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RISK ALLOCATION AND MANAGEMENT IN PPP AND PFI:  
SYSTEMATIC LITERATURE REVIEW

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## **Risk allocation and management in PPP and PFI: Systematic Literature Review**

Federico Stefani\*, Mouhcine Tallaki\*\*, Enrico Bracci\*\*\*

### **Abstract:**

Public private partnerships (PPP) and Public Finance initiative (PFI) have been widely used to finance infrastructures and public services. PPP and PFI are an effective way to achieve value for money (VFM) (Broadbent et al. 2008) as they guarantee efficiency levels and transfer risk away from the public sector. Scholars analysed “risk” from different angles, i.e. risk identification and controlling (Broadbent et al. 2008), diffusion of risks (Demirag et al. 2012), demand risk (Burke and Demirag 2013) and risk management (Chung and Hensher 2015). Despite the importance of the risk the topic has not yet been deepened. This research aims at understanding the state of the art of risk consideration under PPP and PFI studies. We conducted a systematic literature review (SLR), we defined five constitutive areas, namely: value for Money, risk determination and allocation, financial risk transfer, contractualization of risk and risk management in post construction phase. Risk in PPP and PFI is still in its infancy. Further research are required. In particular, regarding operational and post-operational risk studies, risk management and the role of trust between partners in operational phase, and more in general issues related to PPP/PFIs within developing countries.

**Keywords:** Risk, Project Financing, PFI, PPP.

**JEL CLASSIFICATION:** H83, M40.

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## 1. INTRODUCTION

Public private partnerships (PPP/PFI) have been used in infrastructures and in public service sectors such as transportation, water and sewage, energy, environment protection and public health. PPP/PFI have attracted a great deal of attention from many scholars, drawn from various interest areas. Management science has focussed on micro-level partnership, design-tender, operations and maintenance for PPP projects (Ke *et al.* 2013; Wang, 2017). However, the discussion about risk consideration under PPP/PFI projects seems to be on one hand recognised as crucial, but on the other hand has not been analysed in depths. Research bodies have started to consider “risk” from different angles within PPPs, to date it has been focused on risk identification and controlling (Broadbent *et al.* 2008), the diffusion of risks (Demirag *et al.* 2012), demand risk (Burke and Demirag 2013) and risk management (Chung and Hensher 2015). PPP/PFIs identify an extensive worldwide trend to build infrastructures and provide services and the centrality of risk within this field is widely shared assessment. It is considered a key determinant to achieve projects success. Its importance characterizes all projects phases, from the pre operational, operational and post operational phases. These projects cannot be separated from definition, determination, evaluation and allocation of risk within projects. However, there is no synthesis. There is not a unitary research body that analyses the work done so far. The gap within literature is clearly evident. The studies that consider risk within PPP/PFI projects do not present a broad overview on this theme. The topic is mainly addressed on specific cases and contexts, fragmented into different risk typologies. Scholars and practitioners cannot find a structured study on the extent on risk under PPP/PFI projects. For this reason, this research is aimed at understanding the state of the art of risk consideration under PPP/PFI studies in order to fill this gap. To develop the study, a systematic literature review (SLR) has been conducted. This constitutes the body of the second chapter. Then, the third chapter displays the main results of a comprehensive quantitative data analysis, while chapter four will present a qualitative analysis of the findings.

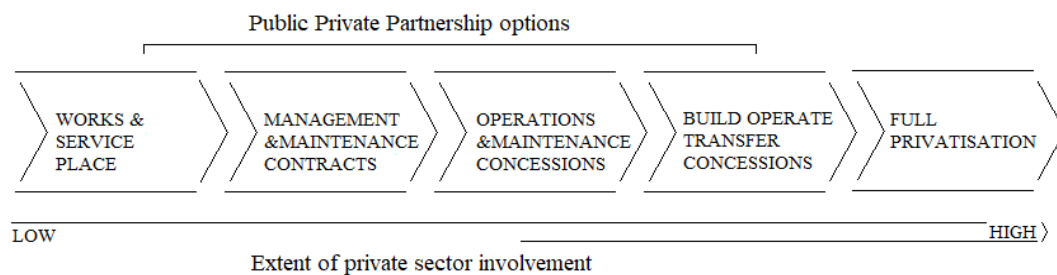
## 2. PPP AND PFI: OVERVIEW

“PPP” refers to “Public Private Partnerships” while “PFI” stands for “Private Finance Initiative”. PFI and PPP both have very similar characteristics, the key difference elements consider that PPP (Public Private Partnerships) is a broad term for partnerships

between public and private bodies and includes PFI concept. In particular, PFI concept can be summarized as follows: they are long-term contractual arrangements in which the private sector designs, builds, finances and operates assets such as roads, hospitals, and schools, in return for a revenue stream in the form of annual unitary charge. This is paid by the procurer or by tolls directly to the final users, that is used to repay debt, fund construction and operations, and provide a return to investors (Pollock and Price, 2004).

PPP and PFI are worldwide phenomena that started at the beginning of the 1990s (Grimsey and Lewis, 2005). They can be considered in a very broad way. According to the literature, there are many PPP and PFI ideas, the scope of which depends upon the aims companies who start a partnership with the public sector have at the point of their introduction. Naturally, geographic variation matters too. Private involvement can assume different degrees according to the partnership's typology, as shown in Figure 1.

**Figure 1—private sectors involvement degree under PPPs**



**Elaborated by the authors**

Ball *et al.* (2007) report the UK Public Private Partnership Commission definition of PPP, to suggest that three factors characterize PPPs:

- ✓ Risks are shared between public and private sector actors,
- ✓ Long-term relationships are generated,
- ✓ PPPs are constructed around shared aspirations of bringing about desired policy outcomes.

Then, capital generally used in PPP/PFI is defined as project finance that concerns the usage of a non-recourse or limited recourse financial structure. The debt and equity used to finance the project are paid back from the cash flow generated by

the project. Project financing has a loan structure that relies primarily on the project's cash flow for repayment, with the project's assets, rights and interests held as secondary collateral (Finnerty, 2007). Generally speaking, the choice of giving to the private sector the responsibility to finance the different PPP/PFI project stages, from construction to maintenance to operation of infrastructure assets, is broadly interpreted as a channel to coordinate the public and private interests and complete contractual agreement specificities (Engel *et al.*, 2014).

In any case, such concise explanation does not take into account the determinants of various outputs for different PPP/PFI projects, such as culture, policies, history, market competition, public and private expertise, contracts, risk analysis and allocation, and further specificities. For instance, in China within PPPs, government has a higher degree of responsibilities in comparison with European countries due to the different political structure. In addition, if in Europe, countries try to save money with PPPs, in Russia this consideration is not a priority nor taken into consideration because of the different aim of PPP/PFIs. They are focused on increase private role within economy rather than achieve Value for Money (Mouraviev and Kakabadse, 2014).

The typical PPP/PFI contracting structure involves a network of private sector entities that are organized into a SPV<sup>1</sup>, while the public sector has with the latter a contractual relationship (Yescombe, 2007; Demirag *et al.*, 2012). The SPV owned by equity investors is normally responsible for building and delivering the infrastructure and long-term service arrangements. Construction companies and service providers enter the project through sub-contract under the SPV organization. SPVs are financed by debt and equity, which normally represent the minor part of the total investment. It must be said that after the credit crunch this proportion has been changed for solvency reasons, although it still remains dominant. (Demirag *et al.*, 2012).

The use of PPP/PFI can be attributed to three main reasons. First, to the idea that governments are not as successful as private sectors are at identifying and allocating risk in order to achieve VFM. Second, to the eventuality that in response to the macro-economic problems in the last fifteen years on public debt containment, these types of investments are taken away from public balance sheets to erase their impact on public

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<sup>1</sup> A legal entity created solely to serve a particular function, such as the facilitation of a financial arrangement or creation of a financial instrument.

debt (English, 2003). Local governments, though, do not seem to weight against balance sheets in order to choose PPPs or not (Bell *et al.*, 2013). Finally, another stance has determined the sorts of the debate from the end of the 1990s. If the PFI should be on-balance, it should then count as part of the public sector's net investment; certainly this can affect the ratio of public debt deficit and could exceed what is allowed, but on the other hand the charges that arise from off-balance sheet PFI can affect future public investment as well (Allen, 2001). The point although, according to Grimsey and Lewis (2005), is not whether the arrangement is on- or off-balance sheet, but whether it can achieve a good VFM.

### **3. RISK IN PPP AND PFI**

To date, according with International accounting standards, in particular IFRS5 and national accounting standards “there must be sufficient risk transfer to satisfy conditions under FRS5 so that the project can be transferred to the private sector balance sheet. Legal ownership of an asset may not be sufficient for balance sheet transfer recognition if the risks are borne by another party” (Ball *et al.*, 2003). Recent empirical studies on PPP/PFI have highlighted risk as the key element. In particular, some studies have focused on risk identification and controlling by Broadbent *et al.* (2008), the diffusion of risks by Demirag *et al.* (2012), demand risk by Burke and Demirag (2013) and risk management by Chung and Hensher (2015) and identification and transfer of risk for determination of Value for Money (Froud, 2003).

Risk has been defined as “the probability that a particular adverse event occurs during a stated period of time or results from a particular challenge” (Royal Society, 1983). This includes activities where adverse conditions can happen less than certainly, or in total uncertainty. (McKim, 1992). Risk and uncertainty are strictly correlated, and their distinction is based on the possibility to calculate the former through probability computations. If risk can be made operative in explaining and implementing policy choices, uncertainty cannot (Froud, 2003). Also, risk allows prevention, while uncertainty necessitates cure (Lonsdale and Watson, 2007).

More specifically, the concept of risk refers to all unwanted options that can occur and affect VFM (Froud, 2003). Both academic literature and practices in the public sector

highlight a variety of risk sources. The following considerations (Table 1) show what are the different risk perceptions held by stakeholders within distinct PPP/PFI projects.

**Table 1—risks focus according to different sources**

<b>Specifics</b>	<b>Kirk and Wall</b>	<b>Ball <i>et al.</i></b>	<b>Ministry of Treasury</b>	<b>National anticorruption Authority (ANAC)</b>
<b>Year</b>	2002	2003	2007	2016
<b>Country</b>	UK	UK	UK	Italy
<b>main risks</b>	- Demand - Residual value - Design - Performance - Availability - Operating - Construction - Development - Planning	- Capital Work - Operational - Maintenance - Availability - Contractual	- Political - Construction - Operating - Financing	- Construction - Operating - Demand - Availability - Other risks <sup>2</sup>

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**Elaborated by the authors**

Kirk and Wall (2002), give their own list of risks they consider important: demand risk, residual value risk, design risk, performance and availability risk, operating risk, construction and development risk and planning risk. While, Ball *et al.* (2003), describe that during their interviews four risks are considered as relevant by public and private practitioners: capital work, operations and maintenance, non-availability and other contractual risks. The UK Ministry of Treasury characterises political, construction, operational and financial risks as the major types of risks within PPP/PFI projects (HM Treasury, 2007). Finally, following the Italian context wherein this thesis has been written, it has been considered interesting to show what are the governmental risk guidelines drafted by Autorità Nazionale Anticorruzione (ANAC), i.e. the National Anticorruption Authority, which developed the guidelines according to legislative

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<sup>2</sup> Political regulatory risk, financing risk, industrial relation risk, residual value risk.



regulation on April, 18<sup>th</sup> 2016, n. 50. Those differences show how risk cannot be selected a-priori, but rather it is strictly related with its specific context. In particular, as stated by Chung and Hensher (2015), risk perception by both public and private sides has a direct impact in risk assessment and allocation, regardless of any empirical analysis and contract design has a direct influence on this perception. More in general, differences in risk perceptions in this field has been widely accepted in the literature but the shades to which these perceptions diverge remain an unknown area.

#### **4. RESEACH METHODOLOGY**

The following research is based on a “*Systematic Literature Review*” (SLR). This type of research has been considered as an appropriate and legitimate methodology since the early 1990s (Boland *et al.*, 2014) and it differs from traditional narrative methods because SLR has a clear selection process for articles (Huanming *et al.*, 2017). The scope of this type of analysis is to summarize research findings from a huge amount of different studies related to a defined issue that can be useful to inform policy and practice within the investigated field (Ridley, 2014). In addition, SLR concept features have been represented under two different aspects: the method used and the report itself. In particular, according to Sweet and Moynihan (2007) “systematic reviews provide a systematic, transparent means for gathering, synthesising and appraising the findings of studies on a particular topic or question. The aim is to minimise the bias associated with single studies and non-systematics reviews”. While according to the output approach, Kahn *et al.* (2003) state: “a systematic review is a research article that identifies relevant studies, appraises their quality and summarises their results using scientific methodology”.

This approach is strictly correlated with the explicit aim to be replicable. Therefore, it needs a structured methodology with a clear search strategy, inclusion and exclusion materials criteria, synthesis of the data from the sources used and an accurate coding and analysis of the finding from all the studies. The increasingly importance of systematic review in a broad range of fields has emerged from the understanding of the importance of evidence to inform policy decisions and professional practitioners. The clear methodology, replicability, strategy and in particular the sources used, prevent the possibility of a poor quality study. SLR is also related to the impossible condition for a researcher to read everything that has been published (Ridley, 2014). Also for practitioners, the limitations of focus on a particular study articles can distort the overall

research evidences (Jesspn *et al.*, 2011). This is the reason why systematic literature review can provide a high quality synthesis of evidence on a definite issue (Ridley, 2014).

The SLR scheme is based on five main steps (Huanming *et al.*, 2017) (table2).

**Table 2 – Followed Systematic Literature Review process**

- STEP 1** > Planning and formulating problem  
**STEP 2** > Literature searching according to the Protocol  
**STEP 3** > Data gathering and evaluating  
**STEP 4** > Data analysis and interpretation – quantitative analysis  
**STEP 5** > Presenting results, discussion – qualitative analysis

Huanming *et al.*, 2017

In the first step the objective was to understand the main themes of “Risk” in relation with “PPP”, “PFI” and “Private Finance Initiative. The first point that explicit the research question is related to the fields analysed with reference to PPP and PFI. The main topics associated with these issues can be summarized as follow: structure and development of PFI schemes (Gaffney and Pollock, 1999; Froud and Shaoul, 2001); level of transaction costs under PFI (Ball *et al.*, 2000; Froud, 2003); evaluation process, PPPs net actual value and public sector comparator (PSC)<sup>3</sup> (Price and Green; Pollock *et al.*, 2002).

The literature searching was conducted using Scopus database. The search settings is as follow: “TITLE–ABS–KEY ( ( "risk" AND "PPP" ) or ( "risk" AND "Project Financing" ) or ( "risk" AND "PFI" ) or (“risk” AND “Private Finance Initiative”))”. At this first screening, the obtained results attested to 2,111 articles. The protocol of research is summarized in table 3.

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<sup>3</sup> PSC is a government tool, that according with the World Bank “is used by a government to make decisions by testing whether a private investment proposal offers value for money in comparison with the most efficient form of public procurement”.

**Table 3 – Research protocol steps within Scopus and articles number output**

STEPS #	STRING	OPTION SELECTED	# ARTICLES
1	<b>Query</b>	TITLE–ABS–KEY (("risk" AND "PPP") OR ("risk" AND "Project Financing") OR ("risk" AND "PFI") OR (“risk” AND “Private Finance Initiative”))	<b>2111</b>
2	<b>Access type</b>	All options considered	<b>2111</b>
3	<b>Years</b>	from 1990 to 2019	<b>2055</b>
4	<b>Subject area</b>	1.Business, Management and Accounting 2.Social Sciences	484 395 <b>879</b>
5	<b>Document type</b>	Article	<b>587</b>
6	<b>Source title</b>	all options are considered	<b>587</b>
7	<b>Key words</b>	all options are considered	<b>587</b>
8	<b>Country/Territory</b>	all options are considered	<b>587</b>
9	<b>Source type</b>	Journals	<b>587</b>
10	<b>Languages</b>	English	<b>571</b>

Source: Researcher elaboration

Given the number of papers, we analysed only articles published ABS Journal’s (The Association of Business Schools). The ABS ranking is based upon peer review, editorial and expert judgements following the evaluation of many hundreds of publications, and is informed by statistical information relating to citation. It is a guide to the range, subject matter and relative quality of journals in which business and management academics publish their researches. Non–inclusion in the Guide should not necessarily be taken as a judgment of journal quality, but may reflect a wide range of factors, ranging from the aims and scope of the journal that lie outside the scope of business and management studies to, quite simply, the Scientific Committee and those they consulted, not

encountering sufficient evidence on which to formulate an opinion<sup>4</sup>. The following table shows the Journals within the ABS list in the sectors of “Accounting” and “Public Sector”. The reason why of this selection concerns the specific and clear compliance with the study area of the research.

**Table 4 – Selected Journals for the research project**

#	Journals
1	Public Money And Management
2	Public Management Review
3	Critical Perspectives On Accounting
4	Local Government Studies
5	International Journal Of Public Sector Management
6	Public Administration
7	Public Policy And Administration
8	Australian Journal Of Public Administration
9	International Journal Of Public Administration
10	Policy And Politics
11	Public Organization Review
12	Abacus
13	Accounting Auditing And Accountability Journal
14	Accounting Forum
15	Australian Accounting Review
16	British Accounting Review
17	International Review Of Administrative Sciences
18	Accounting Organizations And Society
19	Administration And Society
20	Environment And Planning C Government And Policy
21	Financial Accountability And Management
22	International Public Management Journal
23	Journal Of Accounting And Organizational Change
24	Journal Of Business Finance And Accounting
25	Policy Studies

<sup>4</sup> The Chartered Association of Business School – [www.charteredabs.org/academic-journal-guide-2018](http://www.charteredabs.org/academic-journal-guide-2018).

Moreover, we consider also “Public Administration”, an important international review present in Scopus but not ranked by ABS. We excluded 2 papers: “Equator principles a success for voluntary codes?” Macve, R. Chen, X (2010), and “Covered Purchasing Power Party, ex- ante PPP risk aversion” by Moore M.J. (1997). Both articles differ from PPP and PFI. The number of papers selected is 80. All selected journals papers were categorized following these criteria: source, title, year of publication, authors, articles ‘number citations, research methods, location of the research, theory applied, jurisdiction, risk phase analysis as shown in the next table.

**Table 5 – The full paper analysis has followed these cryteria**

1	<b>Source</b>
2	<b>Title</b>
2	<b>Year</b>
3	<b>Authors</b>
4	<b>Number of citations</b>
5	<b>Research methods</b>
	<ol style="list-style-type: none"> <li>1. Case/field study/interviews/action research</li> <li>2. Content analysis/historical analysis/other textual analysis</li> <li>3. Survey/questionnaire/other empirical</li> <li>4. Theoretical/normative/policy</li> <li>5. Literature review</li> <li>6. Viewpoint/commentary</li> </ol>
6	<b>Location of the research:</b>
	<ol style="list-style-type: none"> <li>1. Europe</li> <li>2. America</li> <li>3. Australia</li> <li>4. Asia</li> <li>5. Africa</li> <li>6. Intercontinental</li> <li>7. None</li> </ol>
7	<b>Theory applied:</b>
	<ol style="list-style-type: none"> <li>1. Theory not applied</li> <li>2. Theory applied:</li> </ol>

- 
- 2.1) Agency theory
  - 2.2) Critical theory
  - 2.3) Institutional theory
  - 2.4) Legitimacy theory
  - 2.5) Other theories
- 

**9 Jurisdiction:**

- 1. Supra-national/international/comparative – organizational
  - 2. National – organizational
  - 3. Local – organizational
  - 4. One organization
  - 5. None
- 

**10 Risk phase analysis**

- 1.1 None
  - 2.1 Pre-operational phase
  - 3.1 Operational risk
  - 4.1 Post-operational risk
  - 5.1 Both Pre-operational/operational risk
- 

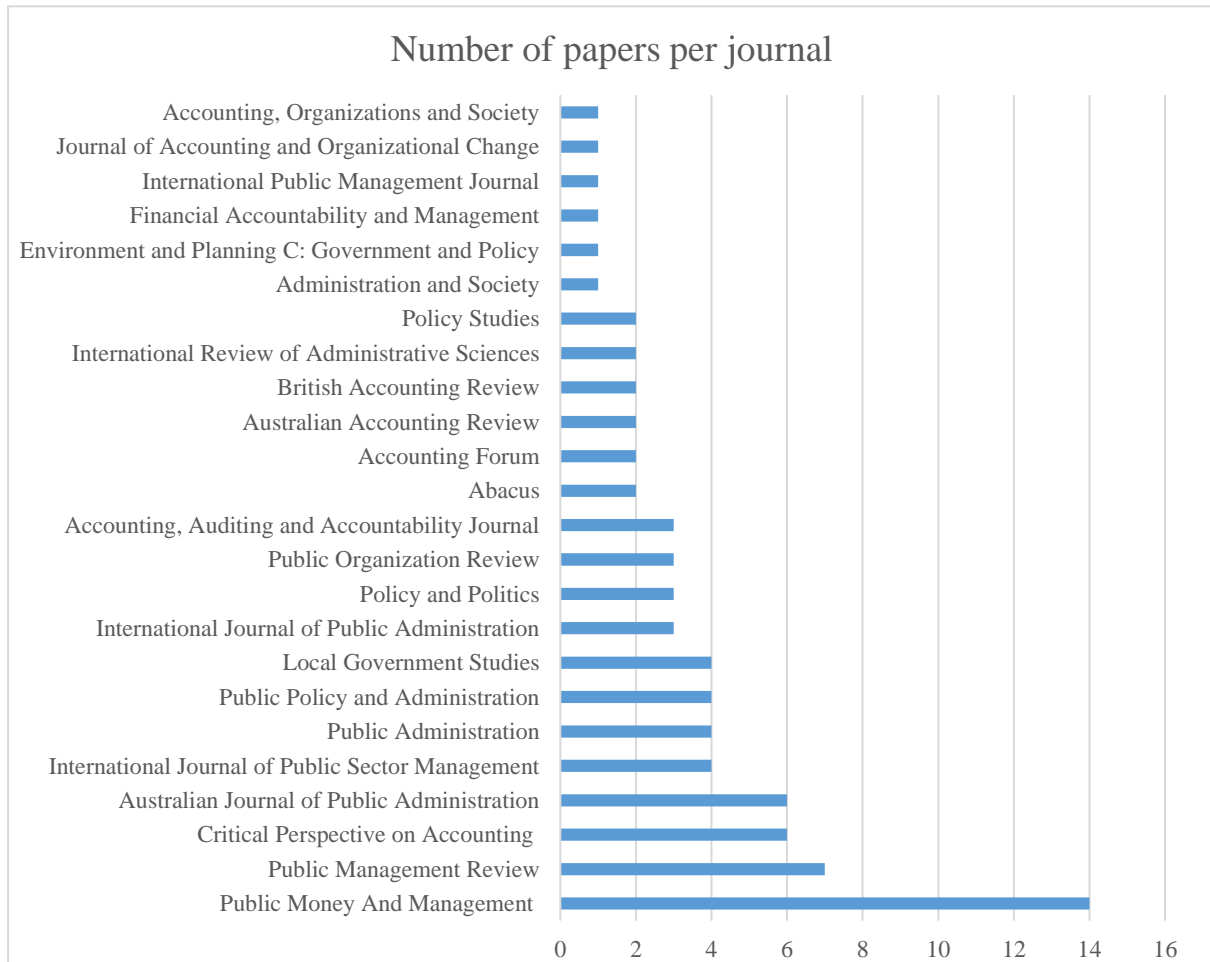
**Source: Researcher elaboration**

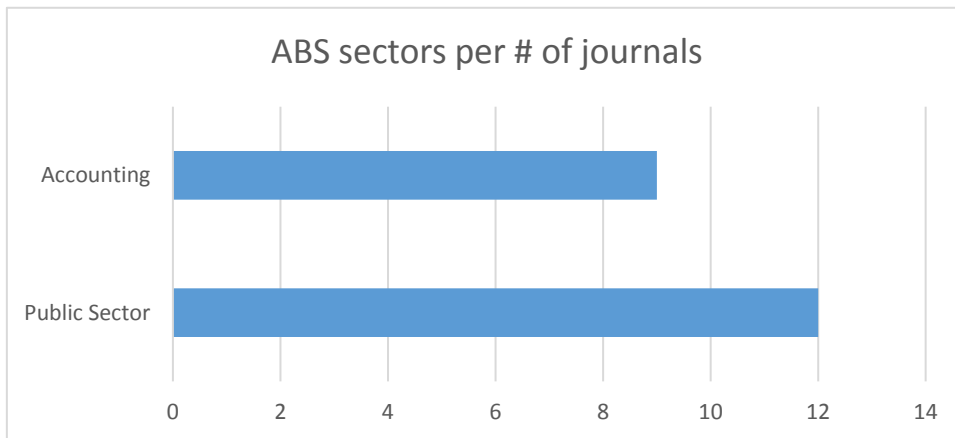
Criteria 1, 2, 4, 5 and 9 was proposed Torchia et al. (2015). Criteria 3, 6, 7, 8 was defined by Cuzzo et al. (2017). Criteria 10 is proposed by the authors.

## 5. RESULTS ANALYSIS

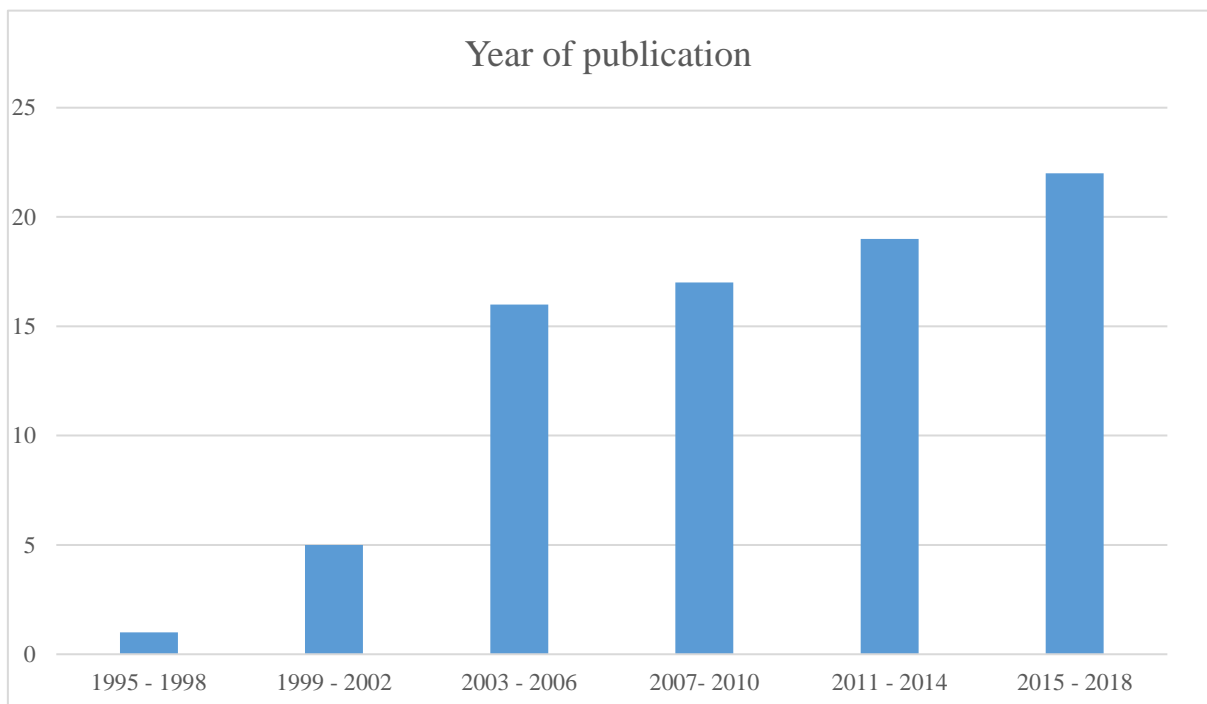
The figures 2 and 3 show the publication per journals and their distribution within ABS sections.

**Figure 2– Papers per Journal**



**Figure 3– Journals distribution per ABS sections**

As presented in the Figure 2, the current trend shows that the number of articles related to risk analysis under PPP and PFI projects is following an almost regular and continuous increasing. The years selected start from 1990 to 2018 but the articles founded under the research criteria begin from 1997. The figure is organized under six, four year period from 1995 to 2018, and clearly shows the real trend, year by year of the published articles of the research topic.

**Figure 4 – Articles evolution over time**



The adopted criteria help to give an overview about the world areas where the research topic is more taken under consideration. It clearly represents also the development of PPP/PFI projects worldwide. The regions like Europe where these projects have started their development have the higher amount of studies; in particular Europe represents the 65% of the SLR. Followed by Australia that is the second region that most use these partnership projects. It is interesting to notice that also in developing countries, Asia and Africa, there an increasing use of these approaches. Finally, another important aspect is that just a few of articles are focus on a comparative or international analysis.

**Figure 5 – Researches geographical location**

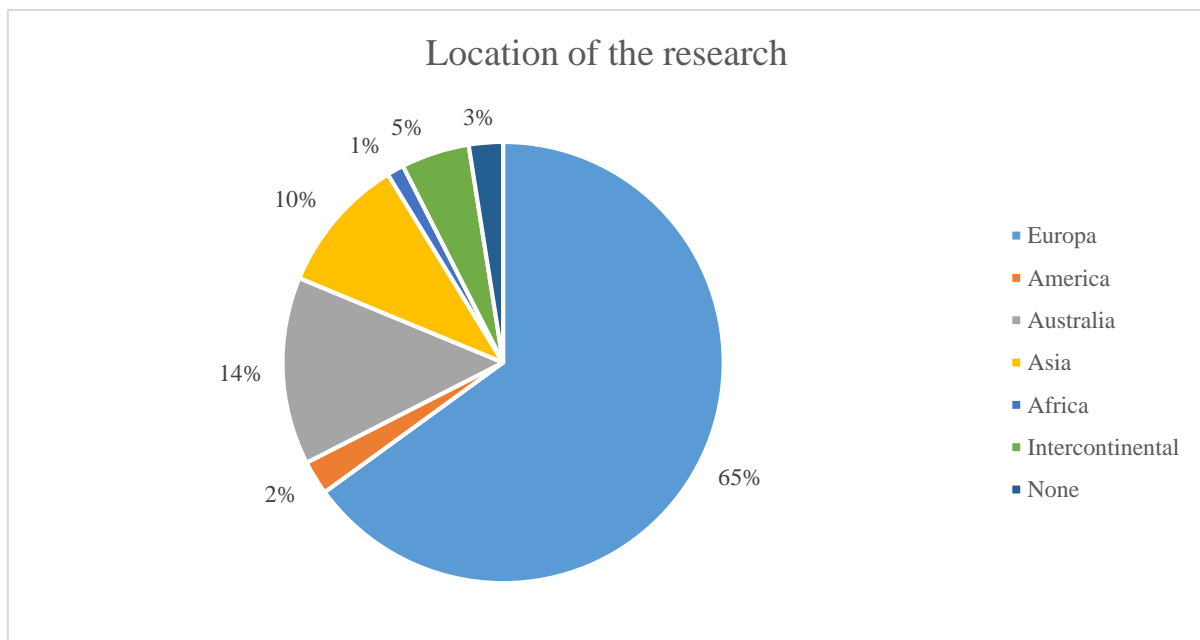


Figure 6 helps to indicate the authors academic impact in PPP/PFI field. It has been chosen to select the first nine articles with most citations with their authors. The article with most citations, 220 is Grimsey D. and Lewis M. K. (2005) followed by Klijn E.H. and Tiesman, G., (2005) with 189 citations and Froud Jane (2003), with 142.

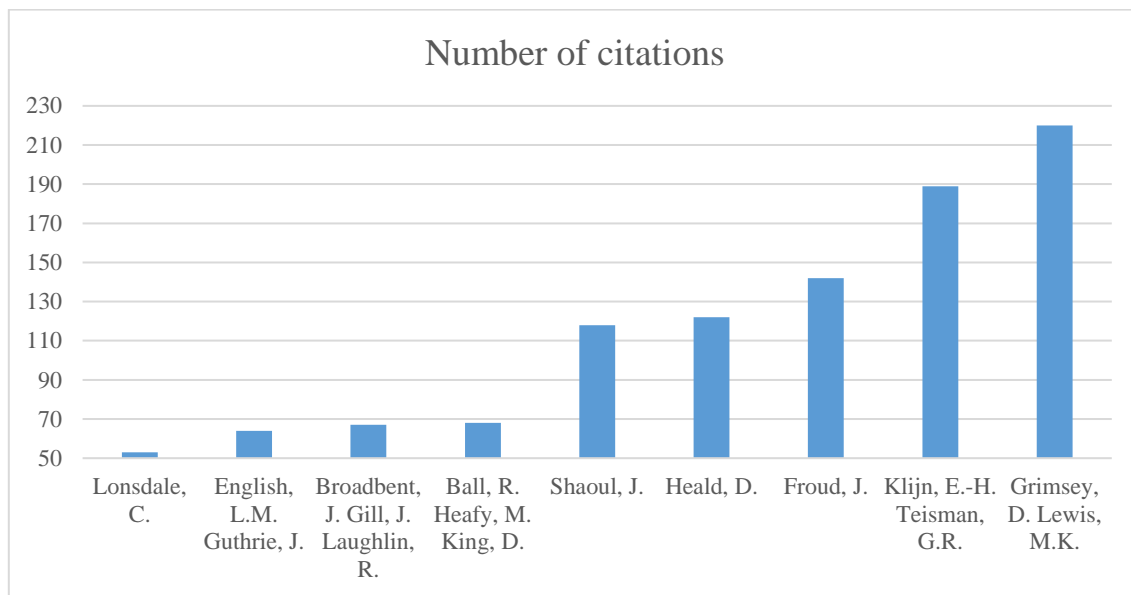
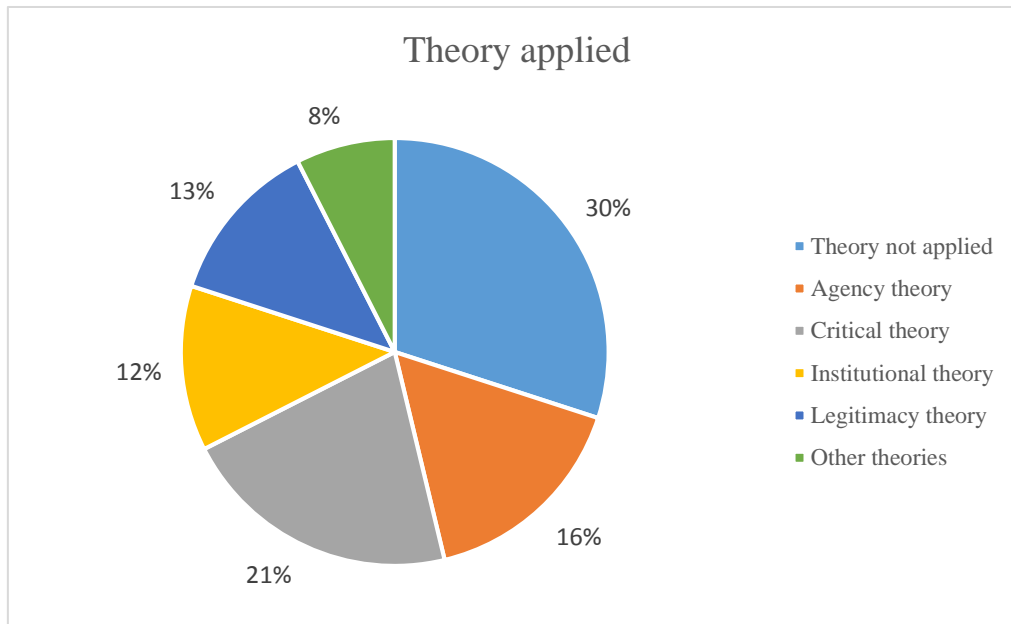
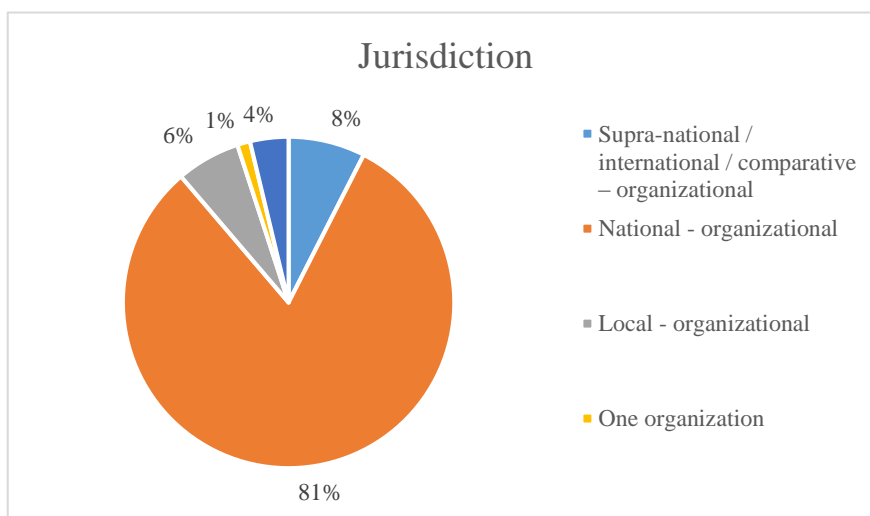
**Figure 6 – Authors with most citations**

Figure 7 shows the main theories to study risk under PPP and PFI projects. The result of 30 per cent is given because of the case study approach mainly used in the articles that are focus on specific projects without any theoretical analysis. “Agency theory” concerns the incentive problems caused by asymmetric information and principal–agent model between public and private parties. “Critical theory” focuses on the PPP/PFI idea in relation with society by highlighting the critical elements within these public private partnerships. “Institutional theory” refers to the influences that countries have on other countries influencing polices making processes. Then, “Legitimacy theory” stances mainly on the normative approach that characterize the background of these projects. In conclusion, the “Other theories” percentage contains more theories: network oriented perspective, governance, policy transfer, managerial, property right theory, transactional costs theory, stakeholder theory that singularly did not present a significant amount of articles.

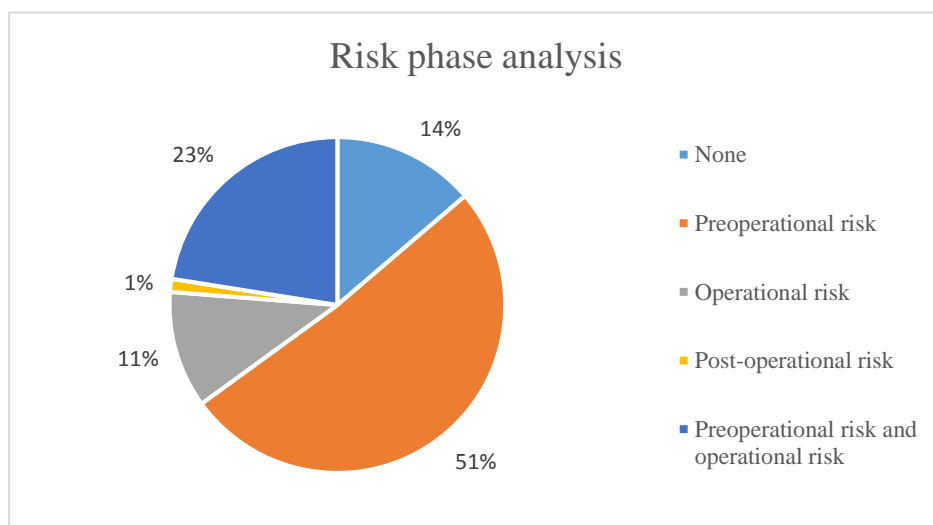
**Figure 7 – Theory applied**

This figure 8 shows under which context has been developed the research. Most of the studies analyse specific cases within specific context, in particular under a National jurisdiction that mainly gives the normative aspects that regulate these projects. In addition, in the overall articles analysis there is a lack, referring to comparative international analyses, that does not help in a broad understanding and comparison between different projects in different countries because of their jurisdiction specificities.

**Figure 8 – Jurisdiction**

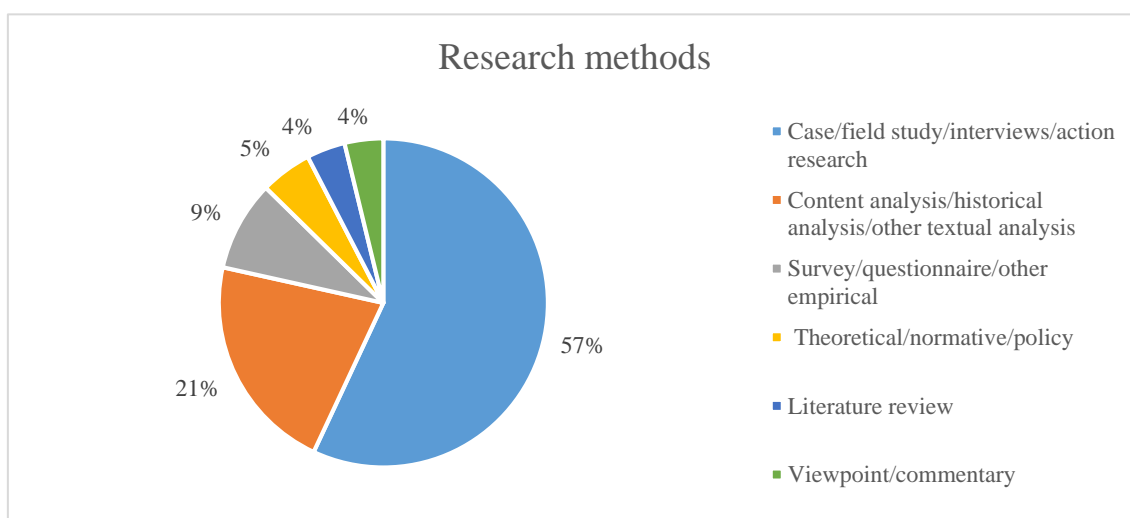
To provide an overview to understand how risk study has been analysed within PPP/PFI articles, it has been used the Figure 9. The 51 per cent considers the preoperational risk analysis, 11 per cent the operational risk, 1 per cent the post operational risk and 23 per cent both preoperational and operational risk. But, it is important to highlight that do not means that all articles are mainly focus on risk, in fact just about twenty are really specific on the topic. This is the reason why it has been also added the “none” section that show articles that refers to risk marginally.

**Figure 9 – Risk phase analysis**



The next graphic shows methodologies that scholars have implemented to develop their researches. It is interesting to notice that the fiftyseven per cent of the articles have been focused on specific case and field studies. Also, this aspect is supported by the jurisdiction section that exhibits how eightyone per cent of the articles are under national jurisdiction. This is correlated with the main percentage of the research method due to the fact that cases are mainly national PPP/PFI projects and are under national jurisdiction that present 38 articles with both features.

**Figure 10 – Research methods**



The following table shows the matrix of Theory applied and Research methods. Mainly, case studies are associated with no theory applied followed by critical, agency and legitimacy theories (fifty per cent). More in general, there is not a high correlation between specific aspects of the analysis and the distribution is quite homogeneous.

**Table 7 – Matrix of Theory applied and Research methods**

	CASE	CONTENT	SURVEY	THEORY	L.REVIEW	V.POINT
NO	15	4	2		1	2
AGENCY	7	4	2			
CRITICAL	10	4	2		1	1
INSTITUTIONAL	4	4			1	
LEGITIMACY	8			2		
OTHERS	2		1	2		

## 6. RESEARCH AREA

Risk sharing between public and private sector is the main peculiarity that characterizes PPP/PFIs from the traditional procurement projects (Reeves, 2013). If partners can transfer some risks onto the other partner in order to benefit both is the base to enter into a PPP/PFI project. Any modification from their commitments penalises at least one of the two sides (Wang *et al.*, 2017). According to Ball *et al.* (2003), who have studied seventy projects in UK, they state that risk transfer determines almost 60 per cent of the total cost savings of PPP/PFI projects. In particular, they add that six of these projects have achieved Value for Money entirely because of the right risk transfer.

Literature focuses on different topics related to risk as explained in the previous sections. For instance, Froud (2003) debated about the relation between risk, uncertainty and the role of the State explaining how these aspects have substantial implications with service provisions and the consequent role of the State. Broadbent *et al.*, (2008) studied the identification and risk control in UK's National Health Service identifying the key elements to consider within decision-making processes. Marques and Berg (2011) focused on risk sharing as an important aspect that determine projects success or failure; in particular, they explained how risk cannot be transferred to customers because it will be in contrast with public interests. Demirag *et al.* (2012) investigated about risk diffusion in public private partnership contracts due to the risk aversion of both debt and equity financiers that spread their risks. Ke *et al.* (2013) focused on the risk misallocation and a PPP/PFI project failure in China reporting some data that show how the State should be prepared to implement these projects in order to achieve positive outputs. Finally, Burke and Demirag (2015) based their research on demand risk in Irish roads, they analysed the possible implications to taxpayers and VFM of risk demand evaluation and transfer to private sector.

What would like to show with these articles examples is how the risk can be analysed under lots of forms, debating every single type of risk that can potentially arise in the various projects. But what I would like to analyse in this chapter is: which are the key common elements, within all different articles, where every kind of risk is analysed and manifest itself.

Based on the literature five main PPP/PFI points have been elaborated where risk is or should be, theoretically, taken into consideration and could show up. Every of this five sections are intrinsically correlated one to another:

- ✓ Value for Money: it refers about all consideration about the feasibility of the project and at this stage every risk should be taken into consideration;
- ✓ Risk determination and allocation: how risk is taken into consideration, what is the debate about it;
- ✓ Financial risk: if you want to start a project it should be financed, all sort of capital needs to be evaluated from the different parts involved with all the associated risk during the different stages of the project;
- ✓ Contractualization of risk: everything concerns VFM, risk determination and allocation, funding have to be officialised and be subscribed by all different partners and contracts should respect represent precisely the previous agreements between the parts involved;
- ✓ Risk management in post contractual phase: everything it has been decided has to be managed during all project phases.

The next sections provide a detailed analysis of the points introduced above.

#### a. VALUE FOR MONEY

This concept is related to efficiency and effectiveness in ways that literature do not describe precisely. This concept is strictly related to risk transfer (Ball *et al.*, 2001), the same absence of significant risk transfer within PPP/PFI projects is a failure of the rationale for using PPP/PFI (Froud, 2003). VFM is not an absolute value and if some parameters to assess VFM change, its result can invert the attractiveness of the project. It is important what is identified in every project as VFM that all literature recognizes as a trade off with risk transfer; it means more risk transfer, more revenues for the privates and less VFM.

Often, in relation to the decision making processes to evaluate the feasibility of PPP/PFIs the VFM of these projects is compared with PSC, that evaluates the output of the same project under traditional procurement. In order to decide which road to follow, as reported by Grimsey and Lewis (2005), it has to be considered that if PSC is a statement of initial estimates, PPP/PFI and its VFM contain numbers to which bidders must commit under contract, so in this type of comparison should be treated other data and previous

experiences together with their capacities to achieve goals. For instance, 70 per cent of the major infrastructures in UK were late and over budget before PPPs join the game (Allen Consulting Group, 2007; Raisbeck *et al.*, 2010). Though a critique about the assessing of VFM is that it does not consider the entire life of the project (Chung, 2016).

The “moment of this choice” rules the following decision steps (Hogwood and Gunn, 1984). For example when government chooses the best bid it excludes, intentionally or not, some principles, some bidders and possible stakeholders (Freeman 1984, Donaldson and Preston 1995; Yescombe 2007). If guidelines and public decision makers place excessive emphasis on the inclusion of some components within bids’ assessment criteria they can determine the success or the failure of the entire project. If there is transparency and sharing in bids’ assessment criteria, this help to create a sort of alignment of needs and values of stakeholders can consequently create a convergence between what would like to be and what effectively happen in project output (Mouraviev and Kakabadse 2012).

VFM is also related to an intergenerational issue, with the long term view regarding PPPs costs VFM analysis should consider, burdens for future taxpayers over 20 –30 years of these projects (Mouraviev 2012; Parker 2012).

VFM embraces both monetary and non–monetary benefits that are related with PPP/PFI (Morallos and Amekudzi 2008; Mouraviev 2012; Parker and Hartley 2003). If one hand, monetary benefits mainly refer to public sector cost savings and risk sharing, on the other hand, the non–monetary benefits, that often are not considered, can bring faster availability assets and services, higher quality, employment of innovative technologies and management (Brinkerhoff and Brinkerhoff, 2004; Osborne, 2000).

The accounting approach, within PPP/PFI contracts draw up, is very important for our research because its schemes under different legal approaches determine different VFM and risk analysis (Demirag *et al.*, 2012). Andy Simmonds, technical partner at Deloitte& Touche explains how PPP/PFI contracts have been awarded for “accounting not financial reasons” and how they have been proved as “poor in VFM” (Nisse, 2000). Another discussed issue related with accountability referring to the aim of PFI. The question is: if these projects want to provide high quality public services to achieve VFM for taxpayers, it should be the VFM the key determinant of whether a project should be approved instead of the accounting treatment (HM Treasury, 1999). It is for this reason that auditors who



create standards may become implicated in a policy choice; so PFI could become not anymore an instrument to achieve policy but can begin to be a government policy. It means that under different accountability regulation the project feasibility should not change, so which every accountability policy should be useful to better show projects numbers rather than affect projects evaluation (Heald, 2002).

The central point that concerns the accounting treatment plays a pivotal role regard risk. In fact, as written above it is not known how much accounting does consider risk appropriately. The measurement that accounting logic provides, therefore can be seen as a constraint to moving beyond these quantitative “safe harbour” related to estimation processes (Broadbent *et al.*, 2008).

It is also interesting, how VFM can change in relation with the fragmentation of public sector, VFM for the local government are not the same as the central one, and the VFM for the whole system can be still different. It means that the interests of different levels of government can be aimed by different objectives, for instance: different voters, short or long term vision, different balance sheet structure and infrastructure needs (Heald, 2002). VFM depends by the competition within bidding process, that anyway with its intrinsic complexity stretches time and cost increases. These conditions create an entrance barrier, again competition, with small firms that cannot sustain these long processes (Demirag *et al.*, 2012). However, it has to be cleared that no all markets can be competitive (Marques and Sandord, 2011).

Also, VFM analysis should be concerned with total risk, and not just with the risk shared by partners that prevail within accounting treatment. The idea that VFM within PPP/PFI is conditioned by political decisions can undermine credibility of the analytical methods in order to not be biased by predetermined decision (Heald, 2002).

Another aspect that is related both with VFM and financial risk is the private capital that is necessary to delivering infrastructures within PPP/PFI initiatives (Hussain and Siemiatycki, 2018). Private capital is the main bridge that align public to private interests with the aim to maintain at the lowest cost during the total life these projects according the statement that private manages better money (Breadley *et al.*, 1996; Hodge and Grave, 2007; Vecchi *et al.*, 2013). Private capital involvement in determining lower total life cycle costs is considered in VFM calculation that in compared with the public capital within public procurement processes (Grimsey and Lewis, 2007).

New policies related to the ratio usage between private and public capital within PPP/PFI projects have been developed. The Ontario government case (Hussain and Siemiatycki, 2018), explains how by using a small proportion of private capital is enough to incentivize private sector participation and achieve positive VFM. The main keys to achieve this success can be found in government support with suite of modern procurement strategies that include standardizing and transparent PPP procurement processes, high expertise staff in a special purpose PPP agency (both national and local level – Effah *et al.*, 2015) an effective data allocation and project monitoring. By keeping under control three different dimensions: 1. Market response, both capital and partners, 2. Incentive alignments and 3. Performance outcomes. In addition, this have been associated with revenue risk. In fact, the Ontario government has created payments to privates once a facility is available according to the contract agreement but rarely this is associated with final users fees and it allows to limit revenue risk supported by private sectors (Hussain and McKellar, 2012). This governmental strategy has taken hold during the financial crisis with a contraction of long– term debt and increasing in financing costs associated with using private capital in PPP/PFI (Regan *et al.*, 2011; Krawcheck, 2012).

The VFM rhetoric characterizes worldwide governments that support PPP/PFI use. But, it seems to be passed by the facts that VFM it is not always achieved within these projects. Actually there are many researches that show that is often relatively scarce or absent due to a difficulty of managing risks associated with PPPs (Ball *et al.*, 2001, Shaoul 2005; Reeves and Ryan 2007; McQuaid and Scherrer 2010; Appuhami *et al.*, 2011). This consideration want to open doors to alternative perspectives that can anyway support PPP/PFI projects. According to Shaoul, 2005 and Asenova and Beck (2010), these projects do not want to deal with risk and VFM but they are structured for creating investment opportunities for the private sector and give priorities to risk return criteria of private finance over the needs of the public sector. It can be considered as another form of privatisation. This follows the line “we are changing the role of government to being a provider of private investment opportunities and a purchaser of services (Englin, 1995). Also according with McKendrick and McCabe (1999), the focus of PPP/PFI is related to increase investment in the infrastructure by using private capital, develop design and procurement ‘facilities, improve a better balance between capital and current spending and reducing public expenses in favour of the private sector one.

## b. RISK DETERMINATION AND ALLOCATION

Risk determination, transfer and allocation are key elements for the economic evaluation of PFI projects (Ball *et al.*, 2003; Ball *et al.*, 2007) and determine its relative VFM. This aspect is so complex that requires more than a single theoretical perspective (Chiles and McMackin 1996). The result of an optimal allocation of risk for both VFM and accounting treatment purposes has been implemented by a defined contract between public/ purchaser and private/ provider which outline responsibilities and penalties (Froud, 2003).

Risks that can be taken under consideration, according to FRS5 concern only relevant risks associated with projects assets (Ball *et al.*, 2003). It is quite clear as inadequate specification of obligation and their consequent responsibilities allocation between PPPs contractors determine the problem that the public sector deals with. In relation with PPP/PFI, partners can have different perceptions of proper risk allocation and this can be considered as the first problem to take into consideration in order to mitigate asymmetries and goals achievement (Abednego and Ogunlana, 2006). This is also strengthened by the study of Ball *et al.* (2003), that defines how risk is carried out on the basis of subjective judgment leading to an overestimation of risks. They suggest how an evidence-based approach can result as more correct. Empirical studies show how risk misallocation can determine, as it will be later explained, contract renegotiation (Estache *et al.*, 2003; Guash *et al.*, 2014).

In particular, with regard to risk, there are a lot of principles that have been developed about risk determination and allocation (Li *et al.*, 2005; Roumboutsos and Anagnostopoulos, 2008; Ke *et al.*, 2010). The UK Ministry of Treasury PPP guidelines principles suggest how risks should be transferred to the parties best able to manage them at least cost (HM Treasury, 2003). Quiggin (2005) adds, in reference to UK context, how the standard contract form does not allow an optimal risk allocation. There is a debate about the form of contracts, on one-hand standardization guarantees an objective roadmap that should be followed to complete these agreements on the other hand standardisation does not consider the projects specificity and their particular risks associated (this topic will be argued in depth in Contract section). In addition, Bing *et al.* (2005), argue that is not obvious how risks should be allocated and it is not easy to find an optimal and workable balance. And according to Heald (2002) and Shen *et al.* (2006), they suggest how “exogenous” risks like political, legal, social and economic should be allocated to the

public sector; while, everything related to the project (construction, operation) should concern to the private sector. In particular, Heald explains how “exogenous” risk cannot be diversified to different stakeholders while risks related to the projects should be diversified under the umbrella of project organization.

Risk that parties should assume have to be measured and priced. All risk has to be taken into consideration in calculating VFM and PSC and as reported by Grimsey and Lewis (2005), it includes shared risk, retained risk and allocated risk. According with some authors, like Rodney and Gallimore (2005); Broadbent *et al.* (2008), they argue how not all risks are considered and captured in decision-making process. The first authors describes the used techniques incapable of adequately measuring risk, and the seconds by accusing the “accounting logic” explains how the latter measure risks that can be associated directly with numbers rather than anything that cannot be directly measures, for which quantitative risk estimation assumes more importance than “qualitative uncertainties”. The issues that characterize these measurements should be solved, or at least better understood by research within practical experiences (Demirag *et al.*, 2012). This mis-pricing risk can be seen as a direct consequence of a deliberately effect of the high competition for deals and to achieve by the government (at least apparently) VFM with low costs (Keating, 2004). Anyway, competition remain a pillar to achieve good PPPs deals (Appuhami and Perera, 2016). This should not bring to a suboptimal service (Regan *et al.*, 2011). Anyhow, risk transfer to the private sector is a key element that with the SPV structures remain complex to follow and comprehend. SPV are just shell companies with no or just few employees used just to transfer responsibilities for create contracts with other companies together with associated risks. It results unclear how to measure risk premium charges for risk transfer because of a very complex financial mechanism with subcontractors (Pollock and Price, 2004; Demirag *et al.*, 2015). In addition, sub-contractors do not have the experience to manage some risks so that they engage hedging and insurances that increase costs. (Demirag *et al.*, 2012).

In addition, according with Demirag *et al.* (2015), there is not information about investors’ ROI (return on investment) and as stated in NAO report, 2012, 71 per cent of the projects have an equal or greater ROI from expectations and that 41 per cent investors’ ROI has reported a significant improvement from expectations. This is strictly correlated with the inability of a proper risk allocation by public sector. Anyway following

Fernandez *et al.* (2018), their study suggests how projects that show a high value added attract more qualified companies that are more involved in the PPP/PFI project.

### c. FINANCIAL RISK TRANSFER

The financial structure of PPPs means also a particular risk structure. Literature shows that PPP is theoretically based on risk transfer from public to private sector (Pollock *et al.*, 2002; Pollock and Price, 2004; Shaoul, 2005, Khadaroo, 2008). This transfer cannot materialize as obvious consequence (Edward *et al.*, 2004). Financiers, both debt and equity holders in order to guarantee their investments include contractual mitigation to take under control any problem projects can meet. Through performance support guarantees, sub contracts, insurance, inflation hedges and interest rate swaps. The private sector is organized in order to “fully compensated for risk-taking”. The investors create the so-called “risk diffusion mechanism” (Demirag *et al.*, 2012). Debt investors stay out of holding risk and leads financial institutions and service providers to request high-risk premium charges to be compensated for the risks they can face over the life cycle of the projects. It is rare that privates borrow at the same financial cost as public sector (Moody’s 2016). Therefore, despite the theoretical benefit of the private capital, this directly increases the cost of concession contract (Shaoul *et al.*, 2007; Weber and After, 2010; Vecchi *et al.*, 2013). Consequently, the risk premium charge related to costs of private finances, that private sector ask to the public partner to manage risk results largely excessive. This can increase risk for the public sector instead of decrease it. Because public sector pays risk not really to whom is detaining it, so which if something goes wrong these risks could be not covered and the public should have to intervene. Also, if private borrowing rate excessively increase during the project duration could, also in this case, it may determine the public sector intervention (Ng and Loosemore, 2007). The organizational structure of the network of private companies which manage projects use these subcontractors and organize other entities, in particular Special Purpose Vehicles (SPV) in order to avoid these risks (Aesenova and Beck, 2010; Keating, 2004). Moreover, Keating (2004), adds how risk allocation depends on specificity of the project and last but not least the macro-economic environment. He gives an interesting example about an Australian case study in which Government were trying to transfer more risk to private sector and in turn to banks (which were detain project debt). This happened just before the financial crisis, and even though the risk was apparently transferred to the private side,

the credit crunch and all the financial constraints that the crisis brought, gave back all the risk debt on the public sector shoulders again.

These risk transfer allow to keep under control risks (for private sectors) in order to achieve a sustainable debt interest rate, in order to organize this complex structure also privates need legal and insurance experts that consequently increase total costs.

It is important to notice, as written in the VFM section, that the Ontario government reducing the private capital within PPP/PFI projects has also reduced the long-term debt demand fragmenting the long-term debt demand in shorter borrowing. In so doing, new financial institutions that previously were not able to sustain long-term debt exposure have now entered in a shorter debt demand market increasing competition bringing lower interests rates, lower risk for privates investors (Hussain, Siemiatycki, 2018). Curtain (2017), also, referring to other sources of capital, adds that given the long term nature of PPP/PFI. The use of short term bank loans forces the private sector to refinance the project at different stages. So the government takes the risk of movements in underlying base rates and the private sector that should take all other refinancing risks, so risks can be kept under control with flexibility.

This can be correlated with the Ball analysis, where it is argued about private capital implication for PFI: private capital improves government debt position in the short term, nevertheless the long-term costs are real and the effectiveness of greater capital expenditure in the long term is questionable (Ball *et al.*, 2007). Moreover, to keep under control financial risk it should be used diversified financial sources. For example, it means increasing the number of investors like institutional ones such as pension, insurance and sovereign wealth funds that have an investment horizon that matches the PPP/PFI timescale (Santandrea *et al.*, 2016).

The public part also, within this complex environment tends to ask for advice to consultants. When we refers to public sector, we are referring to more public structures and in relation to different PPP/PFIs, these projects can involve different public structures from high central government level to the smallest public office in a countryside area. It means that there is not an equal skill and expertise distribution within the same country, you go from administration that manage PPP/PFI daily or other administration offices that have to write just a public private partnership really seldom. Also there is no a direct communication between offices in different regions that help each other and for the less

skilled offices it means more fail risk and a important need of consultants that on one hand cover the public lacks but on the other hand they rapidly increase costs. This is useful but on the other hand, it increases also costs. Despite these, as shown in literature, public sector manage risk less effectively (Grimshaw *et al.*, 2002; Whorley, 2001). This condition is reported by National Audit Office<sup>5</sup> (NAO, 2011) that believes how public sector lacks of skills to manage these complex projects. (Demirag *et al.*, 2012).

#### d. CONTRACTUALIZATION OF RISK

The literature show just a limited assessment of the effects of PPPs contractual and governance structures in managing risk in the long– term contracts (Marques and Berg, 2011; Jones and Noble, 2008).

The construction of contracts in PPP/PFI projects are the underpinning of any development of these ones. Risk can be determined and consequently allocated under the contracts schemes. The literature reports how contract renegotiation are increasing and how they result determinant at different levels (i.e. VFM) (Cruz and Marques, 2013; Mladenovic *et al.* 2013; Makovesk *et al.* 2015; Guash *et al.* 2014; Sarmiento and Renneboog, 2016). Contract renegotiation is intent as a re–opening and a changing to its provisions with reference to risk assignment, conditions and project scope (Makovsek *et al.* 2015; Guasch *et al.*,2014) and it is not referred to adjustment that “take place under a mechanism defined in the contract” (Guash *et al.*, 2014; Domingues and Sarmiento, 2016). This issue should not be underestimated. In fact, Sarmiento and Renneboog (2016), show that renegotiations occurrence between 40 and 75 per cent in UK context. These renegotiations can create market distortion because happen after the competitive bidding stage, increasing transaction costs (Domingues and Sarmiento, 2016) and private sector at this stage can recoup its profit margin (Iossa, 2014). These contingencies can take place under three influential levels: macro– level business environment<sup>6</sup> (institutional, political, macro –economic and financial context), government projects support (arrangements and frameworks like level of corruption, government efficiency and bureaucratic quality) and a micro– level concerning the specific project and its related contracts like unpredictable

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<sup>5</sup> NAO official website <https://www.nao.org.uk/>. It is interesting notice that this Institute is based in UK and it considers and focus its studies on UK PPP/PFI projects. In fact, UK represents the most important and developed PPP market and despite this, has been found a lack of expertise and skills to manage these complex projects.

<sup>6</sup> This can be associated to the systematic risk that has been discussed in the “Risk determination and allocation”.

revenue streams (Soeipto and Verhoest, 2018). The revenue streams is strictly correlated with the demand risk, and as suggested by Carpintero and Helby Petersen (2016), contractual stabilisation of risk demand increase competition and keep under control the overall risk and its relative VFM. These three influential levels can be mitigated by the role of the government that should support PPP/PFI projects with an affirmative policy and political commitment, an advanced regulatory scheme and legislation and specific unites to support projects during different stages (Verhoest *et al.*, 2015). In particular, there are three main elements, within the Soeipto and Verhoest (2018) analysis are considered important to avoid renegotiation: competitive macro market environment, from public side strong PPP units, standardized ex ante evaluation instruments, standardized and transparent contracts and from a partnership cooperation a clear revenue stream analysis. However, in contrast with Domingues and Sarmiento (2016); Soeipto R. and Verhoest (2018) show that if all conditions are positive but the macro level business environment present unfavourable conditions there is an high probability of renegotiation.

Politics in order to maintain consensus to the voters and taxpayers tend to positively renegotiate contracts to solve any problem that may occur. So, during the contractual phase public sector should pay attention by avoiding a lock-in condition (Demirag *et al.*, 2015). These lock-in situations lead to private sector part to become dominant in those relations, which, in turn, will allow them to pass back risk and obtain higher return. This determines the capabilities to manage risk transfer and not take it. (Lonsdale, 2005).

Under uncertainty contracts inevitably are incomplete (Lonsdale and Watson, 2007) and flexibility principles within contracts is a current debate. It is considered a successful key in order to manage risk and keep costs under control. In long contracts it can creates conditions to a better cooperation between partners for unpredicted events (Guash and Straub 2006). Although it contributes to the project positively if it is organized during the design of project and its contracts together with an analysis of divergent scenarios trough a “what if” that should be take forward with both public and private partners (Asenova and Beck, 2010). In fact, signing a contract represents for the government a considerable ”system risk” for which the public part reduces its capacity to adapt to future societal changes due to the long term commitment (Chung, 2016). Flexibility can improve what is known as “relational contracting” that predict a continuous cooperation of PPP/PFI contracts that act together under common criteria, values and principles along with short contracts durations that during all long run of the project can me automatically revisited



due to their extent. In fact, based on long-term contracts, they tend to be renegotiated after a certain period due to the not expected difficulties that projects have to face. Also, Crocker and Reynolds, 1993 argue that a rule-based contracts is not recommended to manage risk in long term contracts, and that flexibility facilitate risk management.

e. RISK MANAGEMENT IN POST CONSTRUCTION PHASE

In order to achieve the goal, both parties after a proper risk allocation should be satisfied by forecasting the consequences of the possible different scenarios. But, this is not the only key to minimise risks, in fact, a good governance during the different stages of these projects can make the difference in the long run in the preoperational, operational and post operational phase (McKim, 2005; Chung, 2016). The authors argue that risk does not be considered just when it materialise just to minimize losses but governance should take preventive actions indeed act as problem solving machine (Abednego and Ogunlana, 2006). Risk management practice depend on relational contracting whose has direct consequences upon a relationship of trust between the parties rather than details of formal contracts (MacNail, 1974). Collaborative risk management process create operational challenges that involve going beyond the organisational boundaries of the public and private sectors (English *et al.*, 2010; Chung, 2015). The risk management structure create opportunities for both parties if management control is based on a regular communication and information exchange (Chung and Hensher, 2015). Also, follow best practices related to risk determination and allocation, contracting, decision making processes and risk management experiences through public data can determine a public management success (Nisar, 2007). Even though this is not the only point of view.

Public management negotiates and implements contracts within a commercial context (Lonsdale and Watson, 2007) in a principal-agent exchange (Klijn and Tiesman, 2005) characterised by “supplier” opportunism (Walsh, 1995). This needs a presence to contract and a relationship management approach (Chiles and McMackin, 1996) together with clear consequences related to inappropriate behaviours to reducing the moral hazard (Fernandez *et al.*, 2018).

According with an interview of the head of a PFI team, in Lonsdale and Watson (2007), “without doubt, the private sector will try to come back for extra money for every risk they haven’t thought of before and do so by trying to pass off that risk as something new. They will use everything to increase costs, in particular any ambiguities in the trust’s

requirements. It is like a game of chess and you need an experienced team who knows how to play the game in order to obtain value for money”.

Always according to the authors, “any loosening of contract management practice is likely to be exploited for private gain even if there were risks to reputation; it is commonplace for firms to place the prospect of short-term gains ahead of such risks”. Anyway, they add that a very careful management attention and an operational cooperation can take place in the absence of trust and opportunism can be managed. Opportunism, bounded rationality, transaction frequency and asset specificity enter in the concept of behavioural risk and according to Appuhami *et al.* (2011), these can be managed by the public sector by identifying their strengths and determine an appropriate scheme of MCS (Management Control System).

While for Demirag *et al.* (2011, 2015), from a private sector point of view, reputational risk is considered as important for becoming involved in a PFI. In addition, construction companies and facilities management companies affirm that they recognize the greater importance of the reputational advantage in long contracts compared to short contracts. These aspects are emphasized especially in local PPP/PFI projects (Bell *et al.*, 2013). For instance, this can affect directly the borrowing costs (Shaoul, 2005). The importance of reputation can derive from the preference for working with familiar partners but at the same time this is a bias that maintain entrance barriers reducing competition (Ezulike *et al.*, 1997). On the other hand, also for the public sector, reputational risk attributed to PPP/PFI projects is also importante, for example public sector recognises a project failure as a bad signal for the market (Shaoul *et al.* 2012).

## **7. DISCUSSION AND CONCLUSION**

This study was aimed at contributing to the expansion of risk analysis under PPP and PFI projects. This systematic literature review has given a general overview about the state of the art and the research trend for this topic. These 80 analysed articles have highlighted five main areas as representing the highest risk transfer steps for such projects. The displayed domains are: Value for Money, risk determination and allocation, financial risk, contracts and management. According with this study’s results, it can be stated that risk completely characterizes PPP/PFI projects, and that it is its key determinant. These aspects are under discussion in the academic world and characterize different steps for every PPP project. Practitioners and stakeholders try to implement these elements under

the best available practices in order to achieve project goals. However, the point is that with all different regulations, project specificities, lack of historical data and communication between the public sector and national backgrounds, it is very difficult to “export” best practices and increase the general goal achievement rate.

In relation to Value for Money, the literature shows the complications of ascertaining the right parameters, if not of establishing whether that is in fact the parameter to follow. This opens a Pandora’s box on the reasons why governments promote PPP/PFIs. Consequently, risk determination and allocation face evaluation process issues: despite everybody’s recommendation for an evidence-based approach, apparently few cases have succeeded at employing such method, due to persistent biases. In addition, accountability standards are constantly debated, even though they have seemed to represent the most appropriate path for now. Risk is everywhere: funding in particular constitutes a high-level risk, through the risk diffusion mechanism and the risk premium charge. Contracts face the problems related to flexibility and renegotiation. Contracts should also be able to align public and private interests in order to achieve common interests and project goals, and outline correctly future project steps with their corresponding responsibilities. In conclusion, the management phase should represent the bridge and coordinate every project stage.

Some points can be discussed more generally. PPPs are a feasible alternative procurement method, which improve delivery of public assets and services. The PPP procurement option remedies the major failings of traditional procurement, which delivers out of time and costs, burdened by poor life-cycle costing practices, lack of rigour in asset allocation and project development processes, and suboptimal service delivery outcomes. However, “where the margins between the estimated costs of a PFI solution and its Public Sector Comparator are not great, it would be appropriate for more projects to be procured conventionally, challenging the public sector to control optimism bias and maintain high maintenance standards, and providing a basis for comparative research. This may also be a reasonable decision of choice of the boards of some public agencies under financial pressure, who may prefer to commit to the alternative with lower cash outlays” (Coulson, 2008).

It is quite clear that these analysed elements of risk transfer highlight that risk allocation between partners in PPP/PFI does not always follow an optimal strategy. Risk should be managed by those partners who handle it better; however, private partners engage in great

efforts in order to negotiate and transfer or diffuse risk somewhere else (Demirag *et al.*, 2012; Heald, 2002). Risk transfer intrinsically carries a condition of asymmetric information between partners: when things go well nobody asks for clearance, but if things go badly the public sector has problems to enforce accountability through a clear-cut penalty regime, and a continuing monitoring process helps to follow better possible issues and give, consequently, appropriate answers (Ball *et al.*, 2003). At the same time, the public sector has put more emphasis on monitoring control rather than taking a role in coordination (Heftz and Warner, 2004; Brown *et al.*, 2006; Johnsson *et al.*, 2014).

By analysing different papers, it can be noticed how geographical differences can affect the results of PPP/PFI. As briefly introduced above, the development of these projects has increased worldwide in the last twenty years, but the number of projects and their success is often related with their historical background. In truth, from a statistical viewpoint the accumulation of more experiences within these projects determines higher success rates. For example, countries such as Kazakhstan (Mouraviev *et al.*, 2012; Urio, 2010) and Russia (Mouraviev and Kakabadse, 2014) – both Ex–Soviet Union countries – need more government support with respect to private partner, and this is aimed at creating guarantees for private investors and increasing their investment returns. Also in Asia, China (Ke *et al.*, 2013) and Sri Lanka (Appuhami and Perera, 2016) are not ready to implement these projects because of their lack of public sector expertise, an outmoded administrative management, together with a very low market competition.

Certainly if the focus is on VFM such view is completely true, but if the focus is set on the development of the private sector as an opportunity to develop country infrastructures, for example in countries considered still underdeveloped, it can be said that success rates can increase. This is the reason why PPP/PFI is not just a single concept.

PPP does not bring to a fast return on investment for both the parties. Therefore, the political part that should implement these project typologies should not concentrate on immediate return on investment, in coincidence with numerous electoral consultations, but should think about the nature of PPPs, that base their structure over the long time period. The latter corresponds to consequences that affect future generations and have very little immediate impact (Terry, 1996). The continuing pressure to build new infrastructures and provide services is likewise a constant issue worldwide, and the constraints on public balance sheets, together with the need of giving answers to the

public opinion, have given the impulse to choose these project typologies, though they were not the most appropriate in the long run.

In conclusion, the state of the art exposes some open issues on risk under PPP and PFI projects. A lot though must still be done. In particular, this work has shown research gaps in relation to risk issues under PPP/PFIs. In particular, this consideration refers to operational and post-operational risk studies, risk management and the role of trust between partners in operational phase, and more in general issues related to PPP/PFIs within developing countries. These suggest that future works can lead to productive findings.

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