Third International Conference on Construction in the 21st Century (CITC-III)
"Advancing Engineering, Management and Technology"
15-17, September 2005, Athens

Construction Sector Risk Considerations on PPP Projects in Greece

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Abstract
In Greece, as in other PPP markets, risk allocation is foreseen to become a key issue in the development of Public-Private Partnerships. The attitudes, beliefs, values and expectations of stakeholders, both private and public, have an impact on risk considerations.
The present paper explores and registers the risk considerations of the Greek construction companies considering their involvement in Greek PPP infrastructure projects. The investigation was conducted through a questionnaire survey. The research findings reinforce the results of other surveys carried out on the subject and should enable public sector clients to establish a more efficient framework for risk allocation, thus reducing negotiations prior to contract award.

Keywords
PPP, Risk allocation, Risk analysis, Construction Sector

1. Introduction

Public Private Partnership (PPP) procurement has been seen by governments as an effective way to achieve value for money in public infrastructure projects. These partnerships may take on many forms. The numbers and types of PPP arrangements are overwhelming, making the precise definition of a PPP difficult. However, PPPs have common features or characteristics. Peters (1998) identified five common characteristics of PPP arrangements, the first referred to the partners (i.e. at least one public sector partner and one private sector one); the second to the fact that each partner is an authority of its own; the third that they establish an enduring relationship as opposed to the one-off transactions of between public and private sectors; the fourth feature identified referred to the fact that each partner brings something into the partnership. Finally, the fifth feature identified was the shared responsibility for outcomes and activities. As the PPP process matures, at an international level the emphasis is shifting; there is less significance on public borrowing then there is on risk allocation and prioritization.

To this end, research has been undertaken by academia and development institutions. UNIDO (1996) developed a checklist classifying risks under two major categories (general/country risks and specific

project risks). Political risks, commercial risks and legal risks are classified in the first category, whereas construction/completion risks and operating risks under the second category. Akintoye *et al* (1998) carried out risk assessment/prioritization for private finance initiative (PFI) projects in the UK. The 10 most important risk factors identified (based on a survey among clients, contractors and financial institutions) were design risk, construction cost risk, payment risks and tendering costs. Land acquisition, debt risk, bankers' risk, and political risks were found to be the least important. A checklist of risks of PFI projects in the UK is also presented by Hardcastle and Boothroyd (2003). In a survey concerning the allocation of risk, Li *et al* (2005), found that the public sector partner should retain site availability and political risks; relationship risks, *force majeure* risks; whilst the risk of legislation changes should be shared by both parties; the majority of the remaining project risks, especially the ones directly connected to the project itself should be allocated to the private sector. Salzmann and Mohammed (1999) have presented a risk allocation framework for international BOOT projects based on four super factor groupings: host country, investors, projects and project organization. Thomas *et al* (2003) surveyed risk allocation in BOT road projects in India and found that the principle of "the most capable party for managing the risk should assume it", was often not respected due to the difference of risk perception among the project participants, as this rational is not accepted by the government.

Although there is identifiable overlapping in research findings, the issue of risk allocation and risk prioritization remains sector- and country-specific. On the other hand, much of the risk of PPP projects comes from the complexity of the arrangement itself in terms of documentation, financing, taxation, technical details, sub-agreements etc. involved in the major infrastructure venture, while the nature of risk alters over the duration of the project as does its impact. It is also common knowledge that a lot of management time spent in contract transaction, lengthy delays in negotiation and high participation costs. Identifying the risk allocation preferences of the parties involved can contribute to minimizing these costs.

In Greece, despite the implementation of a number of PPP projects in the form of BOOTs in the mid 1990s and the strong interest of the private sector, the pace of procuring new projects in the public sector is not as fast as it should have been. Risk allocation is considered to be at the heart of reservations concerning the adoption of PPP procurement schemes. The present paper contributes to the knowledge base of PPP procurement by presenting the findings regarding preferred risk allocation in the Greek Construction Sector.

2. The Research Survey

March and Shapira (1987) advocate that according to classical decision theory, risk is generally understood to be the distribution of possible outcomes, their likelihood, and their subjective values. Uncertainty, which matters, is central to all projects. According to Chapman and Ward (2002), uncertainty arises as to which parties should be involved, the alignment of their motives, the alignment of project objectives, shaping the design and resource requirements, choosing and managing appropriate processes, managing the underlying trade-offs between relevant attributes measuring performance and the implications of associated risk. Risk allocation refers to a primary measure of assignment between the projects' direct participants, that is, between the public and private sector, excluding end-users. The general consensus in current literature is that risk identification may be carried out based on a number of "empirical" techniques such as brainstorming, Delphi, checklists etc. Identified risks are than entered onto a risk register matrix and ranked as having a certain impact and a probability of occurrence. The technique is highly subjective as both estimates depend on the estimator's experience and risk behavior (averse or prone) as well as a number of other pertaining attributes. However, within an individual environment they may be used for risk prioritization.

2.1 Survey Discription

The current survey constitutes part of a questionnaire survey conducted to register risk allocation preferences and value for money drivers of private and public entities involved in PPP projects in Greece. Companies selected for the survey, were companies capable to undertake PPP projects, i.e. those classified as class 6 and 7, as those are registered by the Ministry of Public Works as having the respective construction experience and financial potential. It should be noted that in Greece there are seven classes and a new construction company with no experience begins at class 1 and is allowed to undertake low budget, and consequently low technical difficulty, works. Questionnaires were addressed directly to the company heads and followed by interviews for additional information. The objective was to register "company" rather than individual opinions. The survey was conducted in a very turbulent business environment of recession following the Athens 2004 Olympic Games. Of the 60 odd companies classified under the 6th and 7th construction class in the 2004 Ministry register, only 40 (Universe population) were found to remain in operation. The overall response to the survey was 15, a response rate of 37.5%. While the number of responses, or for that matter the entire population, would not be sufficient for statistical analysis, as such, this approach was selected by the authors, as opposed to in-depth interviews, in order to register systematically the perception of risks and risk allocation for the Greek Construction Sector. The respondent companies were all highly reputable in Greece (two are included in the top 100 European Companies listing) and active in most infrastructure sectors. All but one companies had participated in a PPP procurement procedure or project. The questionnaire consisted of four discrete parts. The first registered the company profile, the second the perception on value-for-money drivers for the private sector in PPP schemes, the third dealt with the issue of risk and risk allocation through a risk checklist and finally, the fourth part of the questionnaire dealt with the issue of partnering and subcontracting within the private sector.

2.2 Presentation of Survey Results and Discussion

The respondents were requested to estimate the probability of occurrence, the risk impact on a qualitative scale of 1 (=negligible) to 5 (=detrimental) and finally assign which partner is most suitable to undertake the risk or to register the risk as "shared" between the public and private sector for each identified risk. A total of 40 risks were identified through literature review and the authors' experience of country specific risks (example archeological findings risk). Risks were grouped as "external" (political, macroeconomic, legal, social and environmental), "project specific" (project selection, financial, planning, construction and operational), and "organizational" (consortium related and third party). The ranking of risks was derived by calculating the risk perception based on the probability of occurrence and the level of impact. Regardless of the reservations concerning this over-simplistic approach, as risk perception is generally believed to be influenced by people's belief, attitudes, judgment and feelings, as well as educational background, practical experience, available information, peer group influence etc., the status of the respondents (general managers, managing directors etc.) justifies their use as these are the final decision-makers from the private sector so it is their risk perceptions that will be negotiated in a plausible contract negotiation procedure. Additionally, the results are not being used as absolute values but for a ranking activity.

Table 1 presents the top twenty identified risks, as ranked by the private sector and their respective risk allocation compared to the risk allocation of the same risks (Li *et al*, 2005) and their ranking (Hardcastle and Boothroyd, 2003), where available, by the UK Construction Sector. Interestingly, when referring to the above table presentation, though risk allocation is not considerably diversified, the ranking of risks is. Public decision –making and approval processes are considered to be the most risky issues to be confronted. Moreover, project specific risks, with the exception of project cost overrun, were considered of lesser importance. Other political risks are not identified in Greece (unstable government or political opposition), though public opposition is feared. Archeological findings rank high, as there is always a high possibility of such events and they have great impact on project schedule and cost. Surprisingly enough, the experience of the public or private sector in PPPs did not figure among the top 20 risks.

The findings concerning risk allocation were compared to the previous findings of the survey carried out by Li *et al* (2005) in the UK. The comparison of findings enhances the reliability of the current survey and indicates the tendency of the Greek Construction Sector to avoid any risk remotely connected to the public sector. This is also evident in risk prioritization, where 6 of the top 10 most important risks are directly connected to the public sector. This prevailing risk-averse behavior is substantiated by the lengthy procurement and contract negotiation process of PPP projects experienced in Greece and the fact that very few PPP projects are procured making the possibility to share risk in a project portfolio, as suggested by Markowitz, inapplicable. On the other hand, the Greek Construction Sector is committed to undertake most project specific risks and all the organizational risks identified on the checklist. Moreover, organizational risks are ranked least important.

Table 1: Private Sector Risk Allocation: Greece – UK Findings Comparison

Risks	Greece				UK			
	% respondents			Rank	% respondents			Rank
	PB	PR	S		PB	PR	S	
Delay in project approvals and permits	38	0	62	**1**	36	32	32	**-**
Poor public decision-making process	63	0	37	**2**	73	7	20	**-**
Construction cost overrun	0	75	25	**3**	0	96	4	**2**
Archeological findings	75	0	25	**4**				**-**
Poor financial market	0	38	62	**5**	0	85	15	**22**
Public opposition	38	0	62	**6**	53	33	13	**-**
Operation cost overrun	0	62	38	**7**	0	100	0	**9**
Late design changes	0	88	12	**8**	24	48	28	**-**
Availability of finance	50	13	37	**9**	0	87	13	**12**
Change in Tax regulation	62	0	38	**10**	19	42	38	**-**
Operational revenue below expectation	0	50	50	**11**	4	91	4	**10**
Fin. attraction of project to investors	0	75	25	**12**	5	77	18	**-**
Land acquisition	50	25	25	**13**	70	10	20	**26**
Inflation rate volatility	25	13	62	**14**	7	56	37	**-**
Organization and co-ordination risk	0	63	37	**15**	0	92	8	**-**
Design Efficiency	0	75	25	**16**	0	92	8	**1**
Industrial regulatory change	50	0	50	**17**	0	65	35	**-**
Legislation change	62	0	38	**18**	15	11	74	**24**
Environment	37	25	38	**19**	0	84	16	**15**
High financing cost	25	50	25	**20**	5	68	27	**25**

**PB= Public Sector, PR = Private Sector, S = Shared*

3. Conclusions

The objective of this paper was to explore risk allocation preferences of the Construction Sector (Private party) concerning PPPs in Greece. Findings indicated that, the Construction Sector in Greece is relectant to undertake risks directly connected to the public sector decision-making process. Though, mostly expresssing a risk –averse behavior, the private sector is accepting most of the responsibility for project

specific risks and all the risk concerning organisational issues, which were ranked of lesser importance than the previous findings identified in literature, underpinning the fact that risks are host country specific. A prevailing conclusion is that serious obstacles in the development of a PPP sector in Greece are issues connected to the Public Sector. Therefore, Public Sector clients should be more prepared to address these issues. The later justifies a similar survey being currently carried out concerning Public Sector partners, the findings of which will provide the potential for a holistic approach to PPP risk allocation in Greece and faciliate the process of PPP contracts.

4. Acknowledgements

The authors wish to express their graditute to the respondents for participating in the survey and Mr. Charalambos Milonas for his assistance in conducting the survey.

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