

Study on Audit Path Optimization of PPP Construction Projects

-- Taking A Bridge Across the River as an Example

Mingrui Gou*, Yuanchun Yu

Sichuan University of Science and Engineering, Yibin 644000, China

*Corresponding Author

Abstract

This paper deeply studies the optimization of audit path of PPP (government-private capital cooperation) project, takes A bridge across the river as an example, analyzes the shortcomings of the original audit path, and puts forward optimization measures. The study pointed out that with the wide application of PPP projects, the audit difficulty is increased, and the audit supervision of key links such as project initiation, bidding and contract signing should be strengthened, while paying attention to the audit evaluation of project quality, safety management and investment benefits. The optimization path includes setting up a special audit team to evaluate the robustness of user-paid projects, and strengthening the franchise model audit in depth.

Keywords

PPP Projects; Audit Path; Optimization Measure; User Pay Program; Management Mode of Special Permission.

1. Introduction

In terms of policy support, on June 22, 2021, the Office of the Central Audit Commission and the National Audit Office issued a notice on the "14th Five-Year Plan for the Development of National Audit Work". The "14th Five-Year Plan" period policy implementation follow-up audit is facing new requirements and challenges, the plan clearly proposes to actively carry out research-based audit, in the specific elaboration of policy implementation follow-up audit, the "14th Five-Year Plan" National audit work development Plan requires the National Audit Office and provincial audit institutions to focus on strengthening policy analysis and research, put forward policy implementation follow-up audit project library opinions and suggestions. Study audit priorities and audit ideas.

In 2014, the Ministry of Finance issued the Notice on Printing and Distributing the Operation Guide of the Cooperation Model between the Government and Social Capital (for Trial implementation), officially introducing the cooperation between the government and social capital. In December 2023, in order to adapt to the new environment and new mechanism, the Ministry of Finance abolished a number of PPP documents and introduced new regulations to meet the new economic development needs. This provides a new topic for the study of the cooperation between government and social capital and its tracking audit path.

In terms of economic development, by the end of 2023, the overall scale of China's PPP market has shown a steady and increasing trend. The number of projects in the PPP management database of China's Ministry of Finance has reached 11,305, involving 19 different industries, with a total investment of 17.88 trillion yuan, an increase of 10 billion yuan; With the continuous improvement of China's economic development level, the demand for infrastructure construction and cooperation between the government and society is also increasing. The application of whole-process tracking audit can provide whole-process

guarantee for infrastructure projects, greatly improve the social and economic benefits of projects, and lay a solid foundation for the further development and implementation of infrastructure projects in China.

In recent years, in order to further deepen the reform of the investment and financing system, enhance the quality and efficiency of infrastructure construction projects, and solve the problem of under-investment by government departments, local governments have successively implemented the PPP (Public-Private Partnership) model for construction projects. Through the deep cooperation between the government and social capital, the model aims to achieve the optimal allocation of resources and the sustainable development of the project. However, with the wide application of PPP projects, its characteristics such as long construction period, large capital demand, and many types of problems also lead to increased audit difficulty.

In this context, the introduction of the Guiding Opinions on Standardizing the Implementation of the New Mechanism for Cooperation between Government and Private Capital (hereinafter referred to as the Guiding Opinions) provides important guidance for the standardized implementation and effective supervision of PPP projects. Under the new mechanism, the guideline not only clarifies the basic principles, operational processes and regulatory requirements of PPP projects, but also emphasizes the key role of government audit in the management of PPP projects.

The guideline points out that government audit, as an important means of supervision for PPP projects, must run through the whole life cycle of the project, including all stages of project preparation, implementation, operation and handover. Through government audit, it can ensure the compliance, economy, efficiency and sustainability of PPP projects, and provide strong support for government decision-making.

At the specific operational level, the new mechanism puts forward a series of specific audit focus and path optimization measures. First of all, it is necessary to strengthen the audit and supervision of the key links of PPP projects, such as project initiation, bidding and contract signing, to ensure project compliance; Secondly, we should pay attention to the audit and evaluation of project quality, safety management and investment benefit in the process of project construction, so as to improve the level of project management. In addition, it is necessary to strengthen the audit and supervision of the project operation stage to ensure that the project can continue to operate stably and achieve the expected objectives.

In short, the introduction of relevant guidelines and policies under the new mechanism provides important guidance for the standardized implementation and effective supervision of PPP projects. Audit institutions and researchers should thoroughly interpret the spirit and specific requirements of the Guiding Opinions, combine the actual situation and characteristics of PPP projects, and constantly improve audit methods and means to ensure the legal compliance and performance level of PPP projects. At the same time, it is also necessary to strengthen the research and analysis of the rectification of problems found in the past and the deep-seated reasons affecting the lawful and compliant use of funds, so as to provide a strong guarantee for the sustainable development of PPP projects.

Therefore, we should make full use of and study this audit mode, find out the problems and solve them effectively, constantly improve the level of infrastructure construction in China, and promote economic development.

In terms of the audit of this specific project, A cross-river Bridge improves the layout of the main waterway of the river trunk, accelerates the construction of a comprehensive three-dimensional traffic corridor of the river economic belt, meets the new urbanization construction, increases the income of urban and rural residents, and accelerates the process of building a well-off society in an all-round way. It is the need of improving the regional road

network in this region and building a comprehensive transportation hub city of the river trunk. It can effectively promote the development of local economic development zones.

2. Literature Review

2.1. Research Status of Cooperation between Government and Social Capital

In the field of infrastructure construction, PPP model as an innovative financing and cooperation mechanism, its advantages and application strategies have been widely studied by scholars at home and abroad. Davis (1981)[1] first defined five core features of the PPP model, emphasizing the key role of public-private partnerships in improving urban infrastructure. Subsequently, Giglio et al. (2018)[2], from the perspective of asset management, proposed that the application of life cycle theory can effectively improve the cost-effectiveness of PPP projects in solving the problem of regional imbalance in infrastructure, providing a new perspective for the design of audit mechanism. Hong and Ryu (2019)[3] argue that transparency of the process, participation of stakeholders, potential constraints on current and future public sector flexibility, and political influences that call into question the legitimacy of the process are all risk factors when conducting value-for-money evaluations, and suggest increasing the openness and transparency of the evaluation components as the evaluation process evolves. At the same time, more rigorous risk concepts and assessment methods are adopted.

In China, the introduction and development of the PPP model reflects the transformation from a single financing model to a diversified cooperation mechanism. In the mid-1980s, China's initial contact with the PPP model, mainly through the BOT model to attract foreign and private capital to participate in infrastructure construction, such as water plants, power plants, etc. During this period, PPP was narrowly regarded as a project financing means (such as BOT, BOO, etc.). Jia Kang and Sun Jie (2009)[4] reviewed the current research on PPP projects by audit authorities in major international economies and concluded some commonalities: mutual cooperation as the premise, the provision of public goods as the main goal, and the sharing of risks and benefits as the main characteristics. Combining with the actual situation of our country, most scholars' research show that the current PPP mode in our country has more practical experience.

2.2. Track the Status of Audit Research

Pomeranz (1983)[5], as the pioneer of the concept of follow-up auditing, proposed the concept of "Preemptive auditing" for the first time, aiming at reducing construction costs through preemptive auditing. He observed that the rapid change of scientific and technological progress and environmental factors posed a challenge to the traditional post-audit model, and stressed that the audit should run through the whole project cycle, with particular emphasis on the role of prior work. This concept marks the germination of the idea of tracking audit and lays a theoretical foundation for the follow-up research. Pomeranz (1987)[6] further developed the concept of pre-audit, pointing out that the focus of audit has shifted from verification to information gathering, and emphasized the importance of interdisciplinary cooperation and the timing of audit intervention, providing a direction for tracking the overall development of audit. In the 1990s, with the improvement of the contract system and the enhancement of awareness of interest protection, Rice and Sherry (1991)[7] proposed to conduct audit before the conclusion of contracts to prevent claims and reduce losses. They pointed out that traditionally accountants and auditors were not involved in the contract making process, leading to vague contract terms and frequent disputes. Through the full participation of auditors, clauses can be amended in time and potential problems can be warned, which reflects the real-time and preventive role of tracking audit in contract management.

Compared with the international experience, China's follow-up audit started late, but it has developed rapidly. Since the 1980s, with the increase of large-scale infrastructure projects, the National Audit Office has set up a special agency responsible for the audit of fixed assets, marking the official launch of the audit of construction projects in China. In 1986, the promulgation of the Trial Procedures for the Audit of Capital Construction and Construction Enterprises provided the first official document basis for the audit of fixed asset investment projects. Since then, the National Audit Office has passed a series of notices and regulations, such as the Notice of the National Audit Office on the Report on the follow-up audit of the Suspended Construction of fixed assets Investment Projects in 1989, which clearly put forward the concept of "follow-up audit" for the first time and emphasized the importance of moving forward the audit threshold, laying a foundation for the follow-up research and practice of follow-up audit. This series of measures not only reflects the state's emphasis on construction project audit, but also promotes the initial formation of the concept of tracking audit. Scholars generally believe that tracking audit transforms static audit into dynamic audit, effectively alleviates the shortcomings of traditional audit mode in comprehensiveness and objectivity, and improves audit quality and efficiency. Cao Huiming (2005)[8] and other scholars pointed out that tracking audit, as an innovative audit mode, has significant benefit characteristics for construction projects and is an effective means to deal with complex construction environment. However, tracking audit also faces many challenges in the process of implementation, such as the increase of audit cost and the large demand for manpower and material resources, which leads to some difficulties in its overall popularization. Weng Tongbao (2011)[9] and other scholars further pointed out that reasonable audit plans and programs are crucial for tracking audit success, and unreasonable audit plans may increase audit risks and the possibility of failure. With the deepening of tracking audit research, scholars begin to pay attention to its specific application effect in different fields. Wang Peilu (2011)[10] et al. highly appraised the application effect of tracking audit in traffic construction projects such as expressways through case analysis, believing that it is helpful to discover and solve problems in time and ensure the security of investment funds. At the same time, international experience, such as the follow-up audit of the bailout plan implemented by G20 member countries after the financial crisis, has further proved the important role of follow-up audit in coping with public crises. In the future, with the continuous progress of audit technology and the improvement of laws and regulations, tracking audit is expected to be widely used in more fields and become a new trend and direction of audit development. However, how to overcome the challenges and realize the standardized and scientific development of tracking audit still needs the joint efforts of academic and practical circles.

2.3. Research on PPP+ Project Audit

In terms of theory, Brogaard (2018)[11] believes that only relying on government funds to support infrastructure construction will hinder the project process to a large extent and go against the original intention of construction. Therefore, he fully supports the introduction and promotion of PPP model in this field. But the premise is that the relevant government departments must do a good job of careful planning, strong implementation, safety testing and effective control. Kasatov (2019)[12] believes that it is necessary to intervene in the initial stage of infrastructure construction projects under the PPP model to carry out pre-audit. Hadley (2019)[13] sorted out the audit data of California highways over the years, and based on the annual audit results and practical experience, proposed that the whole process tracking audit should be carried out for infrastructure construction projects under the PPP mode. In practice, Omobowale et al. (2010)[14] took the United Kingdom, which has the largest number of infrastructure construction projects under the PPP model and covers the widest range of industries, as a research object, and believed that the establishment of PPP professional departments and sound audit and supervision mechanism in this country are of great help to

the audit of infrastructure construction projects under the PPP model. Kumar R. (2019)[15] pointed out that France will strictly review the entire process of investment in infrastructure construction projects under the PPP model, and the power of review should be vested in the Financial Supervision Department and the special supervision agency of public accounting arranged by the Ministry of Economy and Finance.

Compared with other countries with more mature PPP model application and audit development, China introduced PPP model in the field of infrastructure construction relatively late. Accordingly, the academic research on the audit of infrastructure construction projects under the PPP model is not deep and thorough, and most of them focus on the study of its audit focus and audit mode. Chen Yinmo and Fan Weihui (2017)[16] believe that in order to ensure the effective implementation of PPP, tracking audit must play a role in promoting the modernization of national governance. Careful implementation of PPP tracking audit is an important part of the full coverage of the audit. Tracking audit participation in PPP has the advantages of professionalism and independence.

2.4. Comment of Research Literature

At present, both foreign scholars with abundant research and domestic scholars with more active research have basically unified views on the characteristics and nature of PPP projects. From the perspective of the main body, the PPP model is guided by the public sector and the participation of social capital, and there are few differences in details such as the sorting out of the operation mode, the induction of project risks, the summary of influencing factors, and the listing of key regulatory issues. Since its main goal is to provide public goods, the academic community generally believes that the national audit is a link of the national governance system, and the audit of PPP projects is also a direction of the national audit, which can serve the national governance and use its unique position to play the governance function.

3. Case Content

This study selected the audit project of A cross-River Bridge project in X City as the case object, collected and sorted out the audit data of A cross-river bridge project in X City, and sorted out the audit process and results of the cooperation between the government and social capital in this project.

3.1. The Original Audit Path of the Project

The audit objectives, audit objects and scope and audit risks of the project are shown in the following table (Table 1).

This project audit mainly from the construction project construction procedures, construction costs, investment benefits of the whole process of the construction project to implement audit supervision. The tracking audit of the whole process of the project is carried out by the combination of delivery and on-site audit, which is divided into daily audit supervision, project construction audit and project completion audit. Daily audit supervision starts from the date when the audit notice confirms the entry to the site to the completion of the project completion and acceptance; The audit of the project in progress starts from June 26, 2017 to the completion of the project, mainly to audit the pre-construction procedures, bidding and bidding conditions, contract signing, project management, financial revenue and expenditure and other work contents as well as the performance of duties of each unit and issue the phased audit results; The completion audit time of the project is to be determined after the completion of the project, which is mainly to audit the total investment of the project, supervise the project owner to handle the completion settlement (settlement) according to the relevant regulations and contract agreement, audit the true legality of financial revenue and expenditure and the

compliance of construction procedures, analyze the investment effect and benefit, make suggestions, and improve the investment management level.

Table 1. Audit objective, audit object and scope, audit risk

Audit objective	<p>The main line of this project is the management and use of construction funds:</p> <ul style="list-style-type: none"> ① Management procedures for construction projects; ② Major financial revenues and expenditures; ③ Follow-up audit and benefit analysis of key links; ④ The new situation, the new problem in the implementation of the project and the defects in the investment management system.
Object and scope of audit	<p>Object: X City Housing and Urban-Rural Development Bureau, the implementing agency of the construction project</p> <p>Scope: Audit of the construction project of A cross-River Bridge in X City from the start to the completion and acceptance of the project, including project construction procedures, construction management, construction cost, fund management and use, contract management, project investment benefits, etc.</p>
audit risk	<ul style="list-style-type: none"> ① The audited entity and the relevant participating entity do not actively cooperate, and the information provided is untrue or incomplete; ② The project has high social attention, and the information confidentiality has audit risks; ③ In the whole process follow-up audit, the participating units tend to confuse the functions of project management and audit supervision, and think that the relevant audit matters need to be approved by the audit before they are implemented.

3.1.1. Audit Path of Project in Construction Phase

(1) Audit of the construction project infrastructure procedures: review whether the approval procedures of the project and the plan are complete, whether the construction project funds are implemented, and focus on whether the relevant infrastructure approval procedures are compliant and whether the construction conditions are met.

(2) Audit of survey and design of construction projects: review whether there is a corresponding preliminary design and budget, whether there is construction drawing design and budget, review whether the survey and design units have relevant qualifications, focusing on the selection of survey and design units to determine whether they are legal and compliance, and the signing and performance of survey and design contracts.

(3) Construction project bidding and contract audit: focus on the review of engineering project survey, design, construction, supervision, equipment supply of the work of bidding and bidding and contract signing is legal and compliance, whether the winning unit has the corresponding qualifications, whether the contract is signed according to the bidding results and performance of the contract.

(4) Audit of construction project investment management, implementation and investment benefits: review the establishment and implementation of the internal control system of the construction project owner, review the advance payment and progress payment of the project, and review the information of the visa. Focus on the review of design changes and claims, whether decision-making errors in project construction management caused losses and waste and schedule delays: there is an unreasonable design change resulting in increased construction costs, whether there is a hidden danger of quality and safety due to poor performance, and whether there is a loss and waste of funds management and use.

(5) Audit of land expropriation and demolition around construction projects: focus on reviewing whether land expropriation and demolition are implemented in accordance with relevant policies, whether special matters are implemented according to the stipulated

decision-making procedures, and whether there are violations of rules and regulations such as compensation for excessive compensation.

(6) Construction project financial revenue and expenditure audit: focus on the review of the authenticity of the project financial revenue and expenditure compliance and evaluation of the project financial management, fund raising and use.

3.1.2. Audit Path for Project Completion Phase

(1) Review the settlement price of the completed project, supervise the owner and contractor to handle the settlement (settlement) of the project according to the relevant provisions and contract agreement, and the audit method of the project settlement is the same as the audit of the project in progress.

(2) Audit of investment management, implementation and investment benefits of construction projects: audit of projects in progress.

(3) Audit of financial revenue and expenditure of construction projects: audit of the same project under construction.

(4) Urge the owner to organize the completion acceptance after the completion of the construction project, and handle the asset delivery and completion settlement (settlement) according to the relevant provisions and contract agreement.

(5) Combined with the whole process of tracking audit, analysis of investment effects and benefits, put forward targeted suggestions to improve the level of investment management of construction projects.

3.1.3. Routine Audit Monitors the Audit Path

Tracking and auditing the construction process of a construction project is the main content of the whole process supervision of the project, focusing on supervising hidden works, design changes, on-site visas, project claims, special situations in the project, reviewing the disbursement and settlement of project progress funds and the management and use of construction funds, so as to ensure that the construction of the project is completed in accordance with the contract. Urge the owner supervision and construction units to do a good job of project information in time and truthfully, and lay a good foundation for the audit of completion settlement.

3.1.4. Overall Key Audit Path

This project is an investment audit management platform project, and the main audit process is required to be handled on this platform. Therefore, while completing the offline audit work, it is also necessary to win the support and cooperation of the audited units and intermediaries, collect the problems found during the use of the platform in a timely manner, analyze the causes, study and improve them, and explore the promotion and use of the platform.

In the audit of bidding and contract of construction projects, the reasonable compliance of bidding and contract signing is analyzed by referring to the relevant regulations.

When there are major design changes and claims, the audit team needs to consult the design change information, the approval of the design change by the competent department, etc., mainly to review whether the procedures of the design change are sound and whether the procedures are legal. Check the design change data with the corresponding completion data and check the site, mainly to check whether the change content is true implementation; Combined with relevant information and technical advice, review the necessity and rationality of design changes.

In the daily audit supervision, the project shall be carried out by a combination of regular submission of project information and irregular inspection. The audited unit shall submit the project image progress, prepared payment amount, management and use of construction funds, and accounting statement information to the audit team at the end of each contract payment

cycle, and the audit team shall audit the performance of duties and responsibilities of relevant responsible units. In order to effectively implement audit supervision, the personnel responsible for daily audit supervision should check the site at least once a week and make corresponding work records. The auditee shall appoint the contact person, responsible for the submission of information, introduction of the situation, communication of opinions, implementation and feedback of audit opinions or suggestions, so as to provide the corresponding conditions for auditors to timely grasp the project construction situation and implement follow-up audit. For the completed project under construction, the audited unit shall require the construction unit to complete the settlement data within the time limit stipulated in the contract and submit it to the audit team to review the project cost after approval by the owner. The audit team shall entrust the project cost consulting unit to review the project according to the work needs and shall be used as the basis for project settlement (settlement) calculation and payment of the project price after audit by the audit team. The problems that should be corrected in time and the opinions and suggestions put forward by the audit team should be issued to the audited entity in the name of the audit team or audit institution. The handling of major problems should be discussed and decided at the business meeting of the audit team and reported to the relevant leaders for approval and approval before the audit opinions or suggestions can be issued. The opinions or suggestions issued by the audit team shall be timely fed back to the audited entity through the investment audit management platform, and the implementation of the audited entity shall also be replied to the audit team through the investment audit management platform. In the daily audit and supervision found more problems in the links, the audit team should timely adjust the focus of supervision or detailed supervision matters, timely standardize the project management, prevent the risk of construction funds; Problems that involve large social impact and are serious in nature can be reported to the municipal government in various forms.

3.1.5. Scheduled Start and End Time of Audit Work

The audit is divided into the audit of the project in the construction stage, the audit of the project completion settlement (settlement) and the daily audit supervision. The audit of the construction phase of the project is planned to start from June 27, 2017, and it is preliminarily expected to complete the on-site audit before December 31, 2019, and issue the results of follow-up audit segments; The time of the completion settlement (settlement) audit shall be determined after the completion of the project; Daily audit supervision starts from three days after the issuance of the audit notice to the completion and acceptance of the project.

3.2. Deficiencies in the Original Audit Path of this Project

With the extensive implementation of PPP construction projects in the world, the traditional audit path has gradually failed to meet the needs of the new situation. The traditional audit path mainly includes the audit of the project in the construction stage, the audit of the project in the completion stage, the daily audit supervision and the overall key audit. However, with the update of project management concept and the increasing importance of performance evaluation, we have to re-examine the applicability of these audit paths in the new situation. In particular, when the audit focus is changed from simple stage and overall supervision to more refined performance management audit, the original audit path has exposed some obvious deficiencies.

3.2.1. Focus on the Lack of User-paid Items

In the construction phase of the project, the original audit path mainly focused on the compliance of construction procedures, bidding and legal compliance of contracts, but paid insufficient attention to the crucial user payment mechanism in PPP projects. This includes the failure to conduct an in-depth audit assessment of the project's future revenue sources, payment models, fee structures, and revenue expectations. Since PPP projects emphasize the

"user pays" principle, their income stability directly affects the sustainability and success of the project. As a result, a lack of audit of this critical factor can lead to projects being financially risky or in unsustainable distress during the operational phase.

3.2.2. The Franchise Model is Underaudited

The new mechanism requires all to adopt the franchise mode, but the original audit path does not pay enough attention to the specific provisions of the franchise agreement, the relationship between the rights and obligations of the two parties, the risk sharing mechanism and the performance evaluation standard. Franchise agreement is the core legal document of PPP project, and the perfection and enforceability of its provisions are directly related to the long-term operation effect and stability of the project. Failure to fully examine these aspects during the audit process may lead to legal disputes, management confusion or uncontrollable risks in the later operation of the franchise project.

3.2.3. Properly Grasp the Shortage of Key Areas

PPP projects often involve key areas such as public services and infrastructure construction, which have particularities and complexities. Although the original audit path covers multiple aspects of the construction project, it may not conduct special audits for specific areas of the PPP project. For example, in the field of infrastructure construction, it is necessary to pay attention to the engineering quality, safety standards and environmental impact of the project. In the field of public service, it is necessary to pay attention to the service quality, price rationality and public satisfaction of the project. The lack of in-depth audit of these focus areas in the original audit path may lead to deviations from the expected goals or negative social impacts during the construction and operation of the project.

3.2.4. The Investment Efficiency Audit is Not Deep Enough

During the completion phase of the project, although the investment benefit audit was carried out, the comprehensive evaluation was not fully integrated with the long-term operation characteristics of the PPP project. In the audit process of the project investment benefit, the economic benefit, social benefit and environmental benefit of the project are not fully and deeply analyzed and evaluated, which may lead to the audit results can not fully reflect the real investment effect of the project, and then affect the effectiveness of audit supervision and the decision-making basis of project management. For example, it does not take into account the project's cost recovery, profit expectations and overall contribution to the society and economy during the operation period. Especially for government-subsidized projects, the evaluation of investment benefits should pay more attention to long-term social benefits and stability. The failure of the original audit path to evaluate these aspects in depth may lead to misjudgment or underestimation of project investment benefits.

3.3. Optimization of the Audit Path of this Project

At the end of 2023, the National Development and Reform Commission of China and the Ministry of Finance issued a notice on the Guidance on Standardizing the Implementation of the New Mechanism for Cooperation between the Government and Social Capital, requiring the standardized promotion of the construction and implementation of PPP projects, effectively strengthening operational supervision, and increasing policy support. The core requirements include locking in the franchise model, focusing on user payment and giving priority to private enterprise participation. With a large number of PPP projects gradually from the construction period to the operation period, the importance and urgency of implementing the whole life cycle management audit of PPP projects has become increasingly apparent.

3.3.1. User Paid Project Robustness Audit Path Optimization

Insufficient attention to key factors such as future revenue sources, payment models, fee structures and revenue expectations of user paid projects in the original audit path may lead to

financial risks or unsustainable difficulties in the operational phase of the project. The optimization path can set up a special audit team for user payment projects to conduct in-depth analysis of their financial sustainability; Establish a prediction model; Use financial models and data analysis tools to forecast and simulate revenue expectations, payment patterns and fee structures of projects to assess their stability and sustainability; In the process of project construction and operation, keep tracking and evaluating the actual operation of user paid projects, make comparison and analysis with the forecast model, and timely adjust the audit strategy.

3.3.2. The Audit Path of Franchise Mode is Strengthened and Improved

The original audit path did not pay enough attention to the specific provisions of the franchise agreement, the relationship between the rights and obligations of the two parties, the risk sharing mechanism and the performance evaluation standards. In the audit path optimization, it is necessary to refine the audit content. In the audit process, the provisions of the franchise agreement should be reviewed in detail to ensure its legal compliance and strong operability. Carry out risk assessment, make a comprehensive assessment of the possible risks in the franchise model, including legal risks, market risks, operational risks, etc., and propose corresponding risk countermeasures; Establish performance evaluation standards, jointly develop scientific and reasonable performance evaluation standards with project owners and relevant parties, and regularly evaluate the operational performance of franchise mode.

3.3.3. Precise Grasp and Special Improvement of Key Areas of Audit

Although the original audit path covers multiple aspects of the construction project, it may not conduct special audits for specific areas of the PPP project. In the optimized audit path, it is necessary to identify the key areas, and identify the areas that need to be focused on according to the characteristics and objectives of the project (such as engineering quality, safety standards, service quality, etc.); Formulate special audit plans for identified key areas, formulate special audit plans to clarify audit objectives, scope, methods and schedules; Integrate resources, integrate internal and external audit resources, and ensure that special audits in key areas can be effectively executed.

3.3.4. We Will Make Investment Performance Audits more Comprehensive and In-depth

In view of the problem of "insufficient depth of investment benefit audit" in the original audit path, the optimization plan suggests to enhance the comprehensiveness and depth of investment benefit audit. Specific measures include extending the audit time span, not only focusing on the short-term benefits of the construction and completion phases of the project, but also taking into account the long-term operational characteristics of the PPP project to assess the cost recovery, profit expectations and comprehensive social and economic contribution of the project during the operation period. At the same time, a variety of analysis methods are introduced, such as the combination of quantitative analysis and qualitative analysis, and advanced tools such as big data analysis and risk assessment model are used to comprehensively analyze and evaluate the economic, social and environmental benefits of the project, so as to ensure that the audit results can fully reflect the real investment effects of the project, and provide strong support for the follow-up management of the project and government decision-making.

4. Conclusion

Taking A cross-river bridge PPP project as an example, this study deeply discusses the optimization of PPP project audit path. Based on the detailed analysis of the shortcomings of the original audit path, combined with the current policy requirements and project

characteristics, the corresponding optimization measures are put forward. The research conclusions mainly include the following points.

First, there are obvious deficiencies in the original audit path. Although the traditional audit path covers many aspects in the project construction stage, completion stage and daily audit supervision, there are obvious deficiencies in the robustness of user paid projects, the audit of franchise mode, the grasp of key areas and the audit depth of investment benefits.

Second, the audit path for the robustness of user-paid projects needs to be optimized. For user payment projects, a special audit team should be set up to use financial models and data analysis tools to forecast and simulate the project's revenue expectations, payment patterns and fee structures to assess its stability and sustainability, and to continuously track and evaluate the actual operation.

Third, the audit path of franchise mode needs to be strengthened and improved. In the audit process, the provisions of the franchise agreement should be reviewed in detail, risk assessment should be carried out, and scientific and reasonable performance evaluation standards should be established to regularly evaluate the operational performance of the franchise model.

Fourth, the key areas of audit need to be accurately grasped and specially improved. According to the characteristics and objectives of the project, the areas that need to be focused on are identified, such as engineering quality, safety standards, service quality, etc., and special audit plans are formulated to integrate internal and external audit resources to ensure that the special audit of key areas can be effectively implemented.

Finally, investment efficiency audit needs to be more comprehensive and in-depth. The audit time span should be extended, taking into account the long-term operation characteristics of PPP projects, to evaluate the cost recovery, profit expectations and comprehensive contribution to the social economy of the project during the operation period. At the same time, a variety of analysis methods are introduced to comprehensively analyze and evaluate the economic, social and environmental benefits of the project.

5. Policy Suggestions

Based on the above research conclusions, this study proposes the following policy implications.

First of all, we need to improve the audit policy system of PPP projects. The government should introduce a more complete audit policy system for PPP projects, clarify audit priorities, audit paths and audit standards, and provide clear guidance and basis for audit institutions.

Secondly, it is urgent to strengthen the construction and training of audit team. Audit institutions should strengthen the construction and training of audit teams, improve the professional quality and comprehensive ability of auditors, especially the special skills and knowledge for PPP project auditing.

Third, innovation and application of audit technology should be promoted. Audit institutions are encouraged to use modern information technology means such as big data, cloud computing and artificial intelligence to improve audit efficiency and accuracy, and realize the full life cycle and all-round audit of PPP projects.

Fourth, promote and strengthen the use and feedback of audit results. Audit institutions should strengthen the use and feedback of audit results, timely report the problems and suggestions found by audit to project owners and relevant departments, and urge them to rectify and implement, so as to ensure the compliance, economy, efficiency and sustainability of PPP projects.

Finally, cross-sectoral collaboration and information sharing are encouraged. The government should promote the cooperation and information sharing between audit institutions and other

relevant departments, form a joint force, jointly strengthen the supervision and management of PPP projects, and improve the overall efficiency and social benefits of projects.

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