

Comparative Analysis on BOT, PPP and ABS Project Financing Models

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Abstract. As a new financing model, project financing has been widely used large-scale infrastructure projects in the world. As project financing, BOT, PPP and ABS are three specific financing models, which has a good development in the infrastructure sector and great potential for development. From the perspective of government investment and financing, this paper analyzed the concept and substance, functions and features, operating procedures, financing advantages and disadvantages, applicability of these three financing models, and combined with its development in our country to point out some problems and suggestions which the government should adopt when they improve the three project financing.

Introduction

With the continuous deepening of industrialization and urbanization, the construction of infrastructure has a great influence on the development of urban sustainability. But the investment and financing of urban construction is an essential problem that hinders the development of our country. In recent years, the government has made great efforts on borrowing money for the purpose of fully construction of infrastructure, which has resulted in a huge amount of local debt. How to speed up the reform of government financing of investment projects, improve investment efficiency, attract social capital into the construction of urban infrastructure field and solve the contradiction of capital supply and demand in the period of large-scale centralized construction, which has to be an important issue in the construction of China's government investment projects.

In order to solve the problem of government funds, the project financing model represented by BOT, PPP and ABS came into being. Compared with the traditional financing method, project financing has been popularized and applied in the world. For the developed countries, the project financing model has been relatively mature, but for developing countries, the project financing model is still in the exploratory stage. Understanding the connotation of various project financing models and how to choose the appropriate project financing mode is the most important problem that must be solved in the construction of infrastructure projects in China.

The Concept and Essence of the Three Financing Models

In the BOT approach, a private party or concessionaire retains a concession for a fixed period from a public party, called principal (client), for the development and operation of a public facility. The development consists of the financing, design and construction of the facility, managing and maintaining the facility adequately, and making it sufficiently profitable. The concessionaire secures return of investment by operating the facility and, during the concession period, the concessionaire acts as owner. At the end of the concession period, the concessionaire transfers the ownership of the facility free of liens to the principal at no cost. [1] In essence, BOT is the project financing in a narrow sense, that is, the form of limited recourse.

P3 is a service contract between a public authority and a private sector concessionaire, where the public authority pays the concessionaire to deliver infrastructure and related services. Typically, the concessionaire, who builds the infrastructure asset, is financially responsible for its condition and performance throughout the asset lifetime, or the duration of the agreement [13], or it describes a government service or private business venture which is funded and operated through a partnership

of government and one or more private sector companies. These schemes are sometimes referred to as PPP or P3.

PPP is a complete project financing concept, which original form is the BOT of much concern in 1985-1990. The earlier and more formal model of PPP appeared in 1992, the British Conservative government's "Private Finance Initiative".[2] At that time, the PFI is used for the construction of the Department of transportation, but now, as the successor to PFI, PPP is widely used in a variety of infrastructure project financing. The generalized PPP includes BOT, and the narrow PPP is also a kind of limited recourse project financing mode. In this article, the PPP in a narrow sense will be discussed.

ABS(Asset-Backed-Securitization)is based on the asset of project and guaranteed by the future earnings of the project assets. It's a project financing way by raising funds in the international capital market. ABS financing originated in the United States in 1970s, which is applied to housing mortgage securitization at first, then followed by rapid development in Europe and Asia and became an important way of financing for infrastructure construction. [3]The essence of ABS is to improve credit rating by special means, so the low credit rating of the project can still enter the high-grade market, with the characteristics of high credit rating, high security and good liquidity and low interest rate, the cost of raising funds is greatly reduced.

The Functions and Characteristics of the Three Financing Modes

The Functions and Key Features of BOT Model. BOT model consisting of the financial provisions, construction, operation and transfer is a special ownership pattern merging debt financing and equity financing. [4] Its features are as follows, ① BOT financial provisions only have limited resource, and the debt is not included in the nation's foreign debts. The debt repayment only relies on the cash flow of projects. ②The project company acts as owner and operator during the concession period. ③Normally, the project company is assuming the most of the risk. ④ Compared to the traditional model, BOT's financial project design, construction and operating efficiency are higher, and end users can acquire higher quality service.

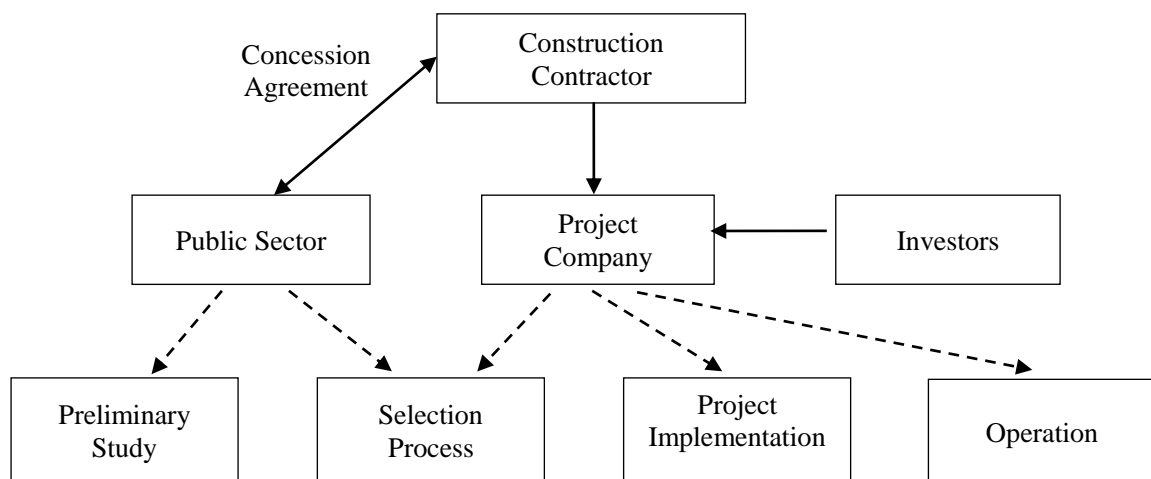


Figure 1. BOT mode organization form

The Functions and Key Features of PPP Model. PPP model is based on the cooperation concept of “win-win” for each participant and it reflects the Public-Private Partnerships in general meaning. Also, it applies on public infrastructure, public service institution and the privatization of government-owned businesses. Its features are as follows, ①Under the PPP model, public and private sectors share common interest. ② Public and private sectors own reasonable risk-sharing. ③For the purpose of better social service, the mechanism of competition in market will be introduced to the project of infrastructure.[5]

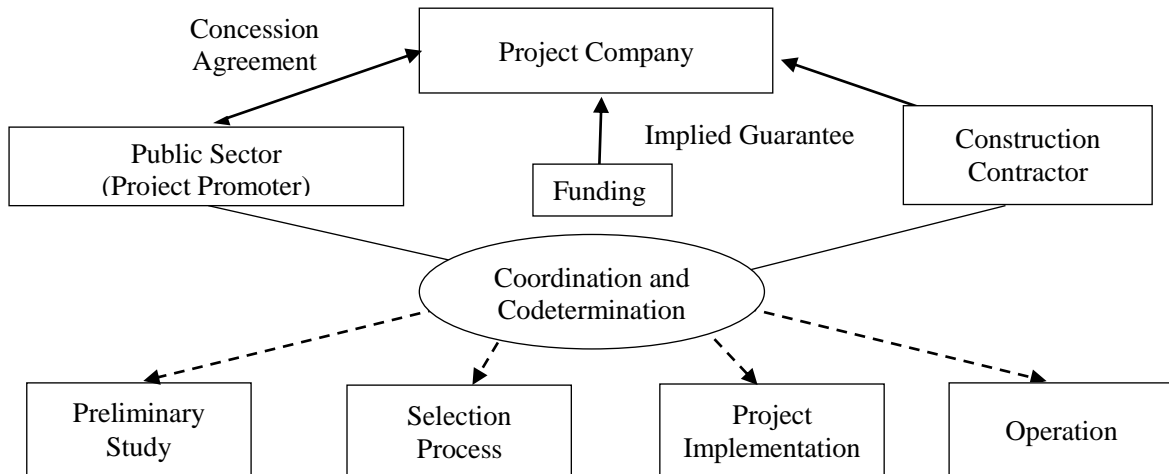


Figure 2. PPP mode organization form

The Functions and Key Features of ABS Model. General speaking, the biggest advantage of ABS is that ABS model can cut down cost through issuing bonds in the international financial markets. Its major features are as follows, ① Issuing bonds through the securities market. ② Under the ABS model, the fund which is used to pay off the debt is only related to the future cash flow of project assets. Bonds are purchased by many investors, so the risk can be spread. ③ The debt is not in the balance sheet.[6]

Comparison of Three Kinds of Financing Mode Operation Procedure

Table 1 Comparison of Three Kinds of Financing Mode Operation Procedure

Model	BOT	PPP	ABS
Project cycle	① Project Identification ② Bidding Process ③ Project company set up ④ Project financing ⑤ Construction ⑥ Operation ⑦ Project transfer	① Project selection ② Project Identification and Appraisal ③ Project company set up ④ Bidding Process and project financing ⑤ Construction ⑥ Operation ⑦ Project transfer	① Determine asset securitization financing objectives. ② Set up a special purpose company SPV ③ To implement the project asset "true sale" ④ Improve the transaction structure, Conduct internal evaluation ⑤ Division of priority securities and subordinated securities, handle financial guarantee ⑥ Issue rating, arrange securities sales ⑦ SPV obtain securities issuance income, pay the purchase price to the original rights and interests

A Comparison of the Advantages and Disadvantages of the Three Financing Models

The advantages of BOT are as follows: ①The organization is simple and the negotiation between the government and the private sector is easy. ②The ROI of project is accurate, and the conflicts of interests between government and private sectors reduce. ③BOT can broaden the sources of funding in order to lower government's financial burden. The disadvantages are, ① Public and private sectors tend to deal with a long-term investigation and negotiation, so the tender fee is extremely high. ②Because there exists high risk for investors and lenders, it is difficult for financing. [7] ③ During the concession period, the government may lose the control of projects. ④ It is harmful to introduce advanced techniques and management by private sector.

The advantages of PPP are as follows: ①Public and private sectors take part in the preliminary study in early stage in order to shorten the cycle of work and lower the project fee. ② Make up a strategical alliance to negotiate with people which hold different concept about the goal of interest. ③The private sectors can introduced advanced technology and management experience in the initial stage. ④ The government holds control of the project. Disadvantages: ① How to ensure the difficulties that cooperation and the government takes responsibilities in cooperation, so the burden of risk will increase. ② The form of organization is relatively complicated, and the degree of difficulty in management increases. ③How to set up the return rate of project may become a controversial problem.

The ABS's advantages are follows: ① ABS has less involvement in program, lowering the cost of financing in certain degree. The sources of funding are versatile, especially suitable for the need of large scale funding. ② The issue of bonds in the international market is purchased by many investors, so the investment risk can be distributed. ③It is beneficial to cultivate the experts in international financial aspects in host country. Disadvantages: Due to the issue of bonds in foreign financial securities market, the foreign advanced techniques and management cannot be fully introduced.

Comparison of the Applicability of the Three Financing Models

Table 2 Comparison of the Applicability of the Three Financing Models

Comparison aspects	BOT	PPP	ABS
Risk	High	Medium	Low
Accessibility of fund	Hard	Easy	Hard
Ownership of Government	Absolute	Partial	Partial
Franchise	None	Partial	Partial
Financing costs	High	Medium	Low
Financing Time	Long	Short	Medium-long
Risk of Government	High	Medium	Low
Policy Risk	high	medium	low
Impact for Macroeconomic	Both	Favorable	Favorable
Scope	Project with mature technology and stable ROI, the infrastructure project with less Competition	Policy urban infrastructure project, the operating infrastructure project with low ROI	The infrastructure projects which have Large-scale, long cycle and slow return of funds

Development of Three Financing Models in China

The Development of BOT in China. Compared with the other two financing models, BOT was introduced in China in 1980s, which has the most mature development.

The success or failure of the BOT project depends largely on the level of government support. Because it can impact the BOT project through the project bidding tender, the signing of the concession agreement, the development of laws and regulations, tax, adjustments of foreign exchange policy, the government risk avoidance and so on. Therefore, our government should pay attention to the following issues in the use of BOT. First of all, in view of the special nature of the BOT project is different from the general commercial projects, the scale of the government's choice of projects should be large enough.[8] If the scale of the project is small, the proportion of investment accounted for a large proportion of the previous period, which will cause problems in financial feasibility. Secondly, about the reasonable distribution of risk, the government should bear some controllable risk, because if the project sponsors assume all the risk of the project, the charge for the project will exceed the capacity of the user and the government. Finally, the government should improve the legislative work of BOT project financing.

The Development of PPP in China. China's government began to try to implement the PPP in 1990s, before 2013 the PPP was in a kind of exploration and trial period, Until 2013 the government introduced some relevant documents from the perspective of legislation and practice to implement the PPP of the wide range of applications, the main purpose is to extend the original government investment and financing functions into a clear contractual relationship between the government and the public.

PPP is not mature enough in China, the development of space is very large. The government should pay attention to the following issues in the use of PPP mode financing. Firstly, the government should pay attention to the transformation of role, from the leading role in the public infrastructure to the partner role. Secondly, the design of reasonable risk sharing structure is important. [9]Finally, the government should establish and perfect the relevant laws and regulations. In PPP, the participated private enterprises are generally large enterprises and corporations in the world. When the government is in negotiations cooperation with them, the government should not only follow the laws and regulations of the country, but also follow the international practice.

The Development of ABS in China. ABS model is still a relatively new type of project financing for China's infrastructure construction. Although it has not been developed yet, but it represents the future direction of the development of the project financing, which has very optimistic development prospects.

The formation of SPV is the basic premise of ABS financing. The domestic financial institutions basically can't meet the requirements of SPV for some reason. As a result, there are two main ways of the present stage: Firstly, to employ directly the international famous financial institutions to be the SPV;[10] Secondly, to cooperate with the international famous financial institutions to organize the SPV. But in the long run, to develop the domestic financial institutions to be SPV is the ultimate solution to the problem.

ABS is a comprehensive financing way which involves securities, guarantees, non-bank financial services and many other aspects. So the persons engaged in ABS business should satisfy the higher quality requirements. At present, China is lack of not only the in-depth research but also the experts in ABS operations. Therefore, in order to promote the development of ABS in our country, the government must speed up the cultivation of talents in ABS.

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