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## THE IMPACT OF STRATEGIC ALLIANCE ON THE PERFORMANCE OF PPP PROJECT OF URBAN PUBLIC PARKING LOT

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### Abstract

*Based on the above research background, this paper aims to explore the impact of strategic alliance between public-private partnership of urban public parking PPP project on the capital structure and performance of urban public parking PPP project. On the basis of literature research and theoretical derivation at home and abroad, this paper puts forward the hypothesis of the relationship between the public and private strategic alliance, capital structure and performance of urban public parking PPP project, and establishes the theoretical model of the three. Finally, through data collection, collation and analysis, the regression model test is carried out. The results show that: ① the strategic alliance of urban public parking lot PPP project has a positive impact on the capital structure; its dimensions are positively related to the capital structure. ② The strategic alliance relationship of urban public parking lot PPP project has a positive impact on the performance; its dimensions are positively correlated except fairness and trust. Through the study of strategic alliance, capital structure and performance of PPP project of urban public parking lot, this paper can provide theoretical guidance for the selection and decision-making of PPP project of urban public parking lot, and provide basis for the successful implementation of PPP project of urban public parking lot, which is conducive to the realization of both public and private performance.*

**Key words:** urban public parking lot; PPP project; strategic alliance; enterprise performance

### Introduction

In recent years, the number of motor vehicles in China continues to rise, but the construction of parking facilities is relatively lagging behind, and the supply and

demand of most urban parking lots are seriously unbalanced. Part of the motor vehicles are parked or parked in disorder, which leads to traffic jams and even traffic accidents (He Xiaozhou, 2017; Lin Yixing, 2017; Deng Ling, 2017; Zhan Songlin, 2017; Lu Wei, 2017; Xie Yong, 2017). In addition, the unreasonable parking management leads to the low utilization rate of the parking lot. The problem of parking difficulty has become the bottleneck of many cities' development. In order to solve the problem of parking difficulties, cities have gradually increased the construction of parking lots, but due to the lack of financial funds, the construction funds invested by the government in parking lots cannot meet the growing demand for parking. How to broaden the financing channels of parking lot construction has become the primary problem.

As a new project financing mode, PPP mode is widely used in urban infrastructure construction. As one of the important modules of urban infrastructure, the application of PPP mode has been paid more and more attention (Jiang Guofeng, Wang Jia, sun Yao, 2017; Yuan Ming, 2017; Li Lubo, 2018; Li Kun, 2018; Xia Liang, Zhang Yan, Wang Sheng, 2018; Lu Haitao, 2018; Jiang Lin, Li Runping, 2018; He congcong, 2018; Xu Wentao, 2018; Yang Tong, 2018). The government can take various forms, such as franchise, government purchase services, investment subsidies, etc., to form a market-oriented management system and operation mechanism. These relevant policy documents emphasize the importance of PPP model applied to parking lot. In addition, some scholars have done some research on the application of PPP model in parking lot. Some scholars analyzed the importance of PPP mode in parking lot project, and discussed the application of BOT (construction operation transfer) operation mode in parking lot. Some scholars have studied the allocation of government capital and social capital in the parking lot project under PPP mode. Some scholars have studied the price mechanism of parking lot project under PPP mode, and put forward a pricing model based on modified comprehensive cost pricing method and corresponding price adjustment method. Some scholars take PPP project of parking lot as an example to study the value for money evaluation method of PPP project.

This paper discusses the impact of strategic alliance between public-private partnerships in PPP projects on capital structure and performance. On the basis of literature review and theoretical derivation, this paper puts forward relevant assumptions about the relationship among strategic alliance, capital structure and performance of PPP projects, and constructs a theoretical model between them. And based on this, according to the analysis of PPP project between the public and private strategic alliance, capital structure and performance of the three measurement scale, and then through the design and distribution of questionnaires, in-depth research. Finally, the survey data are collated and analyzed for many times, combined with the results of correlation analysis and regression model to test the hypothesis of the relationship between the three aspects of PPP project strategic alliance, capital structure and performance proposed in this paper.

## 1.1 Background of study

Public parking lot is in short supply for a long time, and a large number of public parking lot projects need to be built in the future. The rapid economic and social development, on the one hand, improves people's living standards, on the other hand, the constantly updated city also makes people's demand for urban infrastructure is higher and higher (Chen Jun, 2016; Yu Xi, Zhang Yanlong, 2017; Gong Hua, 2017; Li Xiaojing, 2017; Sun Ruijie, Cao Lin, Tao Ning, 2017; Zhang Dan, 2017; Li Jiayi, 2017; Cui Yuanyuan, 2017; Wu Yuanhao, 2017; Wang Yingxin, 2017; Zhou Juan, 2017; Zhang Wei, 2017; Hu Haibo, 2017; Huang Wei, 2017; Li bochen, 2018; Liu liangpei, 2018; Li Meng, 2018; Luo Ruixue, 2018). Especially in the field of public parking, with the continuous increase of motor vehicles, the construction speed of parking spaces has gradually failed to keep up with the growth speed of vehicles. Public parking is very important to the development of the city. The implementation of the project can effectively alleviate the pressure of urban traffic congestion, and bring convenience to the public travel. For a long time, people have realized that the increasing number of vehicles leads to the increasingly serious urban traffic jams, even paralysis. The government has gradually restricted the increase of vehicles and encouraged the development of public transport. For example, Beijing, Shanghai, Guangzhou and other cities have taken measures to restrict vehicle travel and reduce urban congestion. But too many restrictions on vehicle travel, easy to cause slow development of the city, but also bring great inconvenience to the travel of citizens. Therefore, a reasonable balance of the supply of urban parking spaces is the key to solve the problem of urban traffic. At present, the demand for parking spaces is large and the supply is seriously insufficient. How to effectively provide parking spaces is a problem that has been considered in the process of promoting urban development.

The lack of parking space not only makes it more and more inconvenient for citizens to park and affect their travel, but also seriously hinders the development of urban road traffic system, which not only aggravates the urban congestion and affects the urban traffic operation, but also restricts the urban economic development. On the other hand, due to the government's limited financial funds and limited financing channels, the government is under great pressure on the construction of urban infrastructure, especially the construction of public parking lots. Only using PPP mode to build public parking can effectively supply public parking and meet the parking demand. The implementation of PPP project in public parking lot will become a normal situation, and a large number of projects will be constructed in PPP mode. Since 2014, the government has continuously implemented the construction and implementation of PPP model. According to the statistics of warehousing data of the Ministry of finance, 14165 projects have been put into storage in China, with a total investment of 17597.4 billion yuan.

## 1.2 Problem statement

Firstly, it explains the research background of the paper, defines the relevant definitions, scope and attributes of PPP, public parking lot and public parking lot, and determines the research object and research ideas of the paper based on the theories of public goods, government failure, project differentiation and economic benefit analysis. Then it is to identify and analyze the problem. This paper discusses the impact of strategic alliance between public-private partnerships in PPP projects on capital structure and performance. On the basis of literature review and theoretical derivation, this paper puts forward relevant assumptions about the relationship among strategic alliance, capital structure and performance of PPP projects, and constructs a theoretical model between them. And based on this, according to the analysis of PPP project between the public and private strategic alliance, capital structure and performance of the three measurement scale, and then through the design and distribution of questionnaires, in-depth research. Finally, the research data are sorted out and analyzed many times, and the hypothesis about the relationship among strategic alliance, capital structure and performance of PPP project is tested by combining the results of correlation analysis and regression model.

## Literature Review

### Dependent Variables: Project Performance

Project performance evaluation refers to the overall evaluation of the project based on the comprehensive understanding of the project, starting from the requirements of the project implementer, and according to the demands of other parties on the technical level, social environment impact, economic benefits and other aspects of the project. Performance evaluation and project evaluation have something in common, but performance evaluation pays more attention to the integrity and dynamic of the project.

PPP project performance evaluation is a systematic evaluation of the realization degree of PPP project performance objectives, in order to realize the connection between the payment mechanism and the performance evaluation results of PPP project (Xie Yunli, 2017; Hu Xuehai, 2017; Cai Liang, 2017; Wang Cheng, 2017; Zhou Yan, 2017; Zhu Jinge, 2017; Xu Yang, 2017; Luo Lijing, 2017; Liu Huijuan, 2017; Zhou Jiaqi, 2018; Hao Jiaying, 2017; Yang Guoqing, 2018). For the performance evaluation of PPP project, we strive to achieve the full coverage of the subject, the object, the management process, the content, the method and the application of multi-dimensional. At the same time, we strive to achieve the above criteria for the influencing factors of the performance evaluation of PPP project, so

that all participants can take targeted measures to improve the performance evaluation results of PPP project and promote its effective implementation.

Liao Chen (2016) pointed out that although PPP model is an important measure to provide urban rail transit infrastructure projects, the performance of project management is still not ideal due to the lack of a reasonable quantitative risk allocation model. Jia, Li (2017) believed that using PPP mode in urban rail transit infrastructure projects, reasonable profit distribution in the operation process plays an important role in the long-term development and efficient implementation of PPP projects. Guo Xuemeng (2013) puts forward the value for money evaluation model of PPP urban rail infrastructure, calculates the VFM value by using the public sector comparative value (PSC) and the government's cost net present value in the whole life cycle, and analyzes the applicability of the established value for money model by using a case. He Xiaobo (2015) analyzed the existing problems of rail transit PPP project from two aspects of system and non system, and put forward it based on political and economic system, industrial environment, cost and benefit evaluation, the success factors of PPP project include reasonable risk sharing, cost-benefit assessment, government guarantee and support, perfect legal framework, stable economic policy and environment, and perfect financial market. Li Zhiwei (2019) thinks that using PPP mode in urban rail infrastructure projects, reasonable income sharing has become an inevitable condition for the successful implementation of such projects, and uses sheply model to establish income sharing model based on investment proportion, risk sharing proportion, contract execution degree and contribution degree.

Domestic scholars started late on the influencing factors of performance evaluation of PPP projects, but developed rapidly in recent years. Some scholars began to change from qualitative research to quantitative research, from broad PPP projects to specific types of PPP projects. The index system constructed through empirical analysis can effectively evaluate PPP realization of project value for money. Jiang Rui started the performance evaluation of specific types of PPP projects by studying the performance evaluation of public rental housing PPP projects. Wang Jianbo (2017) started from the whole life cycle of PPP urban rail infrastructure project, from the performance evaluation index system of project approval, bidding, financing, construction, operation and transfer, and conducted case analysis. From the perspective of an independent third party, Kang Leilei (2019) constructed a PPP project performance evaluation index system from the government, the private sector and the public, and used the index system to evaluate the performance of Beijing Metro Line 4. He believed that the government credibility, return on investment, financial level and service quality are the most important four influencing factors of performance evaluation.

**Independent variable 1 (IV 1): Strategic Alliance**

PPP project strategic alliance is a way of combination and cooperation. It forms a loose network organization with complementary advantages, shared risks and shared resources by signing agreements or contracts. The healthy and good strategic alliance between the public and private sectors involved in PPP projects has an important impact on the choice of project capital structure and the improvement of project performance.

PPP, the abbreviation of public private partnerships, has been widely used in public utilities in many countries and regions since it was born in Britain in the 19th century. At present, there are different opinions on the definition of PPP in academic circles. Some scholars think that PPP in narrow sense refers to the financing mode including BOT and TOT, while PPP in broad sense refers to the partnership established by the public and private sectors to achieve certain goals, and some scholars think that PPP is a specific financing mode.

From the analysis of the characteristics of the above public parking lot PPP project, it can be seen that the public parking lot PPP project has the characteristics of large investment scale, long investment payback period, low project income, large external effect, and the majority of social capital is private enterprise operators. At present, the construction capital of public parking lot is mainly government investment, supplemented by social capital investment. In this situation, the construction funds of public parking lot are limited and the project landing rate is low, which makes the supply of parking lot difficult to meet the demand of parking space.

**Independent Variable 2 (IV 2): Capital Structure**

The theory of corporate capital structure should be traced back to 1952. Since then, it has experienced a long and difficult process of research and development (Li Hui, 2017; Xue Zhenhua, 2017; Sun Jinsong, 2017; Judy, 2017; Wu Bo, 2017). In this process, capital structure also formed many theories. Its research contents also tend to "theoretical elaboration", "identification of influencing factors", "analysis of optimal capital structure" and so on. Its development process is as follows:

The old capital structure theory of enterprises is based on MM theorem. It regards the decision-making of capital structure as the financing problem of enterprises, and considers and analyzes many problems of capital structure from the two different and closely related angles of debt financing and equity financing, such as capital cost, leverage ratio, tax influence, etc. And will focus on the allocation of corporate cash flow. To be sure, the choice of capital structure includes many aspects, such as the allocation of residual control rights. Therefore, this involves the rational allocation and governance of enterprise property rights, which requires comprehensive consideration of some content closely related to the enterprise, such as the behavior of the interest subjects, interest conflicts and even the decision-making environment.

There are different definitions about the capital structure of PPP projects in academia. At the same time, there are similarities and differences in its research fields and research priorities

Therefore, this paper proposes the following assumptions:

H1: the strategic alliance and capital structure of PPP projects have a positive impact.

H1a: the relationship stability and capital structure of PPP project strategic alliance have a positive impact.

H1b: in the strategic alliance of PPP projects, equity and capital structure have a positive impact.

H1c: the trust and capital structure of all parties in the strategic alliance of PPP projects have a positive impact.

H1d: The consistency of objectives and capital structure in the strategic alliance of PPP projects have a positive impact.

H1e: in the strategic alliance of PPP projects, information exchange and capital structure have

2.6.2 Impact of Strategic Alliance of PPP Project on Performance

Similar to the relationship between strategic alliance and capital structure in PPP projects, the closeness and level of strategic alliance in PPP projects will directly affect project performance. In the related literature at home and abroad, there are many researches on the performance of PPP projects, including the relationship between strategic alliance and performance, but there are few researches on PPP strategic alliance and its performance. Therefore, it also uses the research of strategic alliance and performance of enterprises in other fields for reference, and analyzes the relationship between strategic alliance and performance of PPP project in combination with its own characteristics.

H2: the strategic alliance and performance of PPP projects have a positive impact.

## **Methodology**

### **Research Design**

Based on the literature summary and theoretical derivation above, this chapter first puts forward the hypothesis about the relationship among strategic alliance, capital structure and performance between public and private parties of PPP project, as well as the hypothesis about the relationship between each dimension of strategic alliance and capital structure and performance, and then constructs the theoretical model as

shown in Figure 3.1. The PPP project strategic alliance in the model has a direct impact on the choice of capital structure, which determines the rationality of the debt capital ratio and the optimization level of capital structure. At the same time, each dimension of the strategic alliance also affects the degree and level of performance. In addition, there are also interactions between the capital structure and performance of PPP projects: on the one hand, whether the capital structure is reasonable or not affects the respective performance of the government and enterprises; on the other hand, performance in turn affects the equity ratio and debt capital selection in the capital structure.

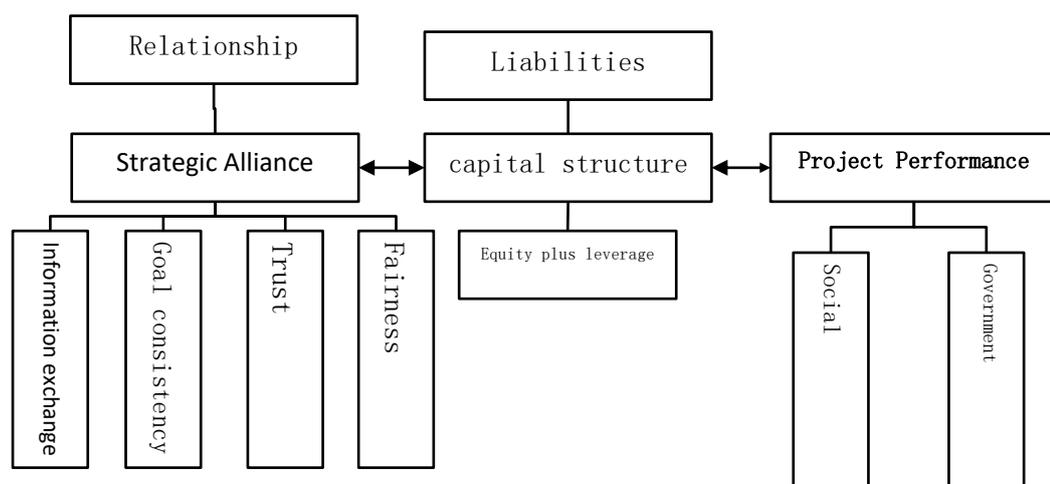


Figure 3.1 theoretical model of the relationship among strategic alliance, capital structure and performance of PPP projects

### Questionnaire design

The purpose of the questionnaire design is to reflect the purpose of the survey, to help achieve the survey objectives and test the theoretical knowledge; to correctly record and reflect the facts of the respondents' answers, to provide correct information; and to facilitate the statistics and collation of the data.

In order to make the respondents choose and judge the content of the questionnaire more intuitively, this paper uses Likert's seven level scale to divide the items of approval. It is divided into 7 levels. Among them, "1" means very disagree, "2" means relatively disagree, "3" means not agree, "4" means generally, "5" means agree, "6" means relatively agree, "7" means very agree.

#### ① Sampling method

Sample selection adopts the method of sampling survey, which refers to selecting only a part of the research objects,

This part of the object is investigated, and then the results of sampling are used to deduce and summarize the overall characteristics of the sample. The method of sampling survey has the advantages of strong operability, simple operation, low cost, short time, less objective constraints and rich information. Considering the sampling survey adopted, in order to make the results more comprehensive and the data more reliable, the subjective sampling method is adopted to distribute questionnaires to government agencies, government funded representatives, construction units, equipment operators, financial units, colleges and universities, consulting units, bidding agencies and users respectively, so as to ensure that all aspects of people are involved in the questionnaire.

In order to make the sample survey representative, the sample can keep consistent with the population, that is to say, they are similar in data structure, and the frequency distribution is consistent. The size of the sample size mainly depends on: the degree of variation of the research object, the allowable error size and the degree of confidence.

#### Encoding

After collecting the survey results of the questionnaire, in order to facilitate the test of the results, the questions in the questionnaire and the answers to be investigated are transformed into digital data that can be processed by computer.

#### **Population / sampling / unit of analysis**

Sample selection adopts the method of sampling survey, which means to select only a part of the objects from the study, and then use the results of sampling to infer and summarize the overall characteristics of the sample. The method of sampling survey has the advantages of strong operability, simple operation, low cost, short time, less objective constraints and rich information. Considering the sampling survey adopted, in order to make the results more comprehensive and the data more reliable, the subjective sampling method is adopted to distribute questionnaires to government agencies, government funded representatives, construction units, equipment operators, financial units, colleges and universities, consulting units, bidding agencies and users respectively, so as to ensure that all aspects of people are involved in the questionnaire.

This paper uses five dimensions of relationship stability, fairness, trust, goal consistency and information exchange to measure the strategic alliance relationship of PPP projects. This study uses and analyzes the scales in previous papers, and combines the research object and research environment to determine the measurement items of each dimension of strategic alliance. This study mainly draws on the research of Qu Bo (2014), Shi Huibin (2010) and others, and combines the actual situation of this study to improve, to determine the scale of strategic alliance in this study, as shown in the table. Among them, there are three dimensions to measure relationship

stability, two to measure fairness, three to measure trust, three to measure goal consistency, and three to measure information exchange.

Table 3.1 Corresponding Table of Strategic Alliance Dimensions of PPP Project

dimension	Relationship stability	Fairness	Trust degree	Goal consistency	Information exchange
English	Stability	Equity	Credibility	Goal congruence	commynication
Abbreviation	ST	EQ	CR	CO	COM

### Reliability Analysis

Reliability is used to test whether the results of the questionnaire are stable and consistent, and to measure the authenticity and reliability of the results. The higher the general reliability value is, the more reliable the results of the questionnaire survey are. Cronbach's alpha method is commonly used in the questionnaire survey. The data results are reflected by calculating Cronbach's alpha value (alpha coefficient). The relationship between alpha coefficient and data credibility is shown in table 3.5.

Table 3.5 Reliability Test

Serial number	Cronbach's $\alpha$ value range	reliability
1	0.60-0.65	Data should not be used
2	0.65-0.70	Data acceptable
3	0.70-0.80	The data is quite good
4	0.80-0.90	The data is very good

After calculation, the total amount table and sub table affecting the implementation of PPP project of public parking lot are as follows. It is generally believed that when the  $\alpha$  coefficient is between 0.7 and 0.8, it means high reliability, and between 0.8 and 0.9, it means high reliability. The test results show that the reliability test results of this questionnaire on the key issues affecting the implementation of PPP project in public parking lot are high.

## Findings & Discussions

### Basic Description of Sample

There are 660 respondents in this questionnaire, 524 of which are effectively recovered, involving various units and different industries. According to the collected questionnaire results, the respondents come from different nature units, and the distribution is relatively average, including: 14% from colleges and universities, 13% from government agencies, 12% from consulting units, 12% from equipment units, 11% from operation units, 6% from construction units, 6% from construction units, 4% from financial units, 2% from the public. See Figure 4.1 for the specific distribution.

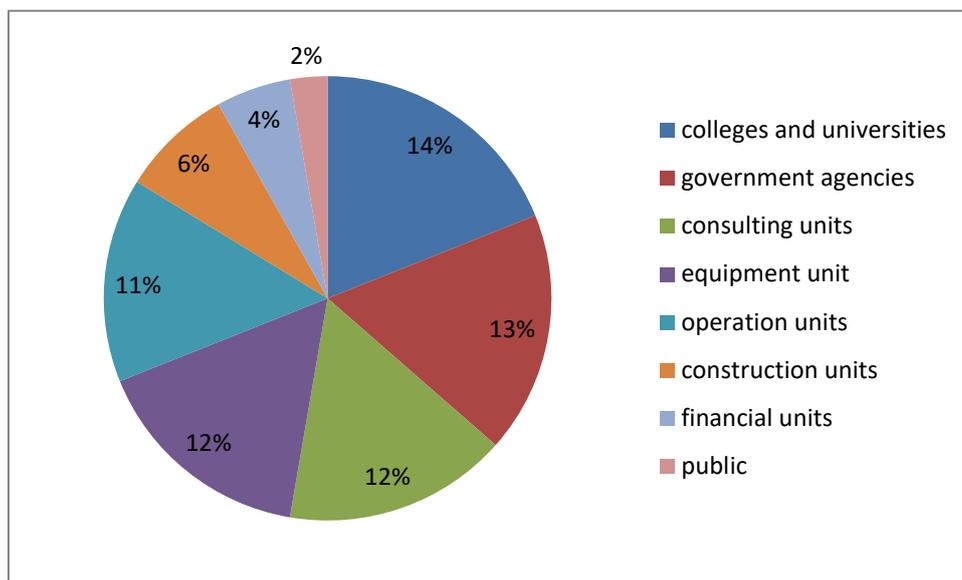


Figure 4.1 Structure of Questionnaire

Through the statistical analysis of the collected questionnaire survey information, we can know that the respondents come from different industries and units, and their divisions are relatively uniform, and the respondents have rich working experience or research economy on PPP project, which can effectively guarantee the reliability of the questionnaire survey data to a certain extent.

Table 4.1 Participation Status of Respondents

Position in PPP projects	frequency	Proportion (%)	Cumulative proportion (%)
Social capital	204	38.46	38.46
Government side	88	16.92	55.38
Other	232	44.62	100

Total 524 100

Table 4.2 makes statistics on the status of respondents in PPP projects in 524 questionnaires collected. Among them, 204 were social capital, accounting for 38.46%; 88 were government, accounting for 16.92%; 232 were other participants, accounting for 44.62%.

Table 4.2 Years of Work Related To PPP Project

PPP related working years	frequency	Proportion (%)	Cumulative proportion (%)
3Below year	406	78.08	78.08
3-5year	90	17.3	95.38
6-10year	10	1.92	97.3
10More than year	14	2.7	100
Total	524	100	

Table 4.3 is the statistics of the number of years that the respondents have been engaged in PPP projects. As shown in the table, four options are set for this item, and four time ranges are divided. According to data analysis, the number of people who have been engaged in PPP work for less than 3 years is the largest, reaching 406, accounting for 78.08%; the number of people who have been engaged in PPP work for less than 10 years is 90, accounting for 17.3%; and the number of people who have been engaged in PPP work for less than 10 years is 97.3%

Table 4.3 Types of PPP Projects Participated or Contacted By Respondents

Project type	frequency	Proportion (%)	Cumulative proportion (%)
BOT (Build Operate Transfer)	336	64.62	64.62
Boo (build own operate)	20	3.84	68.46
BTO (build transfer operation)	76	14.61	83.07
Rot (reconstruction operation handover)	8	1.54	84.61
Tot (transfer operation transfer)	4	0.76	85.37

Plot (build rebuild operate transfer)	14	2.69	88.06
Other	63	11.94	100
Total	524	100	

Table 4.4 shows the statistics of the types of PPP projects participated or contacted by the respondents. The results show that among the types of PPP projects, BOT project has the highest frequency, with 336 people accounting for 64.62%; BTO project has the second highest frequency, with 76 people accounting for 14.61. Therefore, it can be seen from the statistical data that there are relatively many projects using BOT mode for infrastructure construction.

Table 4.4 PPP Project Areas Participated or Contacted By Respondents

Project area	frequency	Proportion (%)	Cumulative proportion (%)
Municipal Engineering	170	32.69	32.69
Transportation	96	18.46	51.15
Travel?	18	3.46	54.61
Ecological construction and environmental protection	76	14.61	69.22
Area development	22	4.23	73.45
education	42	8.07	81.52
Water conservancy construction	17	2.69	84.21
Medical and health work	14	2.69	86.9
Affordable housing project	11	3.84	90.94
Culture	4	1.53	92.27
Other	40	7.73	100
Total	524	100	

Table 4.4 is the statistics of PPP projects in which the respondents are involved or contacted. The most frequent one is municipal engineering, which mainly includes subway, urban roads, greening, cultural venues, sewage treatment plants, parks and

garbage treatment plants. The results show that 170 people have participated in or contacted this kind of PPP project, accounting for 32.69%; the second is transportation, accounting for 96, accounting for 18.46%. Such projects mainly include roads, railways, ports, airports, bridges and tunnels. To sum up, the construction of these two types of PPP projects is more consistent with the current situation of China's commitment to the development of transportation and the construction of urban infrastructure.

### Descriptive statistical analysis of variables

On the basis of regression analysis of the above data, and before the conclusion of hypothesis test in this paper, descriptive statistical analysis of each variable and its dimension data is needed. The following is a descriptive statistical analysis of the sample data from the three variables of PPP project strategic alliance, capital structure and performance in 524 valid questionnaires. The results are shown in the table below.

Table 4.5 Descriptive Statistical Analysis of Sample Data of Each Variable

variable	N	Minimum value	maximum value	mean value	standard deviation	variance
Strategic Alliance	524	1.000	7.000	4.544	0.397	0.157
capital structure	524	1.000	7.000	5.573	0.430	0.185
Achievements	524	1.000	7.000	5.621	0.510	0.261

It can be seen from table 4.6 that the maximum and minimum values of each variable are quite different. It may be caused by the different status of the respondents, that is, the public and private parties of PPP project are in different starting points and conflicts of interest.

### Research Objective 1 (R.O.1): The Impact of Strategic Alliance on Capital Structure

#### Analysis

From table 4.6, we can see that the correlation coefficient between strategic alliance and capital structure is 0.776, and the corresponding significance level is 0.000, less than 0.05, which is statistically significant at 95% confidence level, indicating that there is a significant positive correlation between strategic alliance and capital structure. Similarly, the correlation coefficient between strategic alliance and project

performance is 0.674, and the corresponding significance level is 0.000, less than 0.05, indicating that there is also a significant positive correlation between strategic alliance and project performance. The correlation coefficient between capital structure and project performance is 0.666, and the corresponding significance level is less than 0.05, indicating that there is also a significant positive correlation between capital structure and project performance.

Table 4.6 Correlation between PPP Project Strategic Alliance and Capital Structure and Project Performance

		Strategic Alliance	capital structure	project performance
Strategic Alliance	Pearson correlation	1	0.776**	0.674**
	Saliency		0.000	0.000
	Number of cases	260	260	260
capital structure	Pearson correlation	0.776**	1	0.666**
	Saliency	0.000		0.000
	Number of cases	260	260	260
project performance	Pearson correlation	0.674**	0.666**	1
	Saliency	0.000	0.000	
	Number of cases	260	260	260

\*\*At 0.01 level (double tail), the correlation was significant.

The relationship between various dimensions of PPP project strategic alliance and capital structure and project performance.

From table 4.7, it can be seen that the correlation coefficients among the five dimensions of PPP project strategic alliance are 0.586, 0.541, 0.485, 0.681, respectively, 0.609, the corresponding significance level is 0.000, less than 0.05, which has significant statistical significance at 95% confidence level, indicating that there is significant positive correlation between relationship stability, fairness, trust of all parties, goal consistency, information exchange and capital structure.

**Research Objective 2 (R.O.2): The Impact Of Strategic Alliance On Performance****Analysis**

Take the strategic alliance of PPP project as the independent variable and performance as the dependent variable for regression analysis, the results are shown in table 4.10.

From the regression results in table 4.10, it can be seen that the overall explanatory degree of model independent variables is high, and the regression model fits well. The standardized regression coefficient of independent strategic alliance to dependent project performance is 0.674, t value is 14.640, corresponding significance level is 0.000, less than 0.05, which has significant statistical significance at 95% confidence level, indicating that strategic alliance has significant positive impact on project performance, that is, the higher the identification degree of PPP project strategic alliance, the higher the project performance. So suppose H2 is verified.

Table 4.10 Regression Test of PPP Project Strategic Alliance on Project Performance

Model		Non standardized coefficient		Standardization coefficient	T	Sig.
		B	Standard error			
1	(constant)	1.170	0.287		4.081	0.000
	Strategic Alliance	0.794	0.054	0.674	14.640	0.000
		R=0.674	R <sup>2</sup> =0.454	Adjusted R <sup>2</sup> = 0.452		F=214.322**

The following five dimensions of PPP project strategic alliance are taken as independent variables: relationship stability, fairness, trust of all parties, goal consistency and information exchange, and project performance as dependent variables for regression analysis. The results are shown in table 4.11.

Table 4.11 Regression Test of Each Dimension Of PPP Project Strategic Alliance on Performance

Model		Non standardized coefficient		Standardization coefficient	T	Sig.
		B	Standard error			

	(constant)	1.072	0.284		3.769	0.000
	Relationship stability	0.206	0.058	0.213	3.576	0.000
	Fairness	0.083	0.054	0.091	1.559	0.120
1	Trust of all parties	0.036	0.045	0.044	0.802	0.423
	Goal consistency	0.275	0.047	0.330	5.808	0.000
	Information exchange	0.191	0.046	0.219	4.129	0.000
	R=0.698	R <sup>2</sup> =0.487	Adjusted R <sup>2</sup> = 0.477		F=48.188**	

Through regression test, the following results are summarized, as shown in table 4.13:

Table 4.13 summary of hypothesis test

Serial number	Related assumptions	conclusion
H1	Strategic alliance of PPP projects has a positive impact on capital structure	establish
H1a	Relationship stability has a positive impact on capital structure	establish
H1b	Equity has a positive impact on capital structure	establish
H1c	The trust degree of all parties has a positive impact on capital structure	establish
H1d	Goal consistency has a positive impact on capital structure	establish
H1e	Information exchange has a positive impact on capital structure	establish
H2	Strategic alliance of PPP projects has a positive impact on project performance	establish

## Conclusion

In this paper, the PPP field of public parking is studied and analyzed. The literature review of public parking and PPP at home and abroad is carried out. The relevant definitions and concepts of PPP and public parking are explained, and the relevant theoretical and policy background are studied (Zhu Danna, 2016; Sun Ye, 2016; Zhu Chong, 2016; Yan Zhiwen, 2017; Cui Qiming, 2017; Ding Wei, 2017; Zhang Jun, 2017; Zhu Qingqing, 2017; Zhang Jingyi, 2017; Cai Zixiao, 2017; Ma Hezhen, 2017; Hu Jianfeng, 2017; Liu Lixia, 2017; Cheng ruofang, 2017; Han Zhifan, 2017; Zhang Yue, 2017; Wang Linye, 2017; Xu Hui, 2017; Liu Ying, 2018; Zhu Xiaohu, Liu Shili, Li Jianqing, Liu Li, 2018; Cheng Zhixiong, 2018; Zheng Xiaoxia, 2018; Li Jiaying, 2018). Based on the summary, analysis and induction of a large number of domestic and foreign literature, combined with the essence and characteristics of PPP project, this paper studies and analyzes the strategic alliance and capital structure between public and private in PPP project, and divides its content into multiple dimensions. Thus, the relationship hypothesis of PPP project public-private strategic alliance, capital structure and performance is put forward, and the theoretical model of the relationship is constructed. The model also includes the hypothesis of the relationship between each dimension of PPP project strategic alliance and capital structure and performance. Next, this paper uses questionnaire survey to obtain the research data, and uses spss20.0 software to regression test the hypothesis, and obtains the following conclusions:

(1) The strategic alliance of PPP projects has a positive impact on the capital structure. This shows that in PPP projects, the degree of friendly relationship and cooperation between alliances will affect the choice and decision-making of capital structure, and promote both sides to make the optimal arrangement of capital structure, so as to achieve a win-win situation. Each dimension of PPP project strategic alliance has a positive impact on capital structure. The results show that the relationship stability, fairness, trust, goal consistency and information exchange all have positive effects on the capital structure at different levels, and the regression results also show strong positive correlation. The conclusion shows that in PPP projects, the stability of the public-private relationship, the degree of trust, the consistency of objectives, the fairness and the degree of information exchange between them will play a certain role in the choice and decision-making of capital structure.

(2) The strategic alliance of PPP projects has a positive impact on performance. And its dimensions have different degrees of correlation with performance. That is to say, some cooperation and mutual exchange among members of PPP project will have an impact on performance, so as to enhance the enthusiasm of all parties and increase the construction of PPP project, which is conducive to the common development of both parties. Each dimension of PPP strategic alliance has a positive impact on performance. Performance: except for the two dimensions of fairness and trust, the

corresponding significance degree is greater than 0.05, the other dimensions pass the test. It shows that the stability of the relationship between the public and private, the consistency of their goals and the level of information exchange between them will affect the performance.

(3) The capital structure of PPP project has a positive impact on performance. Capital structure is related to the cost and income of the project. A reasonable or even optimal capital structure will be conducive to the performance and maximize the interests of all parties. That is to say, choosing a reasonable capital structure will be conducive to the division of project income and cost, and the optimization of the ratio between debt capital and equity capital. The strategic alliance of PPP projects has a significant impact on capital structure and performance. Therefore, when arranging capital structure or performance evaluation, we should pay close attention to the degree and force of the public-private alliance.

(4) Economic benefits play a regulatory role in strategic alliance and capital structure. Enterprises, as one of the common subjects of strategic alliance, will inevitably pursue economic benefits, while the government, as another common subject of strategic alliance, will pursue more social benefits, but the government can not pursue social benefits unilaterally and ignore economic benefits, so it can only seek a balance between the two. As a PPP project, especially the PPP parking project with more complex property rights, it faces a more complex capital structure. Behind the seemingly simple equity, there may be multiple complex capital structures. Only when the economic benefits can balance all parties, can the PPP project of urban parking lot go on smoothly for a long time (Zhang Xiaorui, 2016; Shen Guoyan, 2016; Wu Huaiqing, Zhao Xinxin, 2016; Liu Ye, 2017; Hu Haibo, 2017; Lian Chao, 2017; Wang Ying, 2017; Xia Yong, 2017; Li Yang, Su Shipeng, 2018; Liu Yan, Yu Hong, Li Bo, Yi Yun, 2018; Wang Qibo, 2018; Hao Xiaohu, 2018).

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