

## Research on the influence of material supply chain accounting management on enterprises

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**Abstract.** In order to reduce illegal bidding and false accounting, and improve the fairness of bidding system, it is put forward a new strategy of accounting supervision, and analyzed the relationship between game theory and false accounting supervision, based on game theory and comprehensive cost management method. By using the advanced bidding management system proposed by the western countries, the current bidding system and strategy are modified and improved, which can improve the efficiency of accounting supervision. Through the new methods and strategies of supervision, it can provide a more fair bidding and tendering system for enterprise, so as to provide a more equitable market environment for enterprises in the materials supply chain in the bidding process, which can make the accounting supervision in the materials supply chain bidding process have practical effect, and improve the reality the significance of accounting supervision.

**Key words:** accounting supervision and management; bidding and tendering Enterprises; material supplies; game model; accounting relationship

### 1 Introduction

Under the condition of current market economy, the material supplies has become an important part of the enterprise, which plays a very important role in the process of the enterprise to optimize the allocation of resources and economic development of enterprises. Therefore, material procurement has also been introduced in the bidding system. With the rapid development of industry procurement, material supply bidding system has also been applied to a wider range of enterprises, with construction investment increased year by year, many problems have highlighted the material bidding process, especially the problem of accounting supervision. Due to the huge waste of accounting fraud and illegal bidding will cause the enterprise capital, it becomes very important how to adopt a more effective method for accounting supervision and management, and has the significance to improve the bidding environment reuse reduce the possibility of illegal bidding and false accounting matters[1].

### 2 Comprehensive cost management method and material purchasing problem of bidding project

Total cost management of bidding project is mainly to the governance of cost determine and control in the whole process of construction project, and considering of the governance problem of the operation and maintenance cost of construction project in the period of operation. Considering the whole life cycle of the whole project, the problems of accounting fraud and illegal bidding can be avoided if we fully consider the construction and use of the project, make the whole process all the minimum cost, and comprehensive consideration of the authenticity of the material supply.

The material bidding and tendering is mainly aimed at the suppliers and enterprises, the competitive bidding activities to provide a variety of qualified materials, can improve the quality and superior cost-effective supply of materials, through reasonable and orderly competition, in a completely free competitive environment. Now because of the development of enterprise, material purchasing is more and more, which relates to the bidding materials are more and more, also shows a lot of problems in the bidding process, these problems can not be ignored, some typical problems are as follows:

#### (1) The management issues of material purchase

In the material purchase management system there is relatively large problem, for example, the purchase system is not standardized and not perfect, because the establishment of all system and norms is a long-term process, and enterprise and national standards are not significantly different, so it will cause the normative system and standard. This will cause bigger randomness in the actual process of bidding and tendering, easy happening behind the scenes, and the division of purchase management

responsibility is not clear, so the management efficiency is low, accounting supervision can not play a real role.

#### (2) The problems in the bidding process

In the actual bidding and tendering process there are two major problems, one is material encoding is not uniform, having no specific regulatory process, on the other hand is the lack of supplier inspection and supervision, so it is difficult to ensure the post service and whether bidding price, variety and quality consistency. For material purchasing tendering, subject evaluation has no unified reference, which need to take strict accounting supervision of suppliers.

#### (3) The management of employees

Employee management involves personnel issues, especially the management of accountants. In the bidding, companies may use false tender, and use standard or special conditions to exclude potential bidders, bidders may be invited or colluded for bid rigging, and in this process, the accounting supervision is not play any role, which will cause fraudulent events. In the bidding process, if the evaluation is not able to maintain the principle of fair and impartial, there will be effective in the procurement of enterprises to form a larger resistance. Therefore, in the management of staff, it is necessary to improve comprehensive quality of accounting supervision personnel, and strengthen the supervision of the quality of staff training, especially the ideology of supervision, which is the occupation standard strictly abide by the accounting supervision personnel.

### 3 Accounting supervision based on Game Theory

In order to improve the effectiveness of accounting supervision in the supply of materials, the accounting supervision can be analyzed by using game theory, so as to put forward a more reasonable accounting supervision strategy. First, using the agent, it is assumed that the bidding department is all the agents, so for high profits, they will fall into the prisoner's dilemma. When a and b are competitive relationship, if bidding by way of false accounting, profit  $x$  will be got, otherwise the profit is  $y$ , where  $y < x$ . If the illegal strategy is used, more benefits will be gained, then forming a Nash equilibrium, which will lead to collective irrationality.

The relationship between the bidding management department and accounting supervision department can not be changed, cooperative and non cooperative is a dynamic game relationship. Assuming profits  $X$  will be gained by use of false accounting, a fine of  $Z$  will be punished by accounting supervision department, if  $P$  is the cost of supervision, so  $Z > P$ . Assuming  $Q$  is the social costs of the regulatory authorities, the relationship between the tender management and the accounting supervision department can be described as the form of a matrix, as shown in the specific Tab.1.

Tab.1 The relationship between the bidding and tendering management and the accounting supervision department

		Bidding and Tendering Management	
		Accounting fraud	Non accounting fraud
Administrative department	do accounting supervision	$Z - P, X - Z$	$-P, Y$
	not do accounting supervision	$-Q, X$	$0, Y$

The probability of the accounting supervision department activity is  $i$ , the probability of false accounting in the bidding department is  $j$ , then there is the profit of supervision and non supervision, the supervision profit is  $S(1,i)$ , and non supervision profit is  $S(0,i)$ , the profits that using false accounting is  $F(j,0)$ , the profits that not using false accounting is  $F(j,1)$ . The formula for the calculation of the profit is as follows:

$$\begin{aligned}
 S(1,i) &= (1-i) \cdot (-P) + i \cdot (Z-P) \\
 S(0,i) &= (1-i) \cdot (0) + i \cdot (0-Q) \\
 F(j,0) &= (1-j) \cdot Y + j \cdot Y \\
 F(j,1) &= (1-j) \cdot X + j \cdot (X-Z)
 \end{aligned}
 \tag{1}$$

If  $S(1,i)$  and  $S(0,i)$  are equal, then the return rate

$$I = P / (Z - Q) \tag{2}$$

Therefore, if the accounting supervision department give up supervision, then

the occurrence probability of false accounting must be less than  $P/(Z \square Q)$ . Otherwise, the accounting supervision can not be gave up, the supervision is very necessary.

If  $F^{(j,0)}$  and  $F(j,1)$  are equal, then the return rate

$$i \square (X \square Y) / Z \quad (3)$$

When the probability of accounting supervision is less than  $(X \square Y) / Z$ , false accounting will happen. Therefore, in the actual bidding process, the reasonable management and measurement should be carried out to prevent fraud, and to prevent the occurrence of illegal material procurement bidding process.

#### **4 Accounting supervision and management strategy in materials supply tendering and bidding**

At present, the country that has advanced, complete and perfect tendering and bidding system in the world is the United States. In the bidding management not only the industry standards is presented for the implementation guidelines, but also strict laws and regulations is used to regulate the tender and tender Market in the United States. In the materials supply tender, the procurement law is used to regulate the behavior of bidding and tendering in the United States federal, the normative content mainly includes three aspects, such as the type and mode of procurement, the procurement contract and specification etc..

According to the material supply tender management system of the United States, in tendering and bidding, the company's material management department can establish the evaluation committee in accordance with the relevant state regulations and company, and set up the business group and technical group, to carry out the evaluation work, the evaluation work needs to meet the requirements of the closed and independent evaluation. The bid evaluation committee may through the supervision of accounting strategy to evaluate the bidding documents and information, according to the price management system and game relationship comprehensively, reasonably determine the final list of candidates, this can effectively improve the accounting supervision effect, to provide a fair and equitable bidding material supply management system for enterprise.

#### **5 Conclusions**

According to the series of problems caused by the rapid development of procurement bidding in China's enterprises and slow tendering and bidding supervision, according to total comprehensive price management system and game relationship criterion, it is put forward a new bidding materials supply chain accounting supervision bidding strategy. According to the United States bidding management system, drawing on its advanced management experience, for the establishment of an effective mechanism to improve the supply of materials, the bidding management system is of great significance. Through the accounting supervision, reasonable evaluation of the bidding documents and the purchasing information of enterprises can effectively improve the efficiency of accounting supervision, and provide a reasonable bidding management platform for the bidding of the material procurement.

#### **References**

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