

Research on Guarantee Structure of Petroleum Engineering Project Financing

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Abstract: Petroleum engineering projects with process complex, capital-intensive characteristics, developing will need a lot of money and great risk. Therefore each fund provider will be very careful, and require a precise rational structure, to ensure the security of their investment. This paper analyzes the importance of risk-sharing in the petroleum engineering project financing, and combines the characteristics of petroleum engineering project, designs suitable structures for petroleum engineering project, such as oil project facilities used mode, product payment mode, ABS financing mode of guarantee structure.

Keywords: petroleum engineering; project financing; guarantee structure

1.1 The importance of risk-sharing in the petroleum engineering project financing

For investors, completion of project financing arrangement is only a successful start. In the process of financing arrangements, the project risk analysis and judgment, is based on all kinds of assumptions. For how to share the risks to all participants of petroleum engineering projects, all parties can bear the risk of certain proportion, is the key in financing arrangement by investor.

The risk in petroleum engineering project has the following features: (1) risk of objectivity and universality, petroleum engineering project exploit difficulty, environment hard, which can minimize the risk, but it is unavoidable; (2) a particular risk of contingency and necessity of risk occurs; (3) risk of variability; (4) risk of diversity and multi-links^[1]. Petroleum engineering project is long cycle, large scale and scope, many risk factors, so in all the life cycle will face multiple risks. But large risk factors of internal relations between all risk factors for complicated, with external crossover influence between plus risk and multi-links shows, this is one of the main characteristics of risk in petroleum engineering project.

Petroleum engineering project financing adopt basic principle is "The certain risks will be allocated to the most suitable one"^[2]. The risk factors which can be expected will be avoided in the bud. The credit risks will be shifted to a third party. The risk which can not avoid and transfer will be left for oneself. Petroleum engineering projects are complex, difficulty, needing a large amount of fund. The risk will be more complex and more. Therefore, reasonable allocation of risk for petroleum project sponsors, petroleum project lender, petroleum engineering project company petroleum project third-party guarantee is such parties must be done.

1.2 Petroleum engineering project financing in the use of credit guarantee

The credit guarantee of petroleum engineering project has common three forms: completed guarantee, lack of fund guarantee, guarantee based on "Whatever is required to pay or delivery" agreement^[3].

(1)Completed guarantee. Completed guarantee is mainly directed against the project completion risk, petroleum project guarantor should finish in the contract stipulations, once the engineering project is delayed, the cost of delay beyond the capital and losses are assumed by the guarantor, and guarantor should take charge of the project until "commercial completion". Essentially, completion guarantor should undertake financial responsibility overrun the cost, this is a direct guarantee. Petroleum engineering generally has two kinds of circumstances, one is project sponsors establish company, and finish the project by itself, in this way lender will require the sponsors provide completed guarantee. Another the project sponsor can not finish projects independently, by the name of company will contract to the oil drilling engineering company, in this way engineering company will provide completed guarantee, and project company loan to financing institutions with this guarantee.

(2)Lack of fund guarantee. Completed guarantee which dissolve the risk during construction and production is credit guarantee, but should consider when project completion, project income can not repay the loan. In order to avoid the happening of this kind of circumstance, the lack of fund guarantee is born. The most difficult problem in the oil project is determine how much oil reserves, estimating specific project funds has warp, luckily, lack of fund guarantee exactly solved the prob-

lem. This form of guarantee require investors deposit a part of funds benefit for loan bank in shape of stand-by credit, this part of the capital commonly 25%~75% in fund for petroleum project operation, mainly includes production operation expenses and repay the principal and interest due debts [4]. During the project construction, normal funds cannot use, once discovered the project can not complete as expected, when the earnings and cash flow of production is not enough to pay for the loan principal and interest, reoccupy this part retained the debts of the guarantee funds.

(3) Guarantee based on "Whatever is required to pay or delivery" agreement. Lenders are all pay attention to project benefits stability, to let the lender saw oil products with stable sales revenue, need guarantee based on "Whatever is required to pay or delivery" agreement. The agreement is absolute and unconditional [5]. In China, petroleum engineering project productions are used domestically, petroleum engineering project company will signed long-term supply and purchase contract with petrochemical company and refining enterprise company, to ensure the project of petroleum products in any case will have income. This guarantee is equivalent to the lender to see the cash inflow of project, and also have more confidence.

1.3 Guarantee structure in petroleum engineering project financing mode

1.3.1 Guarantee structure in oil project facilities used mode

Petroleum project financing adopts facilities used mode, the key of guarantee is "whether is required to pay or delivery" agreement. Firstly, the project company which established by petroleum engineering project sponsors provides a piece of guaranty, guarantee the project will be completed "business". If the project company can complete this work, they provide one themselves. If the project issued to outsource to other engineering company to complete, the completed guarantee issued by the project contractor. Only the completed guarantee is not enough, still need a "whether is required to pay or delivery" agreement. This agreement is after the completion of the project, the project products supply who, by whom to provide. If the products are sold to a strength and large company, Banks would accept the guarantee. If is a small company, the small company should also from local Banks have a guarantee to obtain loans, credit bank credit, this "whether is required to pay or delivery" agreement also can be provided by many companies together. Based on above two, ensure the fund of project development, production and operation. When the project is completed, it still exist a problem whether pay off the principal and interest of the loans. It needs to be in the project early

days, the project sponsors to own assets or the bank deposit funds into a lien for a rainy day, this part of the risk is by the sponsors. Investors take project completed guarantee, "whether is required to pay or delivery" agreement and lien proof to bank to complete loans. In China, petroleum engineering projects are mostly state-owned oil companies, there will still be among the national government policy support and guarantee for the government when also can be used to obtain the bank credit project support. Facilities used mode guarantee structure as follow chart 1.

1.3.2 Guarantee structure in product payment mode

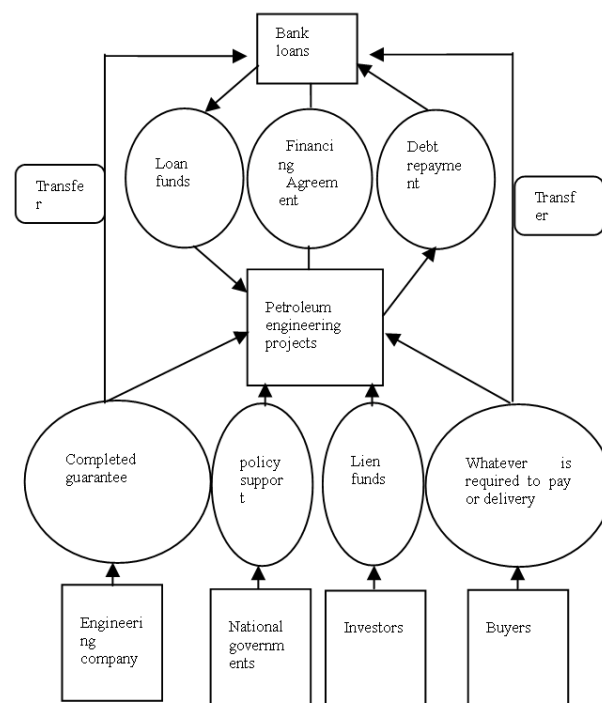


Figure 1 Facilities used mode guarantee structure

Petroleum project financing adopts product payment mode, the key of guarantee is "product payment agreement". The lender should establish a financing intermediary organization, general structure for the trust fund. The financing intermediary organization benefit for borrowers to limit the responsibility and obligation caused by owning some resources and products directly, and such intermediary agencies within the credit guarantee structure is simple. The financing intermediary organization and project company sign "product payment agreement", the agreement protocol that project company should buy a certain proportion of the project in the reserves of oil resources or future production of petroleum products production, in form of "purchase funds" supply funds to petroleum engineering projects company for construction

and capital investment. Pay attention to the price of products to consider interest factor. The intermediary agencies can not bear the risk which the project is unsuccessful or uncertainty yield to buy future products with high price, so both sides should promise the price contain interests to ensure product intermediary agencies have benefit. At the same time, the financing intermediary organization require leaving fixed assets as a pledge and taking completed guarantee as credit guarantee. After the product payment agreement signed, and the project pump oil resources or produce petroleum products, financing intermediary institutions can take back products for sale, also can sign a sales agency agreement with the oil project company when they signed the product payment agreement, the company sales products, the latter is simple. Using product payment mode, both have the mortgage of the real assets, completed guarantee security products and have payment agreement as credit guarantee, double insurance. Product payment mode guarantee structure as follow chart 2.

1.3.3 Guarantee structure in ABS financing mode

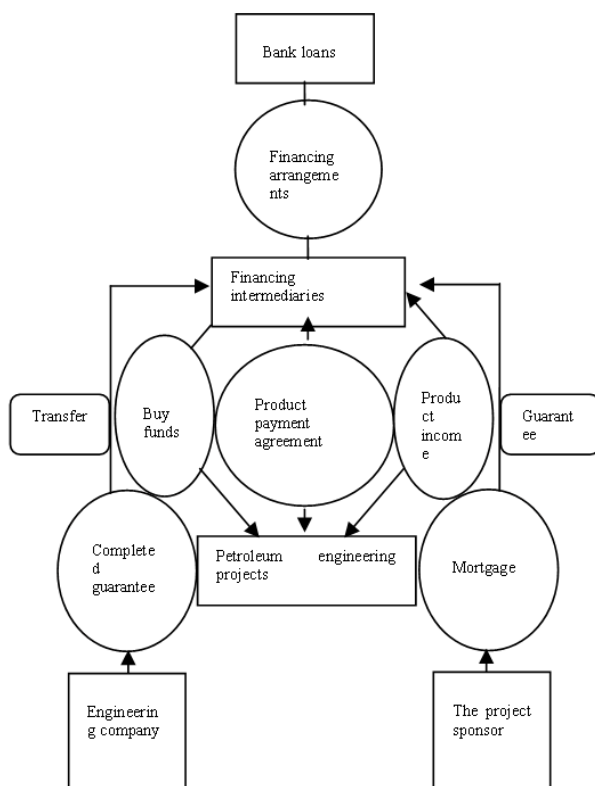


Figure 2 Product payment mode guarantee structure

ABS financing mode since the 1960s has been implemented in the United States, it is not exist in China at present, the advantage of this financing mode is cash capital less, and can raise funds from the public widely

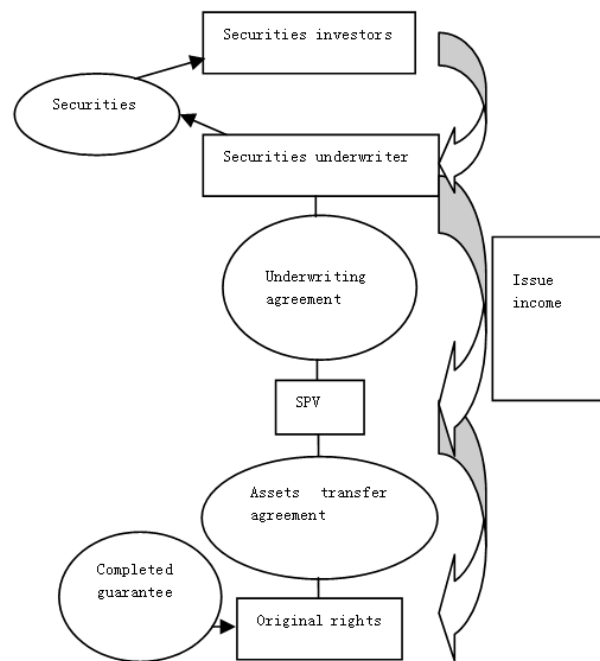


Figure 3 ABS financing mode guarantee structure

used for construction projects. Petroleum engineering projects relation to the national energy use, it is a national key project, thus the credit rating for the program is also high. Use asset-backed securitization finance, must first selected as mortgage-backed assets. First, the original rights should estimate his assets and choose full ownership parts as the guarantee. Then the original rights find some credit rating for the AA level or the AAA financial institutions, such as investment Banks, trust and investment companies, credit guarantee company, investment and insurance company, and combine these institutions to special purpose vehicle. These companies will be SPV are all based on petroleum engineering project can be achieved a stable income and national government attaching great importance to the project. After successfully established in SPV, it is equivalent to a key credit guarantee for project. The next, the original rights will transfer his rights which pledge assets in the future can earn cash flow to SPV and original right is separated from his capitals. Even if the original rights business enterprise goes into bankruptcy, these assets also won't as liquidation assets, it ensures that the inherent mortgage assets. After SPV own the assets come from original rights, he will do the securities financing. After establishment of the asset securitization transaction structure, use internal enhancement and external enhancement to increase credit enhancement, to release more income^[6]. Internal enhancement is that the original rights is to provide part of excess equity mortgage assets or to establish a reserve fund account, pay the sub-prime securities after pay off the primary security principals and interests, thus

reduced risk of priority securities, so as to improve the level of credit. External financing is to handle various financial assure in credit rank high financial insurance company, such as bank credit, insurance company project insurance, third-party reserve fund account etc. After the prophase work is completed, they sell securities. The funds of selling securities are for project construction and production. Only securities enough, project sponsors also should get completed guarantee from project engineering company and a series of government policy. To this, ABS financing mode of guarantee structure is complete. ABS financing mode guarantee structure as follow chart 3.

The oil industry financing mode is less now, most request the project sponsor offers a lot of capital, and require a high credit guarantee for financing requirements, higher threshold. From petroleum engineering project itself, if stable income is stable, the credit is relatively in high level, financing is easier. Using ABS financing mode is relatively simple guarantee structure, many investment Banks, trust and investment companies, credit

guarantee company are applicable as SPV. If a series of policies are suitable for asset-backed securitization finance, the ABS guarantee structure should be a good choice.

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