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Asset-Backed Securitization of Chinese PPP Projects

Operating Mechanism and Current Difficulties

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Driftsmekanism och nuvarande svårigheter

XIAOKUAN LI

Master of Science thesis

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Abstract

Under the background that China's economy has entered the new normal, de-leveraging, structural adjustment, and resolution of various risks have become an essential part of macro-control. The unique advantages of PPP asset securitization make this tool widely recognized and respected by the government, enterprises, and investors. On December 21st, 2016, the National Development and Reform Commission and the China Securities Regulatory Commission jointly issued the Notice on Promoting the Asset Securitization of Government and Social Capital Cooperation (PPP) Projects in the Field of Traditional Infrastructure. This prompted the PPP asset securitization process to enter the express train. Therefore, it is particularly important to strengthen the research on the securitization of PPP assets.

The author mainly uses the literature review method and a comparative analysis method to study the securitization of PPP assets. This paper first carries out theoretical research on PPP asset securitization, and then studies cash flow analysis theory, asset reorganization theory, risk isolation theory, and credit enhancement of PPP asset securitization; and then participates in the subject, operation model of PPP asset securitization, The operating mechanism is studied; the related cases are used to analyze the cases, and then the research conclusions are drawn, and policy recommendations are proposed. It was found that PPP asset securitization can improve the creditworthiness of the issuer and reduce the issuance cost. Further suggestions include strengthening cash flow management for PPP asset securitization projects; encouraging enterprises to restructure assets through PPP asset securitization; strengthening risk control of PPP asset securitization projects; strengthening statutory construction; Change government functions.

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Titel	Asset-Backed Securitization av kinesiska PPP-projekt Driftsmekanism och nuvarande svårigheter
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Abstrakt

Bakom bakgrunden att Kinas ekonomi har gått in på den nya normala, de-hävstången, strukturanpassningen och upplösningen av olika risker har blivit en viktig del av makrokontrollen. De unika fördelarna med värdepapperisering av värdepapperstillgångar gör det här verktyget allmänt erkänt och respekterat av regeringen, företagen och investerarna. Den 21 december 2016 utfärdade National Development and Reform Commission och China Securities Regulatory Commission gemensamt meddelandet om att främja värdepapperisering av projekt för offentliga och sociala kapital (PPP) inom området för traditionell infrastruktur. Detta ledde till att värdepapperiseringsprocessen för PPP-tillgången skulle komma in i expresståget. Därför är det särskilt viktigt att stärka forskningen om värdepapperisering av PPP-tillgångar.

Författaren använder huvudsakligen litteraturgranskningsmetoden och en jämförande analysmetod för att studera värdepapperisering av PPP-tillgångar. I detta papper utförs teoretisk forskning om värdepapperisering av PPP-tillgångar, och sedan studeras analysen av kassaflödesanalys, tillgångsreorganisationsteori, riskisoleringsteori och kreditförbättring av värdepapperisering av PPP-tillgångar. och sedan delta i ämnet, operation modell av PPP tillgång värdepapperisering, Operativ mekanismen studeras; De relaterade fallen används för att analysera fallen, och sedan slås forskningsundersökningarna och politiska rekommendationer föreslås. Det konstaterades att värdepapperisering av värdepapper för värdepapper kan förbättra emittentens kreditvärdighet och minska emissionskostnaden. Ytterligare förslag inkluderar att stärka kassaflödeshanteringen för PPP-värdepapperiseringsprojekt. uppmuntra företag att omstrukturera tillgångar genom PPP-tillgångs värdepapperisering stärka riskkontrollen av PPP-värdepapperiseringsprojekt stärka lagstadgad konstruktion Ändra regeringsfunktioner.

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It has been three years since I came to Sweden. I have been enjoying this country a lot. Sweden not only opens my eyes but also changes my mind. It makes me realize that there is another way of living my life. It also reminds me that I should be honest to myself and never stop pursuing happiness.

First, I would like to thank my family. They have always been supporting my choice. I cannot do any of these without their support. Second, I would like to thank my school. KTH offers me everything I ever need to pursue knowledge and truth. I have learned a lot during this time. Third, I would like to thank my supervisor Kent Eriksson who has always help me find direction when I lost my way. Finally, I would like to thank people who helped me. To return this kindness I will always be thankful and try my best to help others.

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1.Introduction

1.1 The definition of PPP model

For a long time, whether in the planned economy countries or the market economy countries, the development of public utilities is considered to be the responsibility of the government and should be invested and operated by the government. This is because public utility projects generally have long investment cycles, low returns, and the private sector is unable to afford it. It is also considered that private sector operations are detrimental to the public interest. As a government department that is the mainstay of the utility industry, the monopolistic approach has been the only form in the past.

However, with the development of the economy and society, it has become increasingly challenging to maintain the institutional arrangements mentioned above for public utilities. The first reason is that the existing supply capacity of the government sector, which is the primary provider of public utilities, has been challenging to meet the growing demand of public utilities, and its vast long-term losses have become a substantial financial burden for the government. The investment will inevitably lead to a problematic increase in the number of supplies, and the quality of utilities provided by government departments will be challenging to improve.

However, from a deeper perspective, on the one hand, as the income of residents increases, the demands of consumer sovereignty are increasing, resulting in the use of commercial laws to constrain the production and sales of public utilities to achieve better products and services at a lower cost. On the other hand, due to the scarcity of resources, sustainable economic development must be efficiency oriented. Taking the private sector as a partner of the industry and the market-oriented institutional arrangement combining the competitive mechanism is in line with the efficiency requirements. Utilities generally have a stable income and abundant cash flow, which have particular appeal to social funds that seek stable returns. So, under the condition that the government's financial resources are unsustainable, the consumer's request and the impulse of private sector investment jointly directed the institutional changes in the public utility field. The essence of this change is to give full play to the several endowment advantages of the public and private sectors and institutional arrangements

for cooperation. This is the public-private partnership model, namely the PPP model.

The concept of the PPP model was first proposed by the United Kingdom and is increasingly becoming the core concept and measure for governments to achieve their economic goals and improve the level of public goods or services. The PPP model is considered to be one of the critical factors for the government to provide advanced, high-quality public services and strategies to enhance national competitiveness. It is widely used in communications, transportation, energy, garbage collection, wastewater treatment, and hospitals.

1.2 The definition of Asset-Backed Securitization

Lewis S. Ranieri (1977) first proposed the concept of asset securitization. The US Securities and Exchange Commission (SEC) believes that "asset-backed securities" are securities whose principal and interest payments are supported by a pool of assets that contain specific corporate assets, financial assets, and that can be traded on the market. The cash flow of the asset pool is a guarantee for the securities holder to obtain investment income."

In essence, asset securitization is a way of direct financing in the capital market. Similar to the issuance of other financial products such as bonds and stocks, asset securitization issuers in the capital market transactions by issuing asset-backed securities to investors. The difference is that the repayment source of asset securitization products is a series of future recyclable cash flows, and the assets that generate these cash flows can be used as underlying mortgage assets to support asset securitization products. Therefore, the essence of asset securitization is to sell future recyclable cash flows to obtain financing income. According to different basic assets, the broad-based asset securitization includes the securitization of physical assets and the securitization of financial assets.

1.3 The necessity of asset securitization of PPP projects

PPP projects require a large amount of capital investment in the initial stage, and the PPP projects cycle is long, making it difficult for the social capital to recover the cost in a short period. Based on this consideration, many social capitals are discouraged from PPP projects. This is also the reason why the PPP project has been decreasing in recent years. In some PPP projects, although social capital has a certain period of franchise rights, the pricing power of public resources is still controlled by the government. The inequality of the two parties is also a primary concern of social capital. Even if they participate in the PPP project, social capital will face "cash flow" pressure for an extended, which will cause the market competition of social capital to decline. This is not conducive to its expansion of new business, and it is likely to lead to its failure.

The nature of the PPP project determines the period of a project is long, and the amount of capital required is large, but its rate of return is not high. When financial institutions support the project, the fund is mainly formed by short term loans. This is not compatible with the PPP project for a period of one or two decades or even longer. Thus, PPP projects are struggled to find suitable financial instruments.

Therefore, the study on the asset-based securities research of the PPP project can significantly promote the PPP project and stimulate the social capital to participate in the PPP project. PPP project asset securitization is an effective means to solve the current difficulties in financing. ABS has played a pivotal role in the financial system of developed countries, but in China, it is still a newcomer.

Due to its rigorous transaction structure, the ABS is generally required to have a stable cash flow. For PPP projects, because of their government background and PPP projects are mostly in the public service sector, their future cash flows are stable, which can meet the requirements for ABS. For a rather long time, China's infrastructure construction and public service services have relied on government financial allocations. The government-funded situation is, and it has also made the local government has serious debt problems. Therefore, the introduction of PPP project asset-backed securitization is a powerful solution for the current dilemma.

Compared with other products, the PPP project has a lower rate of return, a more significant investment scale, and a more extended investment period. However, its cash flow is often very stable. For social capital, the long-term and large-scale investment will make its capital occupied, resulting in low capital turnover rate and low use efficiency. This is one of the main reasons why social capital is not willing to participate in PPP projects. However, ABS can realize the cash flow generated by the PPP project in advance, shorten the cycle of social capital investment, increase the turnover rate of PPP project investment and enhance the sustainable investment capacity of social capital. As an innovative financing method, ABS provides a new exit for social capital investors to invest in PPP projects. On the other hand, ABS attract more investors to participate in PPP projects due to its flexible financing methods. It can reduce the cost of financing, which is of great significance for promoting PPP projects.

2.Literature review

2.1 Development of the PPP model

Harvey Brooks, Lane Linebman and Corinne S. Shelling et al. (1984) explored how responsibilities and obligations in the PPP model should be shared between government and the private sector and provide advice on how to assess private sector involvement. Kemaghan (1990) pointed out that the reason why governments support the PPP model is mainly that the government and the private sector can use the PPP model to establish a unique cooperative relationship, use their respective advantages, learn from each other's strengths, and satisfy their respective interests. Under the premise of reaching a common goal.

Armstrong's (1994) study focuses on how to balance the relationship between government and the private sector. He pointed out that in the PPP model, the implementation of various policies and the interests of all parties depend on the contract, so it is necessary to supervise the process of contract formulation. The research by Tiong and Alum (1997) focuses on the risks that private capital can bear in the project. Through research, they found that the government often neglects the private sector's risk-taking ability in the process of cooperation with the private sector, which leads the private sector to bear the risk of exceeding its ability in the cooperative

projects, including Non-human, unpredictable risks such as interest rate risk and exchange rate risk. This is also the leading factor in the failure of PPP projects in many countries.

In the 21st century, the PPP model has been further developed around the world. The research focus of Western experts and scholars has also changed, and we have begun to pay attention to some core links and possible problems in the operation of PPP projects. The research by Darrin Grimsey and Mervyn K. Lewis (2002) focuses on the classification of PPP models. After investigating a large number of PPP projects, they classify nine broad categories of risk factors, and also from the perspective of project participants. Establish a set of accurate risk assessment indicators.

Akintoye (2005) and others believe that the cost of the project is one of the most important reasons for the willingness to participate in PPP project participants. If the government cannot effectively control the cost of the project, the willingness of private capital to participate in the project will be significantly reduced. Hoppe's (2011) point of view shows that PPP projects are more attractive to investors because they are more effective in controlling costs and have higher efficiencies. Furthermore, whether the PPP project can be implemented smoothly depends on the level of management capability of each participant.

Jonathan and Ravi Ramamurt (2003) studied the management of public utility projects from the perspective of central and local governments. They believe that the government needs to play more than one role in cooperation projects so that more private capital can participate. Loosemore et al. (2006) summarized the conditions for risk sharing in PPP projects. First, the risk committee should match the risk tolerance level of all parties and should not be decoupled; second, both government and private capital have the ability to accept the corresponding risks and reduce the possibility of risk occurrence; third, the participants of each PPP project voluntarily undertake any risks that may arise; fourth, the two parties have the ability to identify and assess various risks accurately. Serebrisky and Estache (2004) stated that in order to ensure the regular operation of PPP projects, a stable and sustainable policy environment is needed. If the national government is not stable, this may affect the negotiation of PPP

cooperation projects and even lead to project termination.

2.2 PPP model in China

Due to the late introduction of the PPP model in China, the research in this area is not enough compared with foreign countries. However, from the current research, Chinese scholars' research on PPP mode mainly focuses on the government's responsibilities, project risk identification, and classification, project feasibility, and applicability.

Wu Zhihong (2005) focused on a series of issues that may be faced in China's PPP projects when financing. Such as legal compliance, risk factors, pricing, and contract design, professional talent training, etc. Ke Yongjian, Wang Shouqing and Chen Bingquan (2009) combined with the actual cases in China, summed up the incentives that the government should take in project implementation and summarized the experience of avoiding project failure. Shen Yong and Guo Pengjun (2014) analyzed from the PPP projects implemented in China over the years because PPP projects have high requirements on capital size, long financing period, numerous participants, and complicated design schemes, etc. In order to balance the interests of the participants, it is necessary to establish a strong sense of risk, especially in the marketing stage of the project to focus on the terms of cooperation of the franchise.

Liang Qingxue, Hu Wei and Xie Wei (2015) analyzed how to share the risks of PPP projects from the perspective of partner selection, strengthening supervision and innovative research methods through analysis of three typical PPP cases. Luo Zhi (2016) analyzed the risks in the contract terms of PPP projects from the legal point of view. He said that the legal risks of PPP projects mainly come from project operation, government procurement, project legality, imperfect legal system, and reasonable risk sharing mechanism. Sexuality and other content targeted legal risk prevention measures for different stages of the PPP model operation process.

It can be seen from the existing research that the research focus of scholars at China and abroad mainly focuses on the process, risk, and legal compliance of PPP projects. However, it does not propose an effective solution to the problem of low private capital participation in PPP projects. The reason is that the investment cycle of PPP projects is

very long, and the investment needs are rather large. Once the project company participates in the investment, the capital invested often takes a long time to exit, resulting in a decrease in its capital use rate. Therefore, how to revitalize these long-term assets and increase liquidity has become the key to promoting the further development of PPP projects.

2.3 Development of Asset-Backed Securitization

The concept of asset securitization originated in the United States. The United States Federal National Mortgage Association led the world in 1968 and launched the world's first asset securitization product, housing mortgage securities. The term "asset securitization" was formally proposed and explained by American banker Lewis S. Ranieri (1977). Subsequently, asset securitization spread in the US banking and academic circles, and with the development of time, the theoretical system of asset securitization has gradually improved and enriched.

In order to standardize and unify the definition of asset securitization, the US Securities and Exchange Commission first defined: Asset securitization refers to how a company adopts specific structures and transformation methods for its illiquid assets or other income bonds and stocks. The process of selling in advance in the current capital market to obtain cash inflows in advance. Gardener (1991) puts a more general definition of asset securitization based on the SEC: asset securitization refers to the borrowing of funds and borrowers through mature capital markets, with specific means and a tool or process in which a method is wholly or partially matched. In this case, the closed market reputation provided initially by banks and other traditional financial institutions was replaced by the open market credibility provided by the increasingly mature capital markets. The concept of capital securitization, in a broad sense, has also arisen.

After more than 30 years of rapid development, Western academic research on asset securitization has matured. Schwarcz (1994) pointed out in his book "The Alchemy of Asset Securitization" that asset securitization can significantly reduce the transaction costs of both parties and the cost savings through this process are much higher than any other financing method. This is the most significant advantage of using asset

securitization.

Frost (1997) at the problem of risk segregation in asset securitization was first proposed in the study. He showed that asset securitization could achieve the segregation of securitized assets from other risk assets, which can avoid losses caused by bankruptcy to a certain extent. The specific approach is to isolate the other assets of the original equity of the underlying assets by means of the true sale of the underlying assets to a special institution SPV (Special Purpose Vehicle) in the process of securitization, even in this case the original underlying asset holder is bankrupt and the underlying assets that have been actually sold are not within the scope of bankruptcy liquidation, so that the investors of asset securitization will not suffer from the bankruptcy of the original holder of the underlying assets.

Thomas (2001) further studied the impact of true sales on asset owners and bondholders in their research. The conclusions show that shareholders have more advantages than creditors of assets. Correctly, when the credit of the seller of the securities is low, the wealth will shift from the creditor to the shareholders, and the lower the credit, the less wealth the shareholders will receive. Securitization of credit card receivables by Higgins and Mason (2004). After conducting research, it is believed that the smooth issuance of bonds with asset securitization is closely related to the credit rating of the market.

2.4 Asset-Backed Securitization in China

Although domestic research on ABS started late, many scholars have conducted in-depth research. The domestic scholars' theoretical research on asset securitization began in the early 1990s. After that, many domestic large financial institutions attempted to design their own ABS products. However, due to some early policy factors and other objective conditions, domestic research and attempts on ABS are still in a period of discovery. Different scholars' research in this area still has its own independent opinions.

He Zongkun from Taiwan, whose paper "Influence of Financial Asset Securitization on Bank Operating Costs and Risks" published in 1992, has researched asset

securitization from two different perspectives of financial institution operation and risk control.

Three years later, experts and scholars from the Mainland began to pay attention to related research on asset securitization. Among them, Yin Hong (1995), Ba Shusong (1995), Wang Lihong (1996), Han Boyin (1995), etc., are strongly recommended to carry out asset securitization in China's financial institutions. The specific assumptions on how to carry out asset securitization are put forward. He Xiaofeng and Liu Yongqiang (1999) show that whether asset securitization requires stable and predictable cash in the future for the underlying assets is the primary factor. Therefore, the competition at the level of the underlying assets have achieved the elimination of non-performing assets by high-quality assets to a certain extent, and thus, the optimization function of the capital market for resource allocation.

Liu Wenlong and Du Xiuli (2000) pointed out that given the current dislocation of domestic investment and financing, vigorously promoting the development of asset securitization is an effective solution and also contributes to economic growth. Deng Weili (2004) summarizes the characteristics of the development of foreign asset securitization market and discusses in detail some key issues that may arise in the process of asset securitization. It also discusses how to improve the credit rating and risk of securitized products. Prevention is discussed in detail.

Based on these studies, the feasibility of asset securitization in China is emphasized. Before 2005, domestic research on asset securitization was still not widespread. It began to appear in a large number of related researches since the launch of credit asset securitization and corporate asset securitization in 2005.

Xie Yongjiang (2007) and Zhang Zeping (2008), Dr. Dong Jingbo (2009) and Zhang Yanfang (2009), based on the analysis of the overall framework of asset securitization, focus on the research on specific-purpose institutions, international asset securitization, asset transfer legal issues, and financial asset securitization. As for the combination of PPP projects and asset securitization, both the theoretical and practical circles have a positive attitude.

Gu Meiyong et al. (2015) argue that PPP and asset securitization can be combined, but there is no denying that there are many legal issues that need to be resolved. Zhu Shiliang and Zhao Jing (2015) strongly recommend that PPP projects be integrated with asset securitization. They believe that the combination of asset securitization and PPP is conducive to the resolution of the local government debt crisis and has real significance in supporting China's urbanization construction financing.

Zhao Fujun (2016) believes that bank loans still account for a large proportion of the financing methods adopted in the original PPP projects. Some of the sporadic projects use other financial instruments. If the implementation of PPP projects is to be accelerated, there is an urgent need to increase investment capital. The ability to liquidate and solve the problem of financing and existing mechanisms of PPP projects in order to enhance the enthusiasm of private capital participation.

3.Operation Principle of PPP Asset Securitization

The essence of PPP asset securitization is to securitize the illiquid underlying assets and package their cash flows by technical means to make them more liquid and more comfortable to be accepted by investors with different preferences. Its principles mainly consist of cash flow analysis principle, asset reorganization principle, risk isolation principle, and credit enhancement principle.

3.1 Cash Flow Analysis Principle

Positive cash flow will be generated in the process of project operation. The cash inflow and outflow in the operation process can be divided into three categories according to the principle of the cash basis of receipts and payments: cash flow generated in the investment process, cash flow generated in the financing process, and cash flow generated in the operation process.

The analysis of cash flow mainly lies in the incremental analysis and timing analysis of cash flow. The cash flow of the target enterprise can be monitored and managed dynamically according to the incremental analysis and time sequence analysis, and it can also be used to evaluate the value of specific underlying assets. Cash flow is the change of capital in a particular subject's capital cycle during a specific period. Cash

increment is the change in cash flow. Cash management behaviors such as withdrawal of cash, deposit in financial institutions and capital inflow and outflow in the process of investment do not bring changes in cash, only changes in the form of cash existence, but do not bring changes in cash increment.

The timing of cash flow is mainly reflected in the inflow and outflow of cash in the process of enterprise operation, which is the change of cash flow in different periods. Cash flow management can monitor the production and operation process of an enterprise, which plays an essential role in controlling the quality, cost control, and performance evaluation of products and services. The analysis of cash flow can also understand the rationality of the enterprise financial structure, to dynamically adjust the enterprise's financial policy and optimize the enterprise's financial composition; cash flow can also reflect the quality of business results.

The management of cash flow is one of the cores of daily management. The security of cash flow is related to the ordinary operation of enterprises and projects. In a certain period, enterprises or projects may lose money, but once the cash flow is exhausted, the business can only be in a state of stagnation. In order to optimize the management of corporate cash flow, professionals from professional institutions are required to conduct a comprehensive and scientific assessment of the liquidity, income status, and financial risks of corporate assets. Enterprise managers and external investors can make decisions based on cash flow, and managers can adjust management methods and make future financial and management plans according to cash flow. In order to reflect the cash flow scientifically and accurately, users should also make judgments and decisions based on other financial statements of the enterprise, explore the operation of cash flow based on the macro environment and industrial environment at domestic and abroad, and optimize the control of cash flow.

The core principle of PPP asset securitization is the cash flow analysis principle of asset securitization. PPP asset securitization is based on stable cash flow in the future as the support to issue securities. Assets ostensibly back securitization, but in fact, it is backed by cash flow generated by assets. It can be said that stable and predictable cash flow is the soul of PPP asset securitization and PPP asset securitization without cash flow

support does not exist and has no practical significance. Based on the stable cash flow of PPP projects and continuous operation for a specific period to meet regulatory requirements through evaluation, this is an essential step in the work of PPP asset securitization issuance. In structured products, successful PPP asset securities issued later. During the duration of the particular plan of the original rights and interests of people, according to the provisions of the franchise combined with, related service fee for the payer, the original account or other than the rights and interests of people receiving account fees income by any other means shall be paid by the original rights and interests of people after receipt of payment and the rights and interests of the original charge account.

On each collection day, the asset service agency will transfer all the recovered funds of underlying assets in the collection account of the original equity holder and other accounts other than the collection account of the original equity holder or the recovered funds of underlying assets received in cash to the collection account, and then transfer them to the unique plan account through the collection account. After the capital is collected in the individual plan account, the unique plan will pay the principal and interest regularly according to the agreement to guarantee the rights and interests of investors.

3.2 Asset Reorganization Principle

Against the background of China's increasing opening-up, the market is the decisive factor of resource allocation and the country's deleveraging and restructuring, asset restructuring is one of the commonly used tools for market players. In order to improve the quality and operational efficiency of assets, enterprises can realize asset reorganization through mergers and acquisitions or acquisitions and sales. At the same time, it can realize the synergistic effect of operation and finance, and better realize the decentralization and diversification of enterprise operation. Due to the differences in the level of enterprise development, as well as the mixed quality of professional managers and managers, the efficiency of enterprise operation is different. Generally, assets reorganization is realized by enterprises with excellent efficiency and high management efficiency to realize the reorganization of enterprises with low management efficiency

and enterprises with low efficiency realize the optimal allocation of resources utilizing reorganization and accepting better management methods.

Through asset reorganization, synergies can be well realized, which are mainly manifested in operation and finance. The improvement of operating efficiency is mainly realized through scale effect and cost effect. After the asset reorganization, the reorganization party can improve production efficiency through the expansion of asset scale or the expansion of production and business scope. At the same time, the reorganization party can also conduct the layout of the industrial chain through asset reorganization, make up for the insufficiency of the industrial chain, optimize the layout of the industrial chain or form the layout of the entire industrial chain and reduce the intermediate cost of each link through the layout of the industrial chain. The restructured party improves its production and operation status by improving production efficiency, expanding production scale, and reducing the production cost, thus improving the financial status of the restructured party. After the completion of the reorganization, the restructured party can also rely on the excellent credit level of the restructured party to reduce its financing cost to serve the production and operation activities better and thus improve the financial situation of the company.

Asset reorganization can realize the expansion effect, and it is also a necessary means to realize the optimal allocation of resources by integrating the advantages of all parties. Asset reorganization can revitalize the stock, optimize the structure to achieve dynamic growth, and establish a reasonable and orderly governance mechanism. Combined with China's current economic transition, optimize the industrial structure to achieve economic transformation and upgrading of the national conditions, asset restructuring is particularly essential. Asset reorganization is an essential step in the process of PPP asset securitization.

In the process of PPP asset securitization, the purpose of asset reorganization is to construct an asset pool for financing. The underlying assets with clear property right of combination, allocation, and choice can generate stable cash flow, and their essence is also the combination and distribution of cash flow. The underlying assets shall not be subject to collateral mortgage, pledge, and other security burdens or other rights

restrictions. The assets needed for asset securitization financing are specific, which are some specific assets "stripped" out of all assets of the original owner. The range of underlying assets may not be limited to the assets of a single company but may also combine the assets of many different companies in different regions into a pool of securitized assets. Then, according to the arrangement of the transaction structure, the individual plan can completely separate the cash flow related to the underlying assets from the other cash flows of the original owner by setting up the original owner's collection account, fund collection account, and private plan account.

3.3 Risk Isolation Principle

Risk isolation is an integral part of PPP asset securitization. Risk isolation and securitization design and transaction after risk isolation are two critical links of PPP asset securitization. Risk isolation separates the underlying asset from the original owner. Risk isolation is mainly the risk isolation of the asset. PPP asset securitization is mostly supported by the income or cash flow generated by projects such as public utilities or infrastructure to issue securitized products. Risk isolation makes assets more independent and secure. Only when the independence and security of the underlying assets are realized can the securitized products be structured to repay capital and interest to investors in different maturities and at different interest rates. If the underlying assets of PPP asset securitization are not isolated from the initiators, then no matter how high the rating of the securitized products is and how good the underlying assets are, the risks of the securitized products cannot be estimated, and the securitized products will eventually be neglected.

At the legal level, special purpose vehicles (SPV) emerged at the right moment. The initiators realize risk isolation through the "true sale" of assets to SPV companies and ensure the cash flow generated from the underlying assets to be paid to investors. On this basis, the company issues securitized products through SPV to realize financing and realize the purpose of invigorating the inventory of assets.

This measure can make investors only bear the risks from the underlying assets and securitized products and avoid unnecessary losses caused by financial difficulties or bankruptcy of the sponsors. Through risk isolation, the initiator transferred the higher

risk or unacceptable risk to the investors. The risk isolation mechanism separates the risks of the other assets of the originator from the risks of the underlying assets of the to-be-securitized products. Once the assets are sold, the seller has no recourse to the underlying assets. Nor should investors worry about the originators' other risks being passed on to securitized products.

"True sale" is mainly in order to solve the isolation of risk in the contradiction of economics and law perspective, from the point of view of securitized products investors they want from the underlying assets from the originator beyond guaranteed income and cash flow and other assets do support safeguard, the originator to the PPP asset securitization project successful financing and reduce the cost of financing is usually promise other assets to support security; In order to protect the rights and interests of PPP securitized investors, in order to isolate the risks from the original stakeholders and guarantee the rights and interests of other creditors through asset sales, the current national laws and financial supervision standards require that risk isolation must be achieved in the form of "true sales".The "true sale" requires the original owner to transfer the relevant interests and risks of the underlying assets supported by the products to be securitized to SPV company completely. SPV has full ownership of the underlying assets, and other subjects do not have the right to gain and control.

The SPV receives the underlying assets from the originator through a "true sale" and uses internal and external enhancement measures to raise capital in order to generate stable cash flow. In the process of PPP asset securitization financing, on the one hand, SPV company's function is to isolate the risks of investors and originators; on the other hand, its function is to realize financing as an independent legal entity. In this way, risk isolation is realized, the interests of the majority of investors are guaranteed, risks in the PPP asset securitization market are prevented, and a reliable financing tool is provided for the economic transformation.

3.4 Credit Enhancement Principle

Credit enhancement is also an essential part of PPP asset securitization. The rationality of the enhancement scheme directly determines the acceptance of investors, thus affecting the financing cost and the liquidity of securitized products. Credit enhancement

can broaden financing channels, lower transaction threshold, and lower risk coefficient. Through specialized handling of risks, the participants can share risks and benefits, and the optimal allocation of resources can be realized.

PPP projects come from different regions and industries, so the quality of projects varies greatly, and their credit levels are different. In the process of PPP asset securitization, we should formulate different enhancement schemes according to the specific conditions of different projects to reduce the risks of securitized products and improve the credit level of listed negotiable securities. With high credit rating and strong profitability, it is easier to expand financing channels through the approval of regulatory authorities. The higher the risk of securitized products is, the higher the risk premium demanded by investors will be. If the initiator's financial status and asset pool's asset status are not functional, it can only improve the credit rating through credit enhancement to reduce the issuance cost.

If the credit status of various assets of the initiator varies significantly, then we should separate the high-quality assets from the defective assets, strip the defective assets out of the asset pool and finance with high-quality assets. In this way, a better financing status can be achieved under the condition that the overall credit level of the initiator is not right and it can be more in line with the audit requirements of the administrative department. Only in this way can the administrative department give the green light to the financing of PPP asset securitization.

As mentioned above, there are two forms of credit enhancement, internal enhancement and external enhancement, each with its advantages and disadvantages. In the practice of PPP asset securitization, the securities firm will determine what kind of enhancement method to adopt for financing according to the specific situation of the initiator. The internal and external enhancements are described below.

3.4.1 External Enhancement

External enhancement is mainly for credit guarantee provided by the third party. After the promoter pays the guarantee fee to the credit guarantor, the guarantor shall provide the credit guarantee, and once the promoter breaches the contract, the guarantor shall

assume the obligation of repayment of principal and interest. In order to improve external credit rating, promoters usually choose the third-party financial institutions with good credit standing and reliable financial resources or large state-owned enterprises. The external enhancement mainly takes the following forms:

1. Guarantee by a third party

Large enterprises generally provide the guarantee of the third-party institution, financial institutions with good credit standing and the sponsor gets the same credit rating as the guarantor, which is a better choice for enterprises with low credit standing and difficult internal credit enhancement. The third party will determine the fee standard according to the risk situation of the sponsor of the guarantee. The higher the risk is, the higher the fee will be. In the event of default by the initiator, the guarantor shall be liable for repayment of principal and interest.

2. Financial insurance

Financial insurance escalation is a relatively new mode whose essence is that the initiator transfers the risk of default by purchasing insurance products. If the initiator is unable to pay the principal and interest, the insurance company shall assume the obligation to repay the principal and interest. The insurance company will carry on the comprehensive appraisal to the promoter's risk, according to the risk size will determine the insurance expense.

3. Credit increase guaranteed by the government

The government guarantee that credit increase has a huge difference with other organization or the company guarantee. The government guarantee does not take the profit as the purpose is to guarantee the smooth operation of the economy or the orderly development of the capital market. The other difference between the government guarantee and other institutions guarantee is that the government guarantee does not need to provide the pledge, mainly through the federal credit as a guarantee. If a country enjoys sound economic development, sound economic indicators, and stable political situation, its national credit will be better, and its sovereign credit rating will be

higher. If the government guarantees credit enhancement, the initiator will surely get a better credit rating. The central government or local governments can guarantee national credit enhancement at all levels, but some levels of government in China are limited.

4. Set up third-party repurchase terms

The initiator or SPV can realize the risk transfer by signing the repurchase agreement, and the third party should have the right credit level. The most significant difference between this instrument and others is that the tripartite repurchase clause is mainly to deal with the risk of temporary default. When the SPV defaults and the default amount reaches the agreed threshold, the third party shall repurchase the outstanding assets as agreed. This approach not only alleviates temporary risks but also ensures the smooth operation of the entire asset-backed securities and even avoids the outbreak of overall systemic risks caused by political risks in SPV companies.

5. Credit Swaps

The initiator shall take the professional financial risk management institution as the object and pay fees to the initiator. If the initiator defaults, the professional credit swap financial risk management institution shall be responsible for the repayment of principal and interest. Because financial risk management institutions have professional knowledge, consultation, technology, and experience, financial risk management institutions will conduct a comprehensive assessment of the risk status of sponsors and determine the level of fees according to their risk level, which is generally lower than the fees of insurance companies or guarantee companies. Credit swaps have played an essential role in daily risk management and stabilized the market during the financial crisis, so all parties in the market increasingly favor them.

6. The standby letter of credit

A credit standby is an instrument first widely used in international trade where the holder meets the terms of the credit at settlement and the bank witnesses the actual payment of the sum stated. With the prosperity of the economy, the financial market has

achieved significant development, and the risk control needs of market subjects are becoming more and more diversified. This tool has been introduced into the field of asset securitization. When the initiator fails to perform the contract typically, the bank will assume the obligation of repayment of principal and interest according to the relevant provisions of the standby letter of credit.

In conclusion, external enhancement is an effective means of credit enhancement, which can improve the solvency and credit rating of securitized products. Lowering the threshold of financing and issuing fees; Realize the risk control requirements of "bankruptcy isolation," avoid the criticism of "true sale of assets" of internal promotion and realize the true sale of assets by this means. However, external credit enhancement also has its defects: since the promoter who chooses external credit enhancement has a low credit level, it needs to pay a high fee to improve the credit level through external credit enhancement, which increases the financial burden of the promoter. Another defect of external enhancement is that credit rating is easily affected by the credit level of the third party. When the credit level of the third-party enhancement institution changes, the credit rating of the issuing subject also changes accordingly.

3.4.2 The Internal Enhancement

Internal enhancement is to improve the credit level through structural adjustment and reorganization of assets in the asset pool. 4. The most significant advantage of internal enhancement is cost saving. There are mainly the following forms:

1. Cash reserve/mortgage account

The cash reserve account refers to the private trust account set up by the initiator before the PPP assets are securitized and sold by the initiator. Funds raised externally or deposited in a dedicated account. When asset-backed securities default, funds are withdrawn from the cash reserve account to cover the breach, so the risk coefficient of asset-backed securities is inversely proportional to the level of the cash reserve account balance. The funds in the private account of asset-backed securities cannot be used for other purposes when there is no default, which causes an absolute waste of resources.

2. Senior/Junior securities structure

Senior/junior securities structure is a common technical application of PPP asset securitization, which has a wide range of application. Is a hierarchical structure of securitization products, according to the different maturity and interest rates as a general layered heavy to quantitative standard, a lot of asset securitization promoter in a specific environment or different market environment will decide the different securities stratified may be different, some rare PPP asset securitization products may appear more layers.

The difference between senior and junior securities products lies in the difference between risks and returns. Compared with the sub-stratification of senior asset-backed securities, senior securities can repay principal and interest first if there is a substantial default in the event of cash flow difficulties. The senior securities transferred the risk to the junior securities. The senior securities had a stable interest rate, relatively small risk, and relatively low return. Low subordinated securities have high risks and unstable returns. Only after the payment of the income cash flow of the priority securities can the subordinated securities participate in the income distribution and complete the payment of principal and interest. In practice, the initiator will purchase the subordinated securities to improve the credit level and liquidity of the asset-backed securities.

3. Excess mortgage guarantee

Excess mortgage guarantee means that the initiator uses its assets as collateral to make the market value of assets exceed the issued securities. The total financing number of chemical products and the proportion of excess mortgage are different for different sponsors, which are related to the credit level of sponsors and the quality of underlying assets. In case of default risk, cash flow generated from excess mortgage assets can be used to pay the insufficient part, and credit enhancement can be realized in this way to save the cost of external enhancement. In the case of asset securitization, the securities company will stipulate the proportion of excess pledge with the initiator. When the ratio of an excess pledge is lower than the agreed standard, the securities company will require the initiator to make up the difference.

To sum up, internal credit enhancement saves a lot of intermediary fees and reduces the issuance cost. Because the initiators and securities companies have a better understanding of their underlying assets, it is beneficial to avoid credit risks. The originators usually choose the best quality assets to support the issuance of securities. Internal credit enhancement has its limitations. Firstly, it is difficult to guarantee that the "true sale of assets," and the "bankruptcy isolation" is significantly reduced. As the overall credit level of sponsors has a direct impact on asset securitization and even directly becomes a reference standard, the overall credit level of sponsors is higher than the credit level of securitized products.

4.Theoretical Analysis of PPP Asset Securitization

4.1 Organizational Structure of PPP Asset Securitization

PPP asset securitization is a systematic financing method, which requires the full cooperation of all participants and intermediaries to achieve smooth financing. It generally includes financing parties (initiators) are PPP project companies, SPV companies, rating agencies, credit enhancement agencies, accounting firms, law firms, custodians, etc. Therefore, the understanding of each subject is of great significance.

1. Government

Government departments are one of the distinguished participants of the PPP asset securitization. The government should formulate relevant policies and to operate PPP asset securitization in advance and afterward. One of the most significant responsibility is to pick out the PPP projects that are going to be securitization. The government can be either the PPP project investor or can be the PPP project products or services of the buyer, so the government is also the essential drivers of the PPP asset securitization.

2.Sponsor

The sponsor's job is to revitalize assets, make full use of assets, and improve the efficiency of assets utilization. The sponsor can finance with original underlying assets, initiating the company to organize and coordinate all parties to complete the whole process of PPP asset securitization. The trustee uses the original assets which have

clear property rights and can generate continuous cash flow to form the original asset pool.

3.SPV company

SPV (particular purpose vehicle) is a legal entity established for a specific purpose. It is a shell company. The company has no assets or a substantial asset group, only cash and cash equivalents and has no independent operation and specific business functions. Internationally accepted SPV companies are mainly in the form of trust, company, and limited partnership. Due to the limitation of qualification, SPT is mainly established by trust companies in China. The daily management is mainly composed of the management personnel of the sponsoring company, and SPT does not participate in the daily management. Asset valuation is an essential part of PPP asset securitization. SPT works closely with intermediary agencies. After all, parties reach consensus on the valuation, SPT will develop assets or expected cash flow into liquid securities after the valuation is confirmed. The financing party obtains funds through the sale of marketable securities by intermediary institutions, to realize the purpose of invigorating assets for financing.

4.Accounting firm

Accounting firms, as independent social intermediary organizations, conduct comprehensive verification of the financial status of the financiers and the underlying assets, verify the compliance, authenticity, continuity, and integrity of the accounts of the verification subjects and form official audit reports. At the same time, to provide financial advisory services.

5. Credit rating Agencies

Credit rating agencies, composed of financial, legal, and economic experts, shall assess the credit rating of sponsors and credit securities. Based on the due diligence of accounting firms and law firms in the early stage, the preliminary preparation for rating shall be carried out. The rating team shall conduct an on-site investigation, analysis and demonstration, expert review, and information release according to the rating scheme.

6. Credit enhancement agencies

The job of credit enhancement agencies is to ensure the smooth financing process of PPP asset securitization, reduce the financing cost, and improve the credit level of products.

7. Law firms

The law firm shall conduct a comprehensive due diligence investigation on the legal compliance of the initiators, check whether the initiators have violated laws and regulations and issue an independent legal opinion.

8. Plan manager

In China, the role of the plan manager is played by the securities company. As underwriters, they need to coordinate the close cooperation between intermediary agencies to ensure that every link of financing is implemented. Need law firm to provide legal service and issue an independent opinion; Accounting firms shall provide financial verification services and issue financial verification reports; Credit enhancement agencies provide professional enhancement services to enhance their credit level; Credit rating agencies rate the originator's securities so that investors know the level of return and risk on the securities.

9. Custodian

Generally speaking, the custodian is a commercial bank with custodian qualification. It keeps the entrusted assets safely. Conduct capital liquidation and securities delivery, share and check relevant data to relevant parties and principals.

10. Investors

According to The Regulations on the Management of Asset Securitization Business of Subsidiaries of Securities Companies and Fund Management Companies, asset-backed securities shall be issued to qualified investors. The securities shall be issued to qualified investors with no more than 200 persons and no less than RMB one million of the face value or equal shares for each subscription. Qualified investors shall comply

with the conditions stipulated in the interim measures on supervision and management of private investment funds, be established by the law and be supervised by the financial supervision and management institution of the state council. The investment plans implemented by relevant financial institutions for active management shall no longer be used to calculate the number of investors through penetrating verification, whether the final investors are qualified investors or not and combining.

4.2 Operation Process of PPP Asset Securitization

No matter which mode is adopted, PPP asset securitization is a specific and systematic project, which requires the initiator to strictly organize and implement it by relevant business norms, regulations, and procedures with the cooperation of various intermediary institutions. The most critical steps include law firms, accounting firms, and other institutions to cooperate with the sponsors to carry out due diligence. Select the underlying assets according to the plan determined after due diligence and construct the underlying assets pool. Set up SPV company to ensure the true sale of assets or set up trust plan to ensure the real isolation of risks; Underlying assets sold to SPV; Determine the credit enhancement plan according to the actual situation and comprehensive environment of the company; Invite authoritative rating agencies to conduct credit rating; Issuance of securitized products; Collection and distribution of cash flows; Management plan information disclosure; Manage the liquidation of the plan.

Step1: Conduct due diligence

Due diligence is the most basic and essential step of securitization. The intermediary institution conducts an on-site investigation and comprehensive verification. It includes industry research on the initiator, enterprise history, enterprise owners, law and regulation, finance and accounting, taxation, and other aspects. It aims to conduct a comprehensive investigation and study on potential risks, internal control, strategic objectives, cash flow, sustainable profitability, whether there are defects in assets, and financing schemes. Review relevant financial original materials; Interviews were conducted with senior managers and functional department employees. So that investors can fully understand much information about securitized products to achieve

the purpose of protecting the rights and interests of investors.

Step2: Select basic assets

In order to finance and reduce the cost of financing, the initiator will usually put forward high-quality assets and certificate to build the asset pool. The administrative regulations of the China securities regulatory commission also make explicit provisions on the underlying assets of securitization. The underlying assets can be assets or asset rights. Assets or asset rights must generate independent and predictable cash flows. If the assets are defective or have been mortgaged or pledged, the conditions for the underlying assets of asset securitization cannot be met by CSRC. Therefore, in the process of carrying out due diligence, the screening of underlying assets should be the focus of each intermediary.

Step3: Set up a special management plan

Securities companies set up SPV through individual management plan and structured the injected assets by technical means to achieve risk isolation and credit enhancement to build a foundation for subsequent issuance.

Step4: Transfer of underlying assets

The SPV company receives the ownership of the assets from the sponsors by signing a sale and purchase agreement, and the securities firm issues asset-backed securities based on the assets of the SPV company. The underlying assets should have stable cash flow, and these rights are reflected in the repurchase payment, collection right, accounts receivable, etc. These rights become independent with the delivery of ownership and are not affected by the bankruptcy of the initiator.

Step5: Credit enhancement

Credit enhancement directly affects the level of financing cost and credit rating. Investors have high requirements on the credit level of securitized products. Some enterprises have reduced credit level, or some assets have some defects. This requires credit enhancement measures to improve the rating level. Generally, internal

enhancement and external enhancement are adopted.

Step6: Credit rating

Credit rating agencies shall, based on previous due diligence of accounting firms and law firms, evaluate the advance cash flow and risk factors of sponsors, and assess the credit rating of sponsors and credit securities.

Step7: Establishment and distribution

When a securities company cooperates with the initiator to complete the necessary preparation for the issuance of asset-backed securities, it shall be subject to the provisions of the state council issuance of securities by regulations and necessary procedures. By the subscription agreement signed between the securities firm and the investor, the securities firm shall register with the AMAC within the prescribed limitation period.

Step8: Collection and distribution of cash flow

The plan manager and custodian shall generate the cash flow generated by assets or asset rights by the custody agreement. The capital management plan shall be supervised and managed according to the rights and obligations of the parties specified in the signed agreement.

Step9: Information disclosure and liquidation

By regulatory requirements, each party shall regularly or irregularly disclose information to ensure information symmetry. PPP asset securitization products shall enter the liquidation procedure after the end of the duration.

4.3 Subject Contractual Relationship of PPP Asset Securitization

PPP asset securitization realizes financing on the premise of mature PPP projects, which determine the rights and obligations of each participant based on a series of contracts to ensure the common interests of all parties. Contracts involved in PPP projects include design, construction, operation management, purchase of services, investment and financing, etc., among which franchise contracts signed by the

government and social capital are the most fundamental and essential contracts. It is an essential part of the smooth implementation of PPP projects and PPP asset securitization. After meeting the relevant requirements of PPP asset securitization, in the process of PPP asset securitization, sufficient communication, coordination, and full cooperation among the main participants are required to complete the issuance of PPP asset securitization products. In this process, issuing subjects also need to sign a series of contracts with intermediary institutions. There are the following contracts in the process of PPP asset securitization.

An underwriting sponsorship agreement between the sponsors and the securities firm; Financial consultancy agreement signed by the sponsors and the accounting firm; Legal counsel agreement signed by the sponsors and the law firm; Credit rating agreements signed by the promoters and credit rating agencies; "Supervision agreement on asset support special plan for fee and usufruct" signed by the manager, promoter and the supervising bank; "Agreement on custody of asset support special plan for fee and usufruct" signed by the manager and the custodian; A series of related contracts, such as the "subscription agreement for asset-backed securities under the asset-backed special plan for fees and earnings", signed by the manager and the investors of asset-backed securities.

It also includes the "agreement on the sale and purchase of assets under the special plan of asset support for fee and revenue" signed by the original owner (initiator) and the manager; "The pledge agreement on the right of charge and usufruct asset support special plan signed by the manager and the original owner"; The commitment letter of balance payment issued by the promisor to the manager (on behalf of the holder of the asset-backed securities) for the balance payment of the individual asset-backed plan of the right to receive fees and gains; The commitment letter of the pledgee for the senior asset-backed securities resale and redemption issued by the manager, "commitment letter for the resale and redemption of the asset-backed special plan for the right to charge and gain"; Contracts such as "letter of commitment to provide liquidity support" issued by the liquidity support institution to the originator and manager. PPP asset securitization is a complicated and tedious process, in which each subject clarifies the

roles of all parties and guarantees their rights and interests through a series of contracts.

5.Current dilemmas for China ABS of PPP project

5.1 Risk of Modification of Laws

This risk may influence on the policy and the validity of the contract. (Zheng, 2014) The risk is caused by the changes in laws and regulations and the enactment of new laws. At present, the PPP industry in China is still in its early stage. The situation that the practice is ahead of the legislation is relatively severe. The emphasis of different legislative documents is different, and the level of effectiveness is different. It is inevitable that there will be different regulations on the documents of different departments for the same issue, which will affect the overall judgment of the government and social capital on the project and even bring damage to the construction and operation of the project. At the same time, the legislative situation of asset securitization is not optimistic. Although its products can be regulated by the "Securities Law" as negotiable securities, the provisions of this law are not detailed. Besides, different levels of laws and regulations emerge in endlessly, which is, in fact, extremely harmful to the development of the industry. The asset securitization of PPP project will have the same problem, and the failure to solve the conflict between different laws and regulations can cause the business to stagnate.

5.2 Misallocation of the Duration of the Contract

The purpose of the PPP project is to provide public services. The long period of the operating cycle is its inherent specialty. Moreover, the general project contract will be signed for a period of 20 to 30 years. Too fast a project change for a short time is not conducive to infrastructure construction, and this time is usually several times longer than the duration of asset securitization products. Therefore, it is undeniable that the use of only one asset securitization product is complicated to meet the financing needs of the PPP project. On the other hand, if assets based on the same income right carry out multiple asset securitization in different things, there will still be time slot, plus the legal relations and procedures will be more cumbersome so that the financing is still difficult.

Some people think that the classification of PPP project asset securitization can also be divided through the project at different stages (Zheng, 2014). That is asset securitization in the construction stage and asset securitization in the project operation stage. The cash flow in the construction phase of the project has a wide range of sources, and its alternative securitization model is more productive. For example, when the social capital party is a financial leasing company, it can choose to take the right of financial lease debt as the underlying asset to carry out securitization and then put the income generated by securitization products into the construction or operation of the project. This situation is not very different from the traditional asset securitization, with only slightly different income flow but this is also one of the free solutions to the problem of misallocation of the term of PPP project and asset securitization.

5.3 Credit Risk of Local Government

There are three types of credit risk types, including default risk, credit spread risk, and credit deterioration risk. The smooth development of PPP project asset securitization has a strong relationship with the government credit status. The main reasons are as follows.

First of all, the legal system is relatively imperfect, and there are a wide variety of related policy documents. Different government departments may have different interpretations of the same policy content, thus increasing the risk of social capital. At the same time, it cannot be excluded that some government departments make use of the defects in these realities to create a risk that should not be present deliberately.

Secondly, the current policy and reality allow the government to include financial subsidies in the scope of underlying assets but because of the long duration of the project, it may be difficult for the financial subsidy to sustain the needs of the project or after the expiration of the term of office, the next leading group does not accept the agreement signed in the previous term, which will result that financial expenditures or financial subsidies cannot be delivered on time.

Thirdly, a large number of PPP policy documents have been launched after 2014, and local governments have been encouraged to develop PPP projects and improve public services by the state. Some local governments sign excessive project agreements or make blind commitments to social capital parties for providing a large number of subsidies while failing to correctly estimate their financial capacity in order to achieve excellent political performance, resulting in the situation that government cannot perform in time, resulting in government credit deterioration.

Fourthly, because of its unique nature, the government has excellent advantages in the initial credit rating, but the credit enhancement measures that can be taken are relatively single. Therefore, if a government's credit condition in general, it will have many adverse effects on the development of the PPP project asset securitization in the area.

As far as the methods to avoid government credit risk is concerned, it should be discussed in different stages. Before the risk occurs, that is, before the government defaults, the more effective way is to strengthen the supervision of the public information and the progress of the government work. After the risk occurs, the interested party should safeguard its rights and interests through the dispute settlement mechanism in time.

5.4 Hard for True Sale

A true sale is the critical element of asset securitization business but based on the characteristics of PPP project itself, when the two are related, the difficulty of true sale will multiply.

First of all, although the original rights owner transfers the income right to the special purpose institution, because of the structure mode of PPP itself and laws and regulations, the franchise of the project is still held by the project company. However, the income right comes from the franchise, in which case the subject of the two rights is bound to be separated. The degree of completion of the true sale is also questionable. However, the current policy provisions and useful areas have not put forward a solution

to this problem.

Second, different from the general underlying assets, the income right is closely related to both the government and the social capital party, and the occurrence of default on either side will harm the income right. This will further lead to the cash flow break of securitization products, which does not achieve risk isolation.

The risks of PPP asset securitization need to be isolated mainly from the government side. The impact of government default has been discussed above but if the project is closely related to government credit for other reasons, for example, if the government guarantees the credit enhancement mentioned above or the structure of real debt appears, the effect will be significantly reduced even if the true sale process is completed.

6.Suggestions on the Perfection of PPP Project Asset Securitization in China

6.1 Issuing the Operating Standard of PPP Project Asset Securitization

PPP project asset securitization is still a new field. The legal relationship is complicated, the process is tedious, so it is unnecessary and confusing to formulate a fundamental law for it in a short time. At this stage, a large part of laws and regulations, documents, etc., still play a pushing role in supporting the government and social capital parties to participate in the business, but there is a lack of regulatory documents that can serve as a body guide. Therefore, the Legislative Affairs Office of the State Council, the Ministry of Finance, the National Development and Reform Commission and other departments may, individually or jointly, formulate administrative regulations to standardize the operation process. In order to reduce legal risks, create better policy, the economic environment for PPP project asset securitization, and expand the space for business development, attract the investment enthusiasm of the social capital side.

As far as the above discussion is concerned, the following two parts need to be paid attention to in the specification, and specific regulations should be made. First, flexible mechanism shall be formulated for the problems such as how to expertly complete the true sale to achieve risk isolation, whether the separation of franchising rights and the subject of income right can be resolved and how government credit is isolated from the whole process. Second, operational norms should formulate a regulatory system. It is indeed necessary to minimize the relationship between government credit and the project in PPP project, at the same time, in order to prevent the illegal operation of social capital, it is still necessary for the government and even the correct public opinion to supervise the behavior of the project company. In the process of asset securitization, there are still many legal questions without apparent legal basis, so it is necessary for various regulatory departments to work together to guide and supervise the different parties participating in securitization.

6.2. Pilot Launch of PPP Project Whole Business Securitization Model and Perfect Its Rules

Whole Business Securitization (Abbreviated as "WBS") refers to the securitization of the overall business of the original owner utilizing structured transaction arrangements, with the cash flow of operating income of the whole business as the payment support issuing debt securities. The business originated in the 1990s in the UK, gradually expanded in Australia and other countries after the 21st century, and then entered into the United States. Although the United States has adopted the WBS model, it is quite different from the British WBS system structure.

Compared with traditional asset securitization, WBS has the following characteristics worthy of participants to learn and study and choose to adopt. First of all, the underlying assets of the WBS are a business carried on by the enterprise and are paid off with the proceeds of the business, but the original rights owner still owns the ownership of the assets involved in the business, in other words, it is still shown on the originator's

balance sheet. Therefore, WBS belongs to the securitization of assets in the statement. Although the original intention of PPP project asset securitization is to turn it into off-balance asset securitization, the separation of franchise right and income right subject is similar to WBS, so the study and absorption of the content of its structural design may promote the process of the true sale of PPP project assets securitization in China. Secondly, the duration of the WBS can be up to 20 to 30 years, which can be consistent with the operation period of the PPP project. Thirdly, because of the different sources of cash flow, the credit rating level of WBS products is higher than that of the general asset securitization products and the owner of their fundamental rights, so the cost output can be reduced. Fourthly, there is a specialized management receiver in WBS. When the WBS product is in default, the management receiver will take over the business as the underlying asset, which can protect the rights and interests of the investor to the maximum extent. In contrast, the lack of supervision of the asset securitization and the lack of protection mechanism for the rights and interests of investors in China are the problems occurring after the emergence of this business.

Based on the different national conditions and the restrictions of legal provisions, it is true that WBS is one of the development directions of PPP project asset securitization in China under the current background, but complete copying may also play a counterproductive role. Therefore, the feasible mode at this stage is to study the details of WBS structure design to adjust the content according to the practice of our country and find suitable projects to carry on the pilot project and then to improve until finally to form the "PPP+WBS" mode with Chinese characteristics.

6.3 Introducing REITs to PPP Project Asset Securitization

REITs, with the full name of Real Estate Investment Trusts, first appeared in 1960, and its essence belongs to a form of asset securitization. The announcement of the "Real Estate Investment Trust Act" in the United States means that it can be set up by the relevant operators, usually in the form of stocks or beneficiary vouchers, and centralize the management of commissioned professionals. The trustee selects real estate projects and business affairs in different regions and of different types to invest, and the operating income of the assets returned by the fund is mainly obtained by the direct

operation of the real estate property.

REITs started relatively late in our country. At present, there is no legal definition in the fundamental law, there is no special legislation, and the laws and regulations of the previous period also promote the pilot project of REITs. However, in reality, many factors are restricting the development of REITs. Therefore, the integration of it with the asset securitization of PPP project, which is still in its infancy, will bring more room for the development of both.

As for how to introduce REITs into PPP project asset securitization, some scholars think that the PBR model (Public-Based-REITs) of public rental housing project financing can be constructed, with REITs as the social capital side, and the basic structure is similar to that of PPP project. The difference is that the project company needs to find the right real estate development enterprises to build real estate in order to obtain the following benefits. Although the PBR model has the characteristics of both PPP and REITs and has a particular development prospect, the author thinks that this model is not suitable for large-scale promotion, the reasons are as follows. First of all, the operation process of this model does not reflect the process of asset securitization, so the whole process does not give full play to the role of REITs as a fund. Secondly, the model can only be applied to the real estate of public rental housing, while the scope of public services involved in the PPP project does not only include this content. Thirdly, as the social capital side, REITs needs to correspond to the real estate built later, which limits the function of REITs. To sum up, the author believes that it is necessary to explore a new model to combine PPP project asset securitization with REITs perfectly.

6.4 Improve the Diversified Dispute Settlement Mechanism of PPP Project Asset Securitization

One of the ideas put forward by the author is to take REITs as the social capital side to participate in the PPP project assets securitization, which does not limit the type of PPP project and does not affect other processes. This approach has the following advantages. First of all, REITs has a certain degree of relevance to the whole PPP project asset securitization, rather than just a financing subject. Secondly, this approach can reduce the risk of term misallocation. Finally, REITs itself is a securitization product,

the credit is higher than the general social capital such as enterprises, to reduce the credit enhancement pressure in the securitization stage. If this method is considered feasible after research, it is necessary for the China Securities Regulatory Commission and other relevant institutions to formulate business operation n4. Establish the Diversified Dispute Settlement Mechanism of PPP Project Asset Securitization

After the rapid development of PPP, it has advanced into the bottle-neck period, followed by a large number of legal disputes. From the above analysis, it can be seen that there is still much room for the development of the current PPP dispute settlement mechanism. Although the PPP project assets securitization is still in the initial stage, it is necessary to provide the relevant contents at the beginning of the system design in order to avoid that there is no application dispute settlement mechanism in the event of a dispute.

From the content point of view, PPP project asset securitization should belong to the securities market, so it should follow the primary mode of securities dispute settlement mechanism, and then adjust according to the characteristics of the business itself. There will be different types of legal disputes in the PPP project assets securitization at different stages. However, the type of dispute is mainly civil dispute and supplemented by the administrative dispute. Although the legal system in the field of procedural law in China is complete and continuously revised to meet the needs of the times, the settlement mechanism of the above disputes can still be divided into two categories: non-litigation settlement and litigation settlement.

The dispute type of PPP project stage is relatively single, so it mostly occurs between the government and the social capital party. When the two sides sign a franchise agreement, according to the "Administrative Procedure Law" and its judicial interpretation, the settlement of disputes must be solved through resolving administrative disputes. As mentioned above, there will be some drawbacks in resolving this kind of dispute completely in administrative litigation. On the one hand, although administrative litigation reduces the burden of proof on the social capital party, the unbalanced subject position of the two sides may gradually reduce the investment intention of the social capital party. On the other hand, under the circumstance that the

defaulter is the social capital party, if the government is allowed to pursue the responsibility of the other party in the form of a civil lawsuit, this will cause extreme injustice to the social capital. Therefore, the author suggests that appropriate changes should be made to the dispute settlement methods at this stage, draw on the contents of the "Guide," and allow social capital parties to bring a civil action or administrative litigation according to different circumstances. How to divide the boundaries of different types of litigation needs to be explored and adjusted in specific cases and legal practice.

The disputes in the process of securitization generally occur in the issuance and sale stage of securitization product, and most of them are securities infringement disputes. The characteristic of such kind of disputes is that the total amount of the case object is large, but in view of a large number of characteristic victims of the full range of the securities, the amount of compensation that may be received when it comes to individuals is too small, so that such cases are characterized by both uncertain representative litigation and small litigation. The present "Civil Procedure Law" and the interpretation of the division law have made relatively detailed provisions on these two types of cases so that the relevant contents can be referred to in the case of a securities infringement dispute.

Although the theoretical basis and legal provisions are sufficient, according to the type and quantity of judicial interpretation and judgment promulgated by the Supreme People's Court, it is more in the regulation of securities false statement liability disputes. However, compared with the traditional securities disputes, possible disputes caused by PPP project asset securitization involves more parties, and the legal relationship is more complicated. Therefore, the author believes that the Supreme People's Court can predict the possible new securities disputes after analyzing the current situation of securities market operation and thoroughly investigating the asset securitization of PPP project, and set out to draft new judicial interpretation to provide for the specific procedures of these cases, so as to provide more guidance for practice.

Since the dispute of franchise agreement can be resolved by administrative litigation, then the social capital party can also adopt the way of administrative reconsideration to

safeguard its rights and interests, but in view of some nature of the administrative reconsideration system, it is only theoretically possible to solve franchise agreement disputes and other types of disputes caused by asset securitization of PPP projects through administrative review.

Among the several non-litigation settlement methods stipulated in the "Civil Procedure Law," reconciliation can play little role in the scope of asset securitization of PPP project, while mediation and arbitration are not regulated in the "Securities Law." Therefore, securities legislation should respond to this. As the securities market business is professional, the People's Mediation Commission is basically unable to participate in the securities business to carry out mediation work, so the China Securities Regulatory Commission shall give full play to its role as a regulatory department, organize dispute mediation in person, or guide the subject of dispute to seek mediation from the third party subject recognized by both parties. When the mediation is not sufficient to resolve the dispute or the subject of the dispute does not agree to conduct mediation, the China Securities Regulatory Commission may recommend that the parties take an arbitration scheme to resolve the dispute.

7. Conclusion

This thesis takes PPP asset securitization as the research object. Firstly, it systematically studies the theoretical review of PPP asset securitization. It introduces the principle of cash flow analysis of PPP asset securitization, the principle of asset isolation, the principle of credit enhancement, and asset restructuring. Principle. Then, the operation mode and operation mechanism of PPP accreditation are discussed, and the participating entities, project operation mode, operation principle, credit enhancement, risk isolation are intensely studied. The conclusion of the study is finally drawn.

In a specific internal and external environment, PPP asset securitization is a relatively innovative financing method, which is conducive to improving the balance sheet structure of enterprises and revitalizing corporate assets. The promoters can also obtain low-cost funds for the development and growth of enterprises. Transformation and

upgrading provide an excellent financial environment. At the same time, it provides space for China's economic transition and eases downward pressure on the economy. The development of public utilities and infrastructure construction is beneficial to both current and long-term undertakings. It can also improve people's livelihood, relieve local government debt pressure, and promote Private investment. This is also the reason for China's strong support for PPP asset securitization.

Due to the vast differences in the fundamentals of the sponsor's underlying assets, changes in the industry environment and macroeconomic policies will have different degrees of impact on the sponsors. The credit enhancement measures of PPP asset securitization can improve the credit level of the issuer. However, in practice, it is necessary to strengthen the external upgrading measures. In the current domestic PPP asset securitization case, the issuer uses the internal upgrade method to achieve credit enhancement and less external credit enhancement means in order to reduce the intermediary cost of asset securitization. Internal internalization is not conducive to better risk control due to the inherent weaknesses.

PPP asset securitization can effectively achieve the isolation of risks from original stakeholders. Through the technical means, the risk isolation can be realized, and the credit level and anti-risk ability of the PPP asset securitization issuer can be improved. However, the relevant state departments should strengthen the supervision of the effectiveness of risk isolation. In the process of asset securitization of PPP projects, it is best to complete the construction of PPP projects, operate steadily and produce stable, sustainable, and predictable cash flow. Asset securitization can be done.

In order to achieve the purpose of financing through PPP asset securitization, the original equity holders will reduce the cost of securitized products and improve the liquidity of securitized products. The promoters will integrate and reorganize the assets they own, and PPP asset securitization will help accelerate the enterprise. The accelerated restructuring of assets and the use efficiency of assets to achieve optimal allocation of assets.

PPP asset securitization can be used as a supplement to direct financing and indirect

financing. Assets with no liquidity and stable cash flow in the future can be enhanced by structural stratification and internal and external credit enhancement. It has a positive effect on alleviating the situation of our direct financing market and indirect financing, optimizing the financial market environment in China, and improving the financing efficiency of the market.

Cash flow is essential for the operation of the project and the repayment of the securitized products. We must strengthen the forecast of cash flow before the issuance of securitized products, the calculation, and supervision of cash flow pressure, and the cash flow during the operation. The collection, accounting, and liquidation departments pay attention to it, strictly control the operation qualification management of cash flow-related intermediaries, and regularly and irregularly check relevant intermediaries.

Asset reorganization is also the core point of PPP asset securitization. The government should encourage enterprises to restructure assets through PPP asset securitization, dispose of inefficient assets, integrate enterprise assets to achieve optimal allocation of corporate assets, realize the transformation of enterprise development and China's economic transformation.

The government also needs to strengthen the risk management of PPP asset securitization projects. In the process of securitization of PPP assets, the first step is to ensure the independence of the SPV company and ensure that the "true sales separate the original equity and the underlying assets". Second, it is necessary to accurately measure, scientifically prevent and control risks such as liquidity risk, project construction risk, policy risk, third-party institutional risk, and transaction structure risk, and evaluate the risk isolation effect. Third, it is necessary to strengthen the supervision of credit enhancement methods, and comprehensively use internal credit enhancement and external credit enhancement measures to achieve better risk control effects.

The development of the economy and society is inseparable from the perfect legal system. PPP asset securitization is a systematic project that requires the active cooperation of all parties to be implemented. The significance of the implementation of PPP asset securitization is paramount, but our legal construction in this area is relatively

lagging. In order to make the PPP asset securitization better, it is necessary to carry out a systematic legal system construction.

First, if the qualifications of the sponsors and other conditions that need to be met are regulated; the scope of PPP asset securitization should be further clarified, and the scope should be appropriately expanded if conditions permit; further clarify the conditions of SPV and improve the basis of the deficiencies. It is included in the scope of legislation; the development of intermediaries and business norms require more detailed legal constraints. At the same time, it is necessary to increase legislation on investor education.

Intermediaries are the connecting hub between investors and financiers, and their healthy development plays a vital role in the development of financial markets. For intermediaries, we must put aside the combination, not only to provide space for the expansion of financial innovation business but also to strengthen the supervision of its business norms, the orderly introduction of negative list system. Cultivate and guide the critical links of legal affairs, finance, rating, enhancement, guarantee, etc., especially to strengthen the guidance of credit rating agencies, ensure the scientific and authoritative rating of rating agencies, and regularly evaluate and dynamically adjust securitization. Also, timely release credit rating information to better provide investors with investment decisions. Promotion intermediary. The transparency of the structure eases investors' concerns about information asymmetry and thus affects the development of the market.

8. Reference

- Albalade, D., Bel, G. and Geddes, R. (2013). Recovery Risk and Labor Costs in Public–Private Partnerships: Contractual Choice in the US Water Industry. *Local Government Studies*, 39(3), pp.332-351.
- Benveniste, L. and Berger, A. (1987). Securitization with recourse. *Journal of Banking & Finance*, 11(3), pp.403-424.
- Binder, K., Heermann, D., Roelofs, L., Mallinckrodt, A. and McKay, S. (1993). Monte Carlo Simulation in Statistical Physics. *Computers in Physics*, 7(2), p.156.
- Doh, J. and Ramamurti, R. (2003). Reassessing Risk in Developing Country Infrastructure. *Long Range Planning*, 36(4), pp.337-353.
- Fabozzi, F. (2002). *The handbook of financial instruments*. Hoboken, N.J.: Wiley.
- Fabozzi, F. (2016). *Bond markets, analysis, and strategies*. Boston: Prentice Hall.
- Gorton, G. and Souleles, N. (2005). Special Purpose Vehicles and Securitization. *SSRN Electronic Journal*.
- Grimsey, D. and Lewis, M. (2002). Evaluating the risks of public private partnerships for infrastructure projects. *International Journal of Project Management*, 20(2), pp.107-118.
- Ho, T. (1993). Cmo Yield Attribution and Option Spread. *The Journal of Portfolio Management*, 19(3), pp.57-68.
- Huang, J. and Kong, W. (2003). Explaining Credit Spread Changes: Some New Evidence from Option-Adjusted Spreads of Bond Indices. *SSRN Electronic Journal*.
- Kau, J., Keenan, D., Muller, W. and Epperson, J. (1990). The Valuation and Analysis of Adjustable Rate Mortgages. *Management Science*, 36(12), pp.1417-1431.
- Keating, B. and Keating, M. (2013). Private firms, public entities, and microeconomic incentives. *International Journal of Organizational Analysis*, 21(2), pp.176-197.

Lyons, T. and Skitmore, M. (2004). Project risk management in the Queensland engineering construction industry: a survey. *International Journal of Project Management*, 22(1), pp.51-61.

McConnell, J. and Singh, M. (1993). Valuation and Analysis of Collateralized Mortgage Obligations. *Management Science*, 39(6), pp.692-709.

Plaut, S. (1991). The prepayment uncertainty of collateralized mortgage obligations. *Journal of Housing Economics*, 1(2), pp.188-206.

Rosenthal, J. and Ocampo, J. (1989). *Securitization of credit*. New York: Wiley.

Spackman, M. (2002). Public-private partnerships: lessons from the British approach. *Economic Systems*, 26(3), pp.283-301.

The Monte Carlo method for semiconductor device simulation. (1990). *Mathematics and Computers in Simulation*, 32(4), p.427.

Yang, J. (2019). Alchemy of Financial Innovation: Securitization, Liquidity and Optimal Monetary Policy. *SSRN Electronic Journal*.

Reference in Chinese

[1] 郑磊. 资产证券化: 国际借鉴与中国实践案例[M]. 北京: 机械工业出版社, 2014.

[2] 黄勇. 资产证券化法律机制研究[M]. 北京: 法律出版社, 2015.

[3] 赵福军, 汪海. 中国 PPP 理论与实践研究[M]. 北京: 中国财政经济出版社, 2015.

[4] 吕汉阳. PPP模式全流程指导与案例分析[M]. 北京: 中国法制出版社, 2016.

[5] 林华. PPP与资产证券化[M]. 北京: 中信出版社, 2016.

[6] 湛中乐, 刘书燃. PPP协议中的法律问题辨析[J]. 法学, 2007 (03): 61~70.

[7] 宋晓燕. 论资产证券化中“真实出售”的法律问题[J]. 上海财经大学学报, 2007 (06): 47~54.

[8] 元霞, 柯永建, 王守清. 基于案例的中国 PPP 项目的主要风险因素[J]. 中国软科学,

2009 (05) : 107~113.

[9] 李力. 美国全业务证券化模式分析及启示[J]. 债券, 2013(08) : 24~27.

[10] 李恩惠. 资产证券化核心法律关系探究[J]. 法制与经济, 2014 (08) : 133~135.

[11] 邹晓梅, 张明, 高蓓. 欧洲的资产证券化: 发展历程、特色产品及其对中国的启示[J]. 上海金融, 2015 (1) : 81~86.

[12] 马斌, 郭枫. 韩国PPP纠纷解决机制及其启示[J]. 合作经济与科技, 2017(03) : 182~184.

[13] 星焱. 我国 PPP 项目资产证券化中的问题与对策[J]. 证券市场导报, 2017 (05) : 40~44+52.

[14] 王钰. 基于PPP与REITs的我国公租房融资模式研究[J]. 特区经济, 2017(7) : 73~75. [13] 郭上, 孟超, 孙玮等. 关于 PPP 项目资产证券化的探讨[J]. 经济研究参考, 2017 (08) : 20~25+30.

[15] 王明吉, 崔学贤. PPP 项目资产证券化之会计处理与税务影响[J/OL]. 财会月

刊,2017, (01):61-63(2017-01-10).

[http://kns.cnki.net/kcms/detail/42.1290.F.20170110.](http://kns.cnki.net/kcms/detail/42.1290.F.20170110.1336.108.html)

1336.108.html.

[16] 李英攀, 刘名强, 王芳, 邓宇. 基于 PPP 模式的大型建筑企业项目融资渠道选择

[J/OL]. 财会月刊,2017,(23):56-63(2017-08 04).

<http://kns.cnki.net/kcms/detail/42.1290.F.20170804.1344.074.html>.

[17] 赵世强, 宁勇, 秦颖. 公租房 PPP+REITs 融资模式可行路径选择与应用[J/OL].

会计之友,2017,(22):40-43(2017-11-03).

<http://kns.cnki.net/kcms/detail/14.1063.F.20171103.1154.020.html>.

[18] 王明吉, 崔学贤. PPP 项目资产证券化之会计处理与税务影响[J]. 财会月

刊,2017,(01):61-63.

[19] 蔡玉梅. 资产证券化可祛除 PPP 项目痛点[J]. 时代金融,2017,(04):36-37.

[20] 刘城近. PPP 模式中资产证券化应用[J]. 经营管理者,2017,(01):47.

[21] 管辉寰. PPP 项目资产证券化“基础资产”中“特许经营权”的法律问题研究

——以“云南水务水费收费权资产支持专项计划”为例[J]. 当代经济,2017,(02):96-97.

- [22] 邓宗俭. 审计视角下 PPP 项目资产证券化风险与政策建议[J]. 武汉金融,2017,(02):55-58.
- [23] 管清友. PPP 融资新方向: 资产证券化[J]. 金融博览(财富),2017,(03):22-23.
- [24] 郭宁, 安起光. PPP 模式资产证券化定价研究——基于期权调整利差模型的分析[J]. 山东财经大学学报,2017,29(01):11-18+27.
- [25] 李康. PPP 项目资产证券化结构剖析及法律风险探讨[J]. 法制博览,2017,(09):124-125.
- [26] 侯丽, 张超, 盛国军. PPP 项目资产证券化实务解析[J]. 中国商论,2017,(08):143-144.
- [27] 郭上, 孟超, 孙玮, 张茂轩, 聂登俊. 关于 PPP 项目资产证券化的探讨[J]. 经济研究参考,2017,(08):20-25+30.
- [28] 黄长清. PPP 资产证券化的创新[J]. 中国金融,2017,(08):46-48.
- [29] 李鹏飞. 从投资视角看 PPP 项目资产证券化[J]. 债券,2017,(05):55-59.
- [30] 星焱. 我国 PPP 项目资产证券化中的问题与对策[J]. 证券市场导报,2017,(05):40-44+52.
- [31] 郑鸿, 倪李澜. 商业银行参与 PPP 项目资产证券化业务策略研究——基于 SWOT-PEST 范式[J]. 福建金融,2017,(05):46-50.
- [32] 侯丽, 宋金波, 张超. PPP 项目资产证券化实务解析[J]. 建筑经济,2017,38(07):14-17.
- [33] 刘成云. 城市综合开发领域 PPP 项目资产证券化的应用探索[J]. 建筑经济,2017,38(07):73-77.
- [34] 沈中文. 浅析 PPP 项目资产证券化的主要特点[J]. 金融经济,2017,(10):163-164.
- [35] 胡雅然. 浅谈 PPP 项目资产证券化存在的风险[J]. 中国市场,2017,(24):55-56.
- [36] 黄芝茗. PPP 项目资产证券化会计问题研究[J]. 中国市场,2017,(19):213-214+217.
- [37] 贾小东. 中国交建融资新模式:PPP+资产证券化[J]. 时代金融,2016,(21):161-163.
- [38] 中国经济导报记者方学. 积极推动 PPP 项目资产证券化促进 PPP 模式持续健康发展[N]. 中国经济导报,2016-12-30(A02).
- [39] 本报记者左永刚. PPP 项目融资方式欲整体转向四大战略项目获资产证券化推力[N]. 证券日报,2016-12-28(A02).

[40] 本报记者傅苏颖. 资产证券化破解 PPP 项目三大难题盈利能力和现金流状况分类处置或成突破口[N]. 证券日报,2017-05-20(A02).

[41] 林珑. PPP 项目资产证券化在我国的应用[J]. 现代商贸工业,2017,(25):68-69.

[42] 李兰. PPP 项目资产证券化的财税处理 PPP 项目资产证券化的财税处理[J]. 财务与会计,2017,(13):34-36.

[43] 倪红日. 关于基础设施的定性、分类及运营机制的选择[A]. 走入 21 世纪的中国基础领域 改革[C]. 北京: 中国经济出版社, 2000

[44] [45] 根据中国证监会官方网站资料整理
: http://www.csrc.gov.cn/pub/newsite/zjhxwfb/xwdd/201612/t20161226_308391.htm
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