

THE ANTICIPATED ROBUSTNESS FACTORS IN A PFI PROJECT ENVIRONMENT FROM THE GRANTING AUTHORITY'S PERSPECTIVE

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The Private Finance Initiative (PFI) has been a procurement innovation in the UK by which the responsibilities of the public sector to deliver public services are carried out by the private sector. This mode of procurement has been aggressively pursued in the late 90s by the UK Government in the offset of efficiency, effectiveness and economic characteristics embedded through the financial, management, commercial and technological knowhow of the private sector. Nevertheless in the last decade there has been a reduction in PFI projects mainly due to economic and financial constraints. Subsequently the political scenario within the UK has experienced change in leadership within Government that affects policy and regulatory matters. Therefore it is evident that PFIs are exposed to both external and internal shocks that bring about uncertainties mainly during the operational phase. Hence the robustness of PFI projects to withstand uncertainties is of great concern. Interviews comprising of private, public and academia experts were conducted to determine what and how the endogenous and exogenous factors interact. The endogenous factors that provide the environment for optimum performance are found to be dynamic in nature and changes would have a significant impact on the project. Furthermore the ability of PFIs to adapt to changes caused by the exogenous factors builds on the robustness of the initiative. Managing the change through flexible mechanisms is found to be closely associated with robustness. Understanding the dynamic relationships of the endogenous and exogenous factors holds the key to creating a sustainable procurement model. A robustness framework for PFI projects is proposed using the exogenous and endogenous factors and their interactions.

Keywords: granting authority, PFI, procurement, robustness, sustainable.

INTRODUCTION

The shift from privatisation into public private partnership was part of the overall public administration modernisation strategy with the partnering approach being the cornerstone of the UK Government's strategy (HM Treasury, 2000). In order to put things into perspective, in September 2009 the UK Government had a capital value of operational PFI projects amounting to £34 billion with a further £12 billion in the pipeline (NAO, 2009). Whilst the Government continue down the PFI route in delivering public services, criticisms in its implementation have been raised by numerous parties (Asenova *et al.*, 2003; Broadbent and Laughlin, 2003; Gaffney and Pollock, 1999; Pollock *et al.*, 2007; Shaoul, 2005; UNISON, 2002).

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The Government is trapped in a situation where its Victorian infrastructure is rapidly aging, socioeconomic issues require regeneration schemes and development programs and the public continuously demand for a higher degree of public service delivery systems. Amidst all of this the 2008 financial crisis is hovering around Government, limiting its capital investment as well as limiting financial institutions ability in providing loans to the private sector. The financial constraints have had an impact on PFI projects due to the nature of its structure associated with long terms concession periods. Such constraints have raised doubts about its survival and its sustainability as a procurement model.

The political scenario within the UK has equally experienced a transformation. The changes brought about by the new Conservative Government with regards to the umbrella Public Private Partnership program has lead to the realignment in policy direction such as the Building Schools for the Future (BSF) being re-evaluated and the allocation of PFI credits to local government revisited. These changes in policy have had an impact on the future planning exercises undertaken by various stakeholders associated with the PFI market prior to the election. Clearly the role and influence of politics is closely linked to the rigour in which PFIs are built on.

With PFI as a sustainable procurement model being questioned, the emphasis on robustness within the PFI model has been raised by several authors (Ball *et al.*, 2004; Gosling, 2004; Haggard, 2004; Knight and Fox, 2004; Shaoul, 2009). This paper is an extract of an ongoing PhD research and it focuses on the method used to determine the factors that govern the Robustness of PFI from the perspective of the Granting Authority.

RESEARCH METHOD

The study is part of a postgraduate doctoral program which began in 2009. Literature reviews of existing journals and official government documents were carried out to determine and establish the definition of robustness and how robustness is viewed within the context of PFI within a project environment. Subsequently interviews with experts or individuals directly involved with PFI projects comprising of the public and private sectors and academia were conducted to determine what and how the endogenous and exogenous factors are represented and interact respectively. This is important as the findings will contribute and assist in the development of the Robustness model which will be tested using operational PFI projects as case studies as shown in Figure 1.

REVIEW OF LITERATURE

Ghobadian (2004a) put forth a fundamental question which contributes to the cornerstone of this research, ‘whether there is a robust structure in place to enable Government to attain its objectives of delivering improved and sustainable public services?’. The robust structure in this context refers to the processes and evaluation mechanism in place to justify the PFI route and one that leads to a more effective and efficient public service provision. It is further suggested that the ‘robust structure for the delivery of high quality sustainable public services can be created through the best of both public and private sectors through partnering’ (ibid) meaning that the way forward towards a sustainable delivery of public services is through the public private partnership mechanism and in the context of this paper points to PFI.

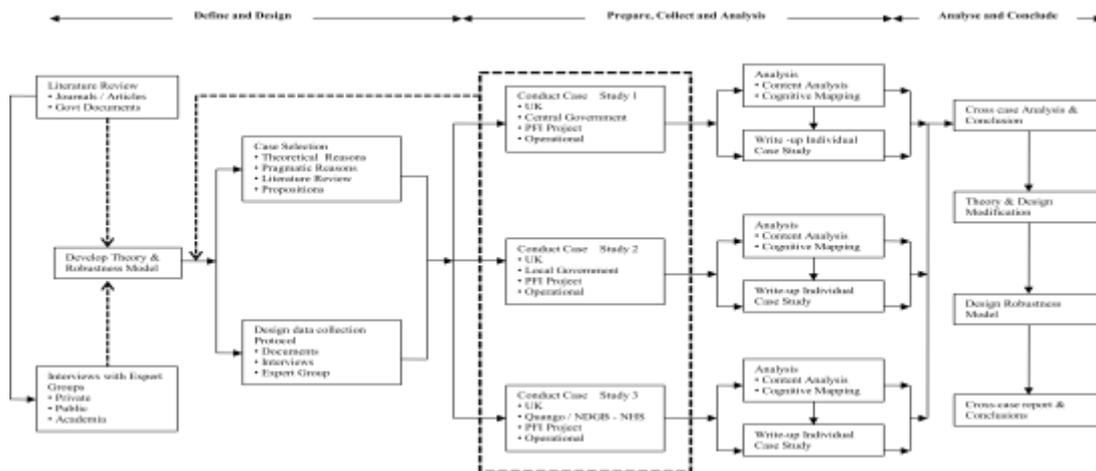


Figure 1: Research design

The performance of PFI have been closely monitored by the independent ‘watch dog’ role played by the National Audit Office (NAO) and the Public Accounts Committee (PAC), whereby both had given positive and encouraging feedback on the implementation of PFI (Ghobadian *et al.*, 2004b). A review by O’Dowd (2011) of the NAO report published on 28 April stipulated that the VfM in PFI projects requires robust evaluation by government departments to demonstrate its presence. While the validity of VfM remains questionable, the learning curve from PFI projects can be extended into various forms of procurement. He further adds that the report emphasises: data collection; competent personnel; robust evaluation process; and market competition. Hence there is a great need for a more robust evaluation and monitoring system within PFIs.

On the contrary, the justifications put forth by the Government in projecting the achievement of the PFI have been criticised by Pollock *et al.* (2007) due to the methodology used in arriving at the conclusion reported in various Government publications. The evidence cited by Pollock (*ibid*) no doubt statistically justifies the author’s claims; however, the evidence equally leads to the conclusion that there are gaps that require further probing into the robustness of the processes carried out in arriving at the Value for Money criteria and the Risk Transfer assessments. Pollock *et al.* (2011) indicated that the main deficiencies within PFIs in NHS projects are contract monitoring, compliance and contract enforcement. A lack of such control mechanisms would affect VfM causing serious implications in the quality and service levels of NHS care.

This emphasis towards a more robust PFI procurement has been drummed tirelessly by the Government. The Treasury (HM Treasury, 2008, 2010a, 2010b; NAO, 2010) has been the key instrument in demanding that procurement within the authorities are robust in terms of planning, costing, deliverables and value for money. Asenova *et al.* (2003) inferred that a lack of a robust process affects badly the VfM component of the PFI project as echoed by HM Treasury. Thus it can be inferred that a highly competitive atmosphere is compulsory for PFIs and the mechanism in which the bidding is evaluated needs to emphasise robustness with regards to VfM, Risk Transfer and Affordability assessments.

Shaoul *et al.* (2011) inferred that the contractual arrangements within NHS PFIs reduce the Trusts’ flexibility due to fixed unitary payments over the lifecycle of the

project. The study also raised issues pertaining to corporate structure; risk transfer; service delivery and performance monitoring and partnership relationship. Ball (2011) questioned the validity of the Public Sector Comparator (PSC) used to indicate VfM based on the level of transparency embedded within the assessment process. Thus there is a need to review the existing evaluation and monitoring mechanisms that are in place and to explore the rigour within these systems.

Wilson *et al.* (2010) demonstrated governance as an essential component of PPPs. The form of governance due to the complexities within PPPs varies from that of traditional procurements likewise in the case of PFIs. Furthermore the level of complexity within PFIs is evident, based on the governance structure that comprise of various stakeholders coupled with layers of contractual mechanisms to safeguard the interest of each entity. Wilson (*ibid*) points out the key characteristic in a successful PPP is communication among the stakeholders. Rufin and Santos (2010) on the other hand found PPP contracts less complete and more complex. The complexity is viewed as a tool to complement uncertainties that exists in contracts. This approach may seem rather adversarial, pushing back the trust level within the partnership.

Grimsey and Graham (1997) had identified the underlying principles within a PFI to be VfM and Risk Transfer while stressing the need to look into a robust Affordability scheme due to the duration of PFI ventures when examining PFI in the NHS. Grimsey and Lewis (2002) further argued that a robust mechanism is vital to provide a sound and affordable financial plan to give sustainability to the PFI throughout its concession period. The complexity of PFI projects is without question a matter to be reckoned with, however with risks there are rewards coupled with effectiveness and efficiencies that the PFI has introduced in the delivery of public provisions (Grimsey and Lewis, 2007).

Kakabadse (2007) suggested that PFI does provide some advantages, including the risks that PFI projects contain such as political pressure, complexity in preferred bidder selection, bid size, alterations, contractual relationships, affordability and others. Brinkerhoff and Brinkerhoff (2011) agreed that PPPs offer advantages, subject to suitability, as well as the need to have the right composition between interests and incentives surrounding the partnership.

The mode in which robustness is present within PFI procurement is inconclusive and remains subjective. However the demand for a robust medium, be it a procurement process, evaluation, monitoring or structure leads to the conclusion that robustness is a significant characteristic of PFI. In order to appreciate robustness it is important to establish what reflects the definition of Robustness (Rob) within the PFI context.

ROBUSTNESS WITHIN PFI

The engineering definition of robustness is described as the ability for a particular system to maintain its performance when subjected to internal and external uncertainty parameters (Carlson and Doyle, 2002). Furthermore robustness accentuates the close relationship between cost benefit trade-offs and system design to cope with uncertainties (Anderies *et al.*, 2004). Akbiyikli (2005) viewed robustness as a PFI project which possesses an equitable arrangement with all parties, such that a 'step-in' would not be required to ensure the completion of the project and one that is executed in subsequent projects. In the context of this study, Robustness is defined as the permissible level to which a PFI project continues to operate in the presence of uncertainties caused by the endogenous or exogenous factors. The endogenous factors

are VfM, RTA and Aff which are co-dependent sub-systems and at the systems' level, the acronym SLEEPT, Social; Legal; Economic; Environment; Political; and Technological represent the exogenous factors.

Several inferences are put forth here. Firstly the endogenous and exogenous factors create a level of uncertainty by which PFIs are implemented. The ability to absorb the uncertainty and changes caused by the uncertainties whilst the project continues to achieve the objectives set out initially reflects the robustness of PFI. Secondly there exists permissible levels of trade-offs between and among the endogenous and exogenous factors to achieve a balance with the environment in which the PFI operates. This permissible level can be referred to as the resilience that needs to exist within the PFI model to create the element of robustness. A conceptual robustness model is currently being explored based on the inferences stated above. This model will be validated using the research design in Figure 1.

PRELIMINARY FINDINGS

A review of existing literature and cross referencing with official Government documents were the primary component in drafting the interview questions posed to the experts. In order to ensure that the questions were aligned to meet with the aims and objectives of the research, the expert group containing academia was used. The academia experts were from within the UK and Europe. These questions were then posed to the public and private sectors actively involved in PFI projects in the UK. The primary aim of this exercise was to establish what the endogenous and exogenous factors are and how these factors interact within the PFI project context.

The endogenous factors are process related. Process related mainly refers to the existing processes in place when using the PFI model as a procurement method. The three main processes as mentioned earlier are Value for Money, Risk Transfer Assessment and Affordability. The exogenous factors are categorised using the SLEEPT acronym. The SLEEPT taxonomy consists of six factors which comprise of: Social; Legal; Economic; Environment; Political; and Technological. The factors provide a comprehensive exogenous environment in which the PFI operates. Thus the influence of these factors is inevitable to how the PFI project performs. Furthermore the SLEEPT methodology has been established by The Centre for Risk Management Research (CRMR) at the University of Salford as a device for categorising 'drivers' of a process or object (Eaton *et al.*, 2006). Similar works using the SLEEPT methodology have been conducted (Akbiyikli, 2005; Eaton and Akbiyikli, 2008). The obtained raw data is classified into these two categories (See Table 1).

Table 1 contains the endogenous and exogenous factors that were churned from the raw data gather from the interviews conducted. This filtration process of the data was performed using content analysis. Data concerning endogenous factors were strictly limited to elements related to the processes pertaining to Value for Money (VfM), Risk Transfer Assessment (RTA) and Affordability (AFF). The remaining factors are closely related to systems performance and systems effectiveness. The systems approach will be used to develop the Robustness model. The exogenous factors have also been identified using the same content analysis technique. The factors are best represented using the SLEEPT taxonomy due to the diversity and dynamism of the exogenous factors.

Table 1: Endogenous & Exogenous factors

Endogenous & Exogenous factors	
Endogenous	Exogenous
<ul style="list-style-type: none"> • Risks • Risk Transfer • Risk Management 	RTA <ul style="list-style-type: none"> • Human resource • Technology • Resources • Time
<ul style="list-style-type: none"> • Value for Money • Public Sector Comparator • Finance 	VfM <ul style="list-style-type: none"> • Mechanism/Systems/Process • Benefits • Succession plan • Uncertainties - level
<ul style="list-style-type: none"> • Affordability • Whole Life-cycle Costing 	AFF <ul style="list-style-type: none"> • Viability/bespoke • User requirement • Sustainability
<ul style="list-style-type: none"> • Resilience 	Res <ul style="list-style-type: none"> • Partnering/collaborative approach • Teams/organisational boundaries • Challenges • Trust
<ul style="list-style-type: none"> • Robustness • Flexibility 	Rob <ul style="list-style-type: none"> • Mutual goals/common objectives/clear brief/vision • Conflicts • Competitive Advantage • Efficiency • Innovation • Quality • Cooperation • Expertise/Competency • Relationship/Partnership • Respect • Performance/Output specifications • Reputation • Knowledge • Experience • Cost • Sector maturity • Leadership • Time scale • Contractor capability & capacity • Environment – PFI market • Culture – organisational & working • Standardisation • Commitment
<ul style="list-style-type: none"> • Trade-offs 	S L E E P T

The focus of the interviews was primarily to establish existing relationships at the endogenous and exogenous level in PFI projects. Based on the preliminary findings, it can be inferred that there is a dynamic relationship at the endogenous level, meaning that the three main processes are very much interrelated and co-exist. The relationship is further described to be symbiotic. The endogenous factors are also very much influenced by the exogenous factors which can be described as affluent between the two regions. The relationship is rather complex due to the time-scales associated with PFIs where by concession periods ranging between 20-40 years increases the element of uncertainty. The framework used to develop the Robustness model is shown in Figure 2.

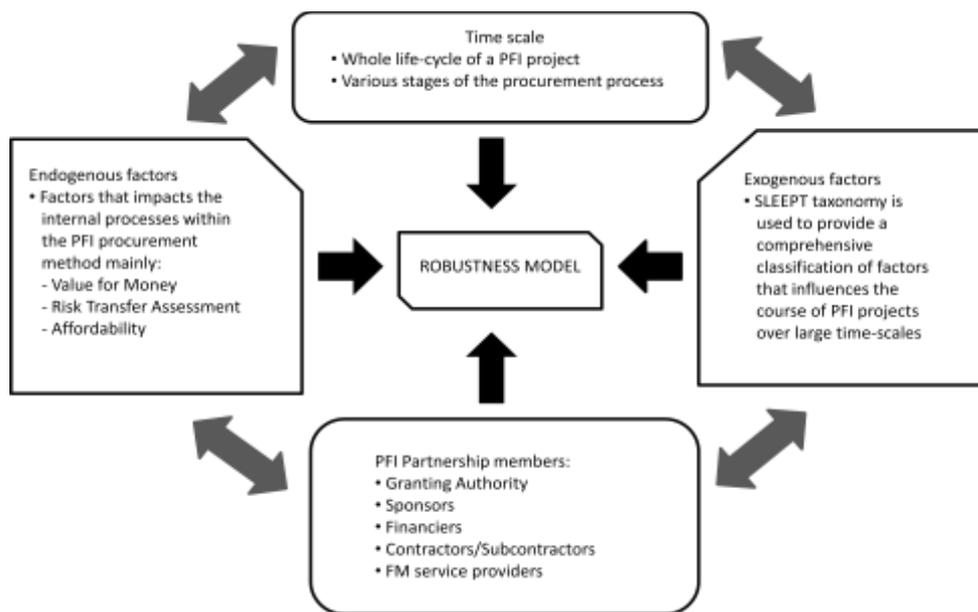


Figure 2: Framework to develop robustness model

The framework in Figure 2 will be used to develop a Robustness model for PFI projects in the UK. The framework contains four main elements which impact the model. The endogenous factors are factors that influence how the model reacts due to the processes within a PFI project. The exogenous factors describe the external environment that PFI projects are subjected to over the life cycle of the project. With PFI projects subjected to long term concession periods, time scale location is an important aspect whereby the model is required to adapt to the procurement stages and throughout the life-cycle of the project once it becomes operational. The final element to the framework is the partnership members, with each party having their respective organisational objectives and goals, coupled with the partnership's mutual goal, Robustness will be largely influenced by the perspective in which it is being considered. The double head arrows that link the framework echo a systems thinking approach (Checkland, 1981) in developing the model. Thus the variation in one component would influence the outcome of the whole.

An attempt to classify robustness from the context of a PFI project was pursued during the interview sessions. This was done by using the engineering definition of robustness (Taguchi, 2000) as a basis. However both the public and private sectors had different perspective on how robustness is viewed within a PFI project. Their views were more reflective of their organisational interest rather than a common interest which is crucial for the partnership. The common understanding between them was that robustness is an important and significant characteristic in PFI projects. This infers that a need to have a clear and distinctive definition of robustness to allow for all parties within the PFI procurement initiative to apply robustness more effectively and efficiently. Hence the formulation of a sustainable PFI procurement can be explored.

CONCLUSIONS

Robustness is a significant and important characteristic in PFI projects. Nevertheless further research is required to completely understand how this element can improve the performance of the processes within the PFI procurement model in delivering

services. This portion of the research will be explored using operational PFI projects in order to identify mechanisms used to manage uncertainty which is reflective of robustness. Subsequently the interdependency between robustness and the processes within PFI procurement will also be of primary interest. The preliminary findings present have also contributed to the development of a robustness model using the framework mentioned above. The model however is still at the initial stage and requires further testing using active projects as case studies. It is the objective of this PhD research to explore if the characteristic of robustness contributes to a sustainable PFI procurement and the outcome of this pursuit will be updated in future forthcoming conferences.

REFERENCES

- Anderies, J. M., Janssen, M. A. and Ostrom, E. (2004), "A framework to analyze the robustness of social-ecological systems from an institutional perspective", *Ecology and Society*, **9**(1), 18.
- Akbiyikli, R. (2005), *The holistic realisation of pfi road project objectives in the UK*, Unpublished PhD Thesis, School of Construction and Property Management, University of Salford, UK.
- Asenova, D., Beck, M., Akintoye, A., Hardcastle, C. and Chiyio, E. (2003), "Obstacles to best value in nhs pfi projects: Evidence from two hospitals", *Journal of Finance and Management in Public Services*, **4**(1), 33-49.
- Ball, R. (2011), "Provision of public service infrastructure—the use of PPPs in the UK and Australia: A comparative study", *International Journal of Public Sector Management*, **24**(1), 5-22.
- Ball, R., Heafey, M. and King, D. (2004), "Risk management and the private finance initiative", in Ghobadian, A., Gallear, D., O'regan, N. and Viney, H. (Eds.), *Public-private partnerships: Policy and experience*, Palgrave Macmillan, Hampshire, USA.
- Brinkerhoff, D. W. and Brinkerhoff, J. M. (2011), "Public–private partnerships: Perspectives on purposes, publicness, and good governance", *Public Administration and Development*, **31**(1), 2-14.
- Broadbent, J. and Laughlin, R. (2003), "Public private partnership: An introduction", *Accounting, Auditing & Accountability Journal*, **16**(3), 332-41.
- Carlson, J.M. and Doyle, J. (2002), "Complexity and robustness", *Proceedings of the National Academy of Sciences of the United States of America*, **99**(Suppl 1), 2538-45.
- Checkland, P. (1981), *Systems Thinking, Systems Practice*, John Wiley & Sons, UK.
- Eaton, D. and Akbiyikli, R. (2008), "The effect of risk transfer on ppps: An evaluation based on a uk road project", in Davis, H. A. (Ed.), *Infrastructure finance trends and techniques*, Euromoney Institutional Investor Plc, London, UK.
- Eaton, D., Akbiyikli, R. and Dickinson, M. (2006), "An evaluation of the stimulants and impediments to innovation within PFI/PPP projects", *Construction Innovation*, **6**(2), 63-77.
- Gaffney, D. and Pollock, A. M. (1999), "Pump-priming the PFI: Why are privately financed hospital schemes being subsidized?", *Public Money & Management*, **17**(3), 11-16.

- Ghobadian, A., Gallear, D., O'Regan, N. and Viney, H. (2004b), "PPP: The instrument for transforming the public services", in Ghobadian, A., Gallear, D., O'Regan, N. and Viney, H. (Eds.), *Public-private partnerships: Policy and experiences*, Palgrave Macmillian, Hampshire, USA.
- Ghobadian, A., Gallear, D., O'Regan, N. and Viney, H. (2004a), "Future of public private partnership", in Ghobadian, A., Gallear, D., O'Regan, N. and Viney, H.(Eds.), *Public-private partnerships: Policy and experiences*, Palgrave Macmillian, Hampshire, USA.
- Gosling, T. (2004), "The PFI, the public finances and value for money", in Gosling, T. (Ed.), *3 steps forward, 2 steps back: Reforming PPP policy*, Emphasis, London, UK.
- Grimsey, D. and Graham, R. (1997), "PFI in the NHS", *Engineering Construction & Architectural Management*, **4**(3), 215-31.
- Grimsey, D. and Lewis, M. K. (2002), "Accounting for public private partnerships", *Accounting Forum*, **26**(3/4), 245-70.
- Grimsey, D. and Lewis, M. (2007), "Public private partnerships and public procurement", *Agenda*, **14**(2), 171-88.
- Haggar, T. (2004), "An examination of the private finance initiative -has the PFI initiative assisted in the investment in our public services or has it been an expensive diversion?", in Ghobadian, A., Gallear, D., O'Regan, N. and Viney, H.(Eds.), *Public-private partnerships: Policy and experiences*, Palgrave Macmillian, Hampshire, USA.
- HM Treasury (2000), *Public private partnerships: The government approach*, HMSO, London, UK.
- HM Treasury (2008), *Infrastructure procurement: Delivering long-term value*, HMSO, London, UK.
- HM Treasury (2010a), *HM treasury review of competitive dialogue*, HMSO, London, UK.
- HM Treasury (2010b), *PPP technical update*, HMSO, London, UK.
- Kakabadse, N. K., Kakabadse, A. P. and Summers, N. (2007), "Effectiveness of private finance initiatives (PFI): Study of private financing for the provision of capital assets for schools", *Public Administration and Development*, **27**(1), 49-61.
- Knight, A. and Fox, I. (2004), "Why is it so expensive to bid for pfi contracts?", in Ghobadian, A., Gallear, D., O'Regan, N. and Viney, H.(Eds.), *Public-private partnerships: Policy and experiences*, Palgrave Macmillian, Hampshire, USA.
- NAO (2009), *Private finance initiative*, National Audit Office, London, UK.
- NAO (2010), *Managing complex capital investment programmes utilising private finance*, National Audit Office, London, UK.
- O'Dowd, A. (2011), "Watchdog warns over future use of private finance initiative", *BMJ*, 342.
- Pollock, A. M., Price, D. and Liebe, M. (2011), "Private finance initiatives during NHS austerity", *BMJ*, 342.
- Pollock, A. M., Price, D. and Player, S. (2007), "An examination of the UK Treasury's evidence base for cost and time overrun data in UK value-for-money policy and appraisal", *Public Money & Management*, **27**(2), 127-34.
- Rufín, C. and Rivera-Santos, M. (2010), "Between commonweal and competition: Understanding the governance of public-private partnerships", *Journal of Management*.

- Shaoul, J. (2005), "A critical financial analysis of the private finance initiative: Selecting a financing method or allocating economic wealth?", *Critical Perspectives on Accounting*, **16**(4), 441-71.
- Shaoul, J. (2009), "Using the private sector to finance capital expenditure: The financial realities", in Akintoye, A. and Beck, M. (Eds.), *Policy, finance & management for public private partnerships*, Wiley-Blackwell, Chichester, UK.
- Shaoul, J., Stafford, A. and Stapleton, P. (2011), "NHS capital investment and PFI: From central responsibility to local affordability", *Financial Accountability & Management*, **27**(1), 1-17.
- Taguchi, G., Chowdhury, S. and Taguchi, S. (2000), *Robust engineering*, McGraw-Hill Professional, New York, USA.
- UNISON (2002), *PFI: Failing our future - a Unison audit of private finance initiative*, UNISON, London, UK.
- Wilson, D. I., Pelham, N. and Duffield, C. F. (2010), "A review of Australian PPP governance structures", *Journal of Financial Management of Property and Construction*, **15**(3), 198-215.