60
F4 development level	The basic financial management functions have been basically strengthened, and the internal financial control system has been gradually established. The financial management level can not meet the development needs of coal enterprises. It lacks technical means and tools and has imperfect financial organization and its financial personnel have inadequate knowledge and skills;	21-40
F5 initial level	The financial management mode is extensive. Financial management is manifested as daily coping and "fire fighting". It lacks policy indicators to support financial work. The management and business needs of coal enterprises can hardly be met.	0-20

3) *Calculation of evaluation scores:* The evaluation scores should be calculated based on Formula (2) and Formula (3). In the two formulas,  $x_i$ ,  $x_{ij}$ ,  $w_{ij}$  and  $w_i$  are the first-grade index of item  $i$ , the second-grade index of item  $j$  which the item  $i$  belongs to, the weight of item  $x_{ij}$  index, and the weight of the first-grade index of item  $i$  respectively, and  $X$  is the final total score. With the support of Formula (2) and Formula (3), we can assign a certain degree of maturity to the second-grade index combining with "Table II" and "Table III", and then calculate the index scores. Finally, we can get the index scores of the upper level, and then determine the maturity of financial management of coal enterprises through integration.

$$x_i = \sum_{j=1}^n x_{ij} w_{ij} \quad (2)$$

$$X = \sum_{i=1}^{10} x_i w_i \quad (3)$$

III. CASE ANALYSIS

In order to enhance the practical value of this research, this paper selected the S coal enterprise, which was established in April 2008, as the research object. In the process of financial management evaluation, to understand the financial management situation of S coal enterprise, this paper uses a series of means, such as interviews, meeting with financial

personnel and key business personnel, issuing questionnaires, collecting and reading materials, carrying out on-site testing work, and conducting evaluation based on the standard at a

mature stage, and finally, obtained the scoring table of financial management evaluation results shown in "Table IV".

TABLE IV. SCORING TABLE OF FINANCIAL MANAGEMENT EVALUATION RESULTS

First-grade Indexes(Maturity Score/Actual Score)	Second-grade Indexes (Maturity Score/Actual Score)
C1(49.00/2.45)	C11(50.00/15.00), C12(50.00/15.00), C13(55.00/11.00), C14(50.00/5.00);
C2(50.50/10.10)	C21(55.00/22.00), C22(50.00/15.00), C23(45.00/13.50);
C3(52.50/5.25)	C31(52.00/16.50), C32(45.00/9.00), C33(52.00/11.00), C34(50.00/5.00), C35(55.00/11.00);
C4(57.00/2.85)	C41(55.00/11.00), C42(55.00/22.00), C43(60.00/24.00);
C5(54.00/5.40)	C51(55.00/16.50), C52(55.00/16.50), C53(50.00/10.00), C54(55.00/11.00);
C6(55.00/2.75)	C61(55.00/22.00), C62(50.00/15.00), C63(60.00/18.00);
C7(50.00/5.00)	C71(55.00/27.50), C72(45.00/22.50);
C8(54.50/5.45)	C81(60.00/18.00), C82(55.00/11.00), C83(50.00/10.00), C84(50.00/10.00), C85(55.00/5.50);
C9(78.50/11.78)	C91(75.00/7.50), C92(80.00/16.00), C93(75.00/15.00), C94(80.00/16.00), C95(80.00/16.00), C96(80.00/8.00);
C10(58.50/5.85)	C101(55.00/11.00), C102(60.00/6.00), C103(60.00/18.00), C104(55.00/5.50), C105(60.00/18.00);
Total scores	55.55

Based on "Table IV", it is not difficult to find that the actual score of financial management of S coal enterprise is 55.55. This shows that its financial management is in the stage moving from development level to normative level. The other first-grade indexes of financial management of S coal enterprise are in the normative level except that policies and indexes are in the optimizing level. Combined with the evaluation results, the S coal enterprise need to focus on improving the basic functions of financial management during capital construction, develop the function of financial value management, and plan the management mode. Specific suggestions for improvement are as follows:

*A. Improving the Basic Functions of Financial Management During Capital Construction*

The financial department of S enterprise fails to meet the responsibilities and work requirements of "three calculations management". Therefore, it must improve the work indexes integrating finance and business in infrastructure management, and clarify the information communication mechanism of each department, so as to ensure that the financial management can continuously move towards advance evaluation and tracking.

Develop the function of financial value management. The department of financial management of S coal enterprise has neither reevaluated and estimated the efficiency of return on investment after project postponement, nor effectively linked with the construction progress of the supporting project. Therefore, this paper suggests that S coal enterprise should take emphasis on risk management in the construction stage, and perfect the value management function of the financial management department in this stage, so as to ensure scientific and timely risk warning.

*B. Planning the Management Model*

S coal enterprise has the problem that the current planning documents cannot be better used for the guidance of practical work, so it must establish an integrated model for business management and control, determine the goal of "embedded partnership", and form a clear indicator system and working mechanism in the financial management. Only

in this way can we ensure that financial management means can better serve the survival and development of S coal enterprise.

IV. CONCLUSION

In order to build a more accurate and perfect financial evaluation index system, and better measure the existing financial management level of coal enterprises, so as to timely find and solve problems. Based on the principles and basis of the construction of financial management index system, this paper used the expert scoring method to determine the weight of the index, and combined with the management maturity to delimit the scoring criteria, thus establishes the evaluation model of financial management. In the end, it took S coal enterprise as an example to carry out practical application analysis.

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