Public Accountability: The Case of Government Guarantee Scheme in PFI/PPP Projects

By

Hakeem A. Owolabi

BSc (Hons.), PGCert, APMP

13044177

A thesis submitted in partial fulfilment of the requirements of the University of the West of England, Bristol for the degree of Doctor of Philosophy

January, 2018.

Declaration

I affirm that this research is my own and was conducted by me, excluding where due acknowledgement has been made in the text, and that it has not been submitted either in part or full for any other award than the degree of Doctor of Philosophy of the University of the West of England. Materials from other sources have been duly acknowledged and referenced in line with ethical standards, and the list of publications made from the thesis has been provided.

Signed: HAKEEM A. OWOLABI

Signature ……...

Date**……..**

Abstract

Although government guarantee scheme has become a well-known policy strategy for encouraging public-private infrastructure delivery. However, a huge concern with government guarantee in PFI/PPP is the issue of weak public accountability scrutiny. This study therefore investigates accountability mechanisms necessary for evaluating PFI/PPP government guarantee scheme within UK context. Using exploratory sequential mixed methodology approach, constructs from accountability theory (Process-Based Accountability Mechanisms, Ethics-Based Accountability Mechanisms, Democratic Accountability Mechanisms, and Outcome-Based Accountability Mechanisms) were examined. Sixteen (16) accountability mechanisms (value for money, parliamentary scrutiny, rule of law etc.) useful for evaluating PFI/PPP government guarantee scheme were identified and used to formulate theoretical hypotheses. Through literature review, documentation and case study interviews with experts in public and private sectors, 78 indicators contributing towards each accountability mechanism were uncovered. Confirming the relevance of each indicators from experts in the qualitative study, a final questionnaire survey was developed and distributed to wider audiences. Series of statistical tests were performed on the collected questionnaire data including Descriptive Mean Rating, Reliability Analysis, Mann Whitney U Test of Significant Differences in Perceptions and Structural Equation Modelling. The results revealed fourteen out of the sixteen tested hypotheses were valid, with two rejected (Benchmarking and Budgetary Reporting). Findings also identified the top-five accountability mechanisms critical for evaluating PFI/PPP government guarantee scheme comprising: Value for Money, Competition, Social and Political Impact, Risk Management, and Parliamentary Scrutiny. The study culminated in a multidimensional framework for public accountability in PFI/PPP government guarantee scheme. Contributing towards existing accountability theory, the study confirmed a combination of multiple accountabilities, as against a single-dimensional accountability, is necessary for strengthening public accountability in PFI/PPP government guarantee scheme. For UK policy formulators, the result suggested need for future re-dimensioning of accountability frameworks for infrastructure government guarantee schemes, especially as the nation faces new geo-political and economic complexities in years to come.

Dedication

This PhD Thesis is dedicated to Almighty Allah, the most gracious, the most merciful for making the Doctorate Degree a reality. I also dedicate this research work to my beloved wife Abimbola Shakirah Owolabi for her unflinching love and support throughout the period of this programme. Her rock-solid belief in me and ceaseless encouragement were invaluable towards the realisation of this degree. Also dedicated with this thesis are my children Saleemah Adesewa Owolabi and Abdul-Rahman Folawiwo Owolabi for coming along during this tedious academic journey to assuage our nerves and put joy and smiles on our faces. Finally, the thesis is also dedicated to my mother, Alhaja Bintu Olarinre Owolabi, for her unrelenting prayers and motherly love.

Acknowledgement

All praises, glorification, exaltation and adoration is due to Almighty Allah and Allah alone. He is the creator, the just, the pardoner and the glorious. I bear witness that there is no one worthy of worship except Allah and Allah alone. I also bear witness that Mohammad (Sallah Lawu Alayim Wasalam) is His beloved servant and messenger. My acknowledgment goes to Almighty Allah for his grace and mercy. Without him, it would not have been possible to start and finish this PhD programme. I thank Him for his protection and blessings at all times.

My profound and unending appreciation goes to my supervisor, Professor Lukumon Oyedele, firstly for the opportunity given to me to be one of his PhD students. My deep-felt appreciation to him for the excellent tutelage he provided me on my programme, for his limitless support, understanding, and kindness towards me from the commencement of my programme till this moment. He is an excellent mentor, role model, innovator and pathfinder, through whom many great achievements have been made together. I congratulate him for his new position as the Assistant Vice-Chancellor of the University of the West of England, Bristol and there could be no better capable person than his able person. I strongly wish him great achievements in this exalted role. I pray that Allah in his mercy, reward him for his support and kindness, immense believe in my ability and I pray Allah continue to bless him, exalt him, guide and protect him and his family. I also acknowledge the kind guidance of my second supervisor, Dr Ximing Ruan and I appreciate his support during the course of this programme.

My immeasurable appreciation to my wife, Abimbola Owolabi, for her love, endurance and support throughout this programme. My love and appreciation to my kids also for showing

deep understanding whilst I had lesser time for them. Also, I use this opportunity to appreciate my mother and father, Alhaja Bintu Owolabi and Mr. Oyewale Owolabi for their love, prayers and support during the course of my programme. My in-depth appreciation to my larger family in the UK, starting from Dr. Husainat and her kids, Abdullah, Mariam and Aisha. I thank them for all the love and support since the beginning of the programme till this moment. My appreciation goes to my siblings for their love and support including Mr Tunji Owolabi, Dr. Adejare Owolabi and Fadekemi Owolabi. Appreciations also goes to my inlaws Alhaji and Alhaja Aladeyelu for their ceaseless prayers and support for me and my family during these years. I thank My Uncle, Alhaji Surakat Olawale for his moral supports. I also thank my nephew, Oladimeji Olawale for his profound support and words of encouragement during my time on the PhD, I wish him all the luck too.

My appreciation is also infinite to my colleagues whom we journeyed together on the PhD programme and achieved great feats under the guidance of Professor Lukumon Oyedele. Starting from Dr Ajayi Saheed, Dr Alaka Hafiz, Dr Olugbenga Akinade, and Dr Mohammed Bilal, including Dr Udonna Okeke. I sincerely thank them for their moral support and brilliant company during the course of my programme and I pray that the sky is the limit for each of us. I also greatly thank Dr Lukman Akanbi and Dr Anuoluwapo Ajayi for their encouragement, support and senior brotherly role for me and my colleagues. I would like to also use this opportunity to appreciate officials of FBL Post Graduate Office at the University of West of England, Bristol. Starting from Dr Svetlana Cicmil (Director of Doctoral Research), Dr Helen Frisby, and Samantha Watts among others. I sincerely appreciate their immense contributions and many support towards the success of my programme. In addition, my profound thanks goes to my sincere advisers and senior colleagues who played immense role in the success of my programme including Dr Sheu Adeyanju, Dr Bolanle Karimu, Dr

Ismail Adelopo, and Dr Helmi Boshnak. Also, I want to use this opportunity to thank my current and previous line manager at the University of Northampton, Dr Sandhya Sastry and Alistair Sutton for the confidence they reposed in me and for their support during the course of my programme. My appreciation will not be complete without mentioning some of my able colleagues at the University of Northampton whose professional support enabled me to complete this programme. These include Dr Umair Tanveer and Dr James Mshelia. Finally, my appreciation goes back to Allah for his infinite mercy on me in the past present and future. I thank and exalt his name. Al Mulkul Qudus, As Salam, Al mumming, Al Muhaimin, Al Azeezul Jabbar, Al mutakabir Subhunallah Amayashrikun.

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Chapter One: Introduction

1.0 Background

Since the last two decades, government guarantee schemes such as the UK Guarantee Scheme for Infrastructure (UKGSI), have become a popular tool for encouraging Private Finance Initiatives (PFI) and Public Private Partnership (PPP) Projects (Burke and Demirag, 2015). Guarantees are a fiscal policy instrument for supporting infrastructure investments (Viana, 2016), particularly when government is better placed to control and minimise associated risks (Caselli, et al. 2015). With guarantees, many economies have been able to attract long-term finances for critical infrastructures in different sectors such as road, education, water, power, etc. (Laeven and Valencia, 2008; Caselli, et al. 2015), while reducing investors' risk exposures (Blyth, 2013). However, despite its strategic role, accountability remains a major issue in public sector guarantee (Alonso-Conde et al., 2007; Xu et al., 2014). Beyond the challenge of ambiguity regarding its accounting treatments (Bova, 2016); the contingent costs of guarantees and the huge fiscal implications have lately generated much concerns, particularly regarding UK's PFI/PPP projects (Campbell et al., 2009; Willems and Van Dooren, 2016, National Audit Office, 2016).

As highlighted by Sarraf and Mohammadnazari, (2016), concerns about government guarantees for PFI/PPPs have intensified due to series of debates surrounding the empirical validity of most assumptions upon which PFI/PPP was advocated. During its formative stage in the early 1990s (Broadbent and Laughlin, 2003; Robinson and Scott, 2009; Bae and Joo, 2016), many policy makers and practitioners had argued that PFI relieves pressure on fiscal budget and de-escalate rising national debt (Caselli, *et al.* 2015). Enthusiasts contended that through "Off Balance Sheet" financing, PFI allows government to transfer most projects' risks to the private sector, whilst freeing available resources for other crucial national needs

(Li et al., 2005; Villalba-Romero and Liyanage, 2016; Delmon, 2017). However, several years on, scholarly evidences and published reports have shown that, not only did many PFI/PPP projects ended up on governments' balance sheets (Broadbent and Laughlin, 2005; Hood *et al.,* 2006; OBR, 2015), the assumptions of value for money (VFM) and risk transfer for which PFI was advocated remain strongly contestable (Sparkman, 2002; Asenova and Beck, 2010; Villalba-Romero and Liyanage, 2016). With recent government statistics revealing 98% of PFI/PPP projects in the UK, an estimated £39.4 billion (representing about 2.1% of GDP) worth of PFI deals were recorded as on-balance sheet transactions (OBR, 2015, pp. 41-42). Therefore, the biggest issue for PPPs, despite its flaws (i.e. weak transparency in transactions, rising public debt, ambiguous claims of VFM, eroded democratic control, politicisation etc.) is how to address the serious accountability questions raised with the use of additional (contingency) debt via government guarantee scheme to promote PFI/PPPs (NAO, 2015).

1.1 Research Problem

According to Burke and Demirag, (2015), the use of government guarantee especially financial guarantees for promoting PFI/PPP infrastructure investments raises very salient questions of public accountability. Oliveira *et al.* (2016) argued that guarantees transfer huge risk to the public sector because government becomes responsible for liabilities arising from any project failure. This apparently aggravates accountability concerns, especially as the horizontal nature of relationship between government and private sector in PPPs requires both parties to mutually share risks and ensure project success (Hodge and Greve, 2007; Willems, 2014). In another related study, Love. *et al* (2010) argued that government guarantee erodes the important notion of "risk-reward" relationship in PFI/PPP transactions. In others words, by allowing government to assume additional risks on projects via issuance of guarantees, the private sector ends up taking limited or no risks at all (Oliveira *et al.,* 2016;

Reinhart and Rogoff, 2011). Such situation, without any doubt breeds serious moral hazards, rent seeking and corruption, with dire consequences for both public and the private sector stakeholders (Farhi and Tirole, 2012).

In addition, the popular accounting treatment of accrual method and budgetary reporting of guarantees (Marcel, 2014; Kopits, 2014) have been criticised as ineffective and needs to be used in combination with other governance reforms and mechanisms (Laughlin, 2012; Guess and Ma, 2015). Also, Breton *et al*., (2012) and Wibowo and Alfen, (2015) recently critiqued the use of guarantees for PFI/PPPs, arguing that such contingent liabilities when combined with the huge future unitary payments on PFI projects, poses danger to public finances. This perspective confirms report on fiscal sustainability from the UK's Office of the Budget Responsibility, which revealed a cumulative spending of £51.7 billion on signed off PFI deals between 2015-16 and 2019-20 (OBR, 2015, pp. 27). Coming from the above background, the impact of using government guarantees for promoting PFI/PPPs has become a major issue for public sector finance and thus called for urgent and holistic accountability scrutiny (Wibowo and Alfen, 2015; Grande and Visco, 2011; Willems, 2014).

Existing literature have made efforts to examine accountability issues in public sector guarantees (Takashima et al., 2010; Xu et al., 2014; Newberry, 2015; Chowdhury et al., 2015). For instance, in recent studies by Kluvers and Tippett (2010) and Weil et al., (2013), accountability in public sector guarantees have been linked to the problem of its age-long traditional cash accounting treatment, which many governments have, until recently preferred for managing state aids. According to Emek and Acar (2015), "Cash-Based Accounting" and reporting treatment provides policy makers and the legislature with very insufficient

information needed to hold public managers accountable on the management of fiscal guarantees (Robinson, 1998; Connolly and Hyndman, 2006). Its' greatest weakness, which lies in delayed recognition of government expenditures have allowed guarantees to escape more public scrutiny (Emek and Acar, 2015), while many governments have accumulated fiscal burdens to massive proportions through this means (Weil *et al.*, 2013).

Although Weil *et al*. (2013) highlighted the importance of "Accrual-based Accounting" techniques for handling guarantees, as used by many major economies, while also suggesting its relative reporting clarity of contingent liabilities (due to its immediate capture of future liabilities in current balance sheet). However, Newberry (2015) challenged that accrual-based appropriations by government weakens legislative control on the executive arm of government especially in relation to managing sovereign debt. Hausman (2012) argued that accountability in guarantees remain at the mercy of politicians and policy manoeuvres (Irwin and Mokdad, 2009). According to Romero and Liyanage (2016), in many instances, the introduction of government guarantees has had more political undertones than even economic motivations. Bachmair (2016) suggested that many policy makers embrace government guarantees majorly to avoid making painful structural reforms. This ensures guarantees enjoy more political preference, even when other forms of fiscal support such as direct funding, credit reinsurance or bond support would have yielded better results (Arata *et al.*, 2016). According to Moser *et al.* (2008) and Bringselius (2014), a number of guarantee schemes have also been enmeshed in serious allegations of corruption (i.e. including the UK export guarantee), with policy objectives being greatly undermined as many beneficiaries undercut guarantee policy rules.

While studies have continued to examine fiscal risks, including accounting and budgeting issues in government guarantees (Irwin and Mokdad, 2009; Takashima *et al.*, 2010; Bringselius, 2014; Grande and Visco, 2011; Willems, 2014; Emek and Acar, 2015). Bae and Joo, (2016) explored the policy suitability and implications of government guarantees on a host of topics including financial institutions' risk appetite. However, despite their immense contributions, an apparent gap in knowledge has become noticeable as most studies have focused on fiscal issues relating to guarantees and its financial reporting on public sector balance sheet (Cangiano *et al.*, 2006; Takashima *et al.*, 2010; De Bruyckere, *et al.*, 2013; Bringselius, 2014). These has obviously led to a neglect of the numerous public accountability issues raised with the adoption of government guarantee for promoting infrastructure PPPs. Government guarantee scheme for PFI/PPP therefore remains a serious public finance issue, which gets even more complicated amid recent relentless public-private collaborations and investments by government, coming on the back of insufficient rigorous public scrutiny. Based on this knowledge gap, there is an urgent need for robust accountability mechanisms and processes for protecting public interest in PFI/PPP government guarantees (Wibowo and Kochendoerfer, 2010; Takashima *et al*., 2010; Forrer *et al*., 2010; Laughlin, 2012; 3. Bae and Joo, 2016). To fill this identified gap in knowledge, this study therefore sets out to ask the big question:

"How can public accountability be strengthened in the evaluation of government guarantee scheme for PFI/PPP infrastructures?

In order to approach the above big question in a more comprehensive manner that provides in-depth insights into UK's public and private sector stakeholders' perspectives, further questions can be added to elaborate on the big question:

1.2 Research Questions

(1) What accountability mechanisms are necessary for strengthening public accountability in PFI/PPP government guarantee scheme?

(2) Are there similarities or differences in public and private sector stakeholders' perceptions concerning the accountability mechanisms and their associated indicators?

(3) What are the underlying crucial accountability mechanisms essential for ensuring public accountability in PFI/PPP government guarantees scheme in the UK?

1.3 Justification for study

The World Bank in her 2007 report on "allocating and valuing risk in privately financed infrastructure" already identified poor handling of contingent liabilities (i.e. guarantees, pensions) and associated fiscal risks as a major contributor to the 2000-03 economic crises. However, despite this acknowledgement, current political posture of many advanced economies including the UK has suggested unrelenting entrenchment of public-private collaborations that is facilitated by huge state guarantees (Hodge and Greve, 2007). As a result, guarantees to PPPs, regardless of concerns for accountability or fiscal implications, looks to remain pivotal to most European governments' infrastructure policies. In the case of the UK, the recent £40billion unconditional government guarantee scheme for infrastructure seems to have intensified concerns as to whether government was better served by using traditional procurements or private sector driven procurement routes (NAO, 2015; Wynne, 2015). Or rather, whether government is indeed justified to incentivise private sector, whose original role in PPP is to take risk in return for commensurate reward (Hodge and Greve, 2007; Forrer et al., 2010). This has become a major issue especially as the UK government looks caught between balancing divergent policy objectives. From austerity-propelled deficit reduction agenda (Bracci et al., 2015), to private debt financing of critical infrastructures and

the challenge of growing Public Sector Net Debt that currently stands at £1,790.4 billion (OBR, 2017, pp.68). It is therefore fair to say that the UK government seems to have a herculean task at hand.

Albeit, the government targeted £483 billion infrastructure investment between years 2015-2020 (NIP, 2014); the risks from investment will become higher should guarantees be required to make such deals bankable to the private sector. This will confirm arguments raised by McKinnon and Pill (1999) and Nier and Baumann (2006), that guarantees have become government's tool for pampering the private sector, at tax payers' expense. Coming from this point of view and considering UK government's determination to intensify private sector led infrastructural investments (NIP, 2014; NAO, 2015), the urgent need for robust accountability mechanisms for effectively managing government guarantees is clearly evident (Willems, 2014).

1.4 Aims and Objectives

The overall aim of this study is to evolve a public accountability framework suitable for evaluating PFI/PPP government guarantee scheme in the UK. In this regard, the following objectives were identified for the study.

1. To identify important accountability mechanisms and associated indicators for evaluating PFI/PPP government guarantee scheme.
2. To explore differences in perceptions among UK public and private sector stakeholders on each identified accountability factors regarding their suitability in the context of PFI/PPP government guarantee.
3. To identify the top-ranked underlying mechanisms suitable for strengthening public accountability in PFI/PPP government guarantee scheme.

4. To develop a structural model for evaluating accountability in PFI/PPP government guarantee scheme.

1.5 Unit of Study

Babbie (2013. pp.98) defined a unit of analysis as "*those things we examine in order to create summary descriptions of all such units and to explain the differences among them*". According to Jaffe (1989), unit of study or analysis describes the object of the research (i.e. an individual, a group, organisation or phenomena). The features of such objects are carefully examined and consequently summarised to make general assumption about a larger group or phenomena.

Within the context of this study, the major aim is to develop an accountability model for evaluating and managing government guarantee for PFI/PPP Projects in the UK. Hence, the unit of analysis is a "Project". Albeit, "Project as a unit of Analysis" in project management may have raised issues, especially as it relates to whether projects should be examined as "an object" or as "an actor" (Engwall, 1998, pp.26), this study takes a holistic view of projects. It considers a project as embodying objects, actors, processes and structures and as such, we focus specifically on government guaranteed PFI/PPP projects from a public accountability perspective. To that end, three case studies of specific PFI/PPP projects in the U.K that were financially guaranteed by the UK government were investigated. In the same vein, since the study employed an exploratory sequential mixed method approach, huge amount of the qualitative data used in the study were therefore obtained from the said guaranteed PPP projects.

1.6 Research Methodology

This study stems from a "Subjectivist" cum "Objectivist" epistemological background. It combines in a single study, two contrasting world views about the nature of reality and the paths to knowledge acquisition. The notion of "knowledge of reality that is based on participants' own interpretations" is given equal consideration with "a pre-existing notion of knowledge that is obtained via scientific methods" (Blaikie, 2011; Bally, 2012). As a result, the study adopted exploratory sequential mixed methodological approach and emerged from a critical realism philosophical paradigm. Interpretivists' (qualitative) approaches that include theoretical review of literature, case study interviews and documentary analysis were combined with positivists' instrument such as questionnaire survey (quantitative).

In addition, the research strategy adopted is "Multiple Case Study Strategy" by exploring the perspective of public and private sector employees on accountability mechanisms in government guaranteed PPP/PFI projects in the UK. The study examined three (3) existing PPP projects in the UK that were backed by government guarantee cover. These case studies were used at the exploratory stage of the study to confirm various accountability mechanisms suitable for evaluating PPP projects at government guarantee level. Combined with evidences from literature review, 23 semi-structured interviews and document analysis were used to inform questionnaire survey to 118 wider audiences among UK public and private sector stakeholders. Below is the highlight of research instruments used in the study:

- Theoretical review of literature
- Multiple Case studies of government guarantee-backed PFI/PPP projects in the UK.
  - Semi-Structure Interviews
  - Documentation Analysis.

- Questionnaire Survey.
- Data Analysis (Descriptive Mean Rating, Reliability Analysis, Mann Whitney U Test & Structural Equation Model).

1.6.1 Sampling Strategy

While maximum variation sampling was used in this study to identify suitable government guarantee–backed PFI/PPP projects as case studies. Purposive sampling approach was used to identify information-rich participants (UK public servants and private sector participants) for semi-structured interviews in order to implement the qualitative phase of the research. On the other hand, the quantitative stage of the study adopted snowball sampling to gradually build a pool of questionnaire respondents and distribution to wider audiences of UK public and private service experts with experiences in infrastructure government guarantee and PFI/PPP infrastructures respectively.

1.6.2 Case Studies

Case study research involves an in-depth study of events, persons, phenomena or projects (Cohen et al., 2007; Johansson, 2003). As suggested by Fellow and Liu (2008), case studies may be employed in a study to gain insight into a scenario under scrutiny, using a wide range of research instruments such as interview, observation, archival analysis, reports and questionnaire. In this study, multiple-case studies of three (3) government guarantee-backed PPP projects in the UK were identified for indepth investigation. These include Six-lane Toll bridge in Northwest England, Power Station Project in South West England, and Rail Line Extension, South East England. These case studies were explored in terms of accountability issues encountered and most importantly, the accountability mechanisms used for ensuring policy objectives are achieved and projects evaluated.

1.6.3 Interviews and Documentation

Interview is a qualitative research tool used for exploring the perceptions of research participants concerning a phenomenon (Basch, 1987). Types of interviews include unstructured (in-depth), semi-structured and structured interview (questionnaire) (Neuman, 2007). In this study, the experiential views of UK public sector employees about government guarantees and PFI/PPP projects are being captured through semi-structured interviews. As such, twenty-three (23) UK public and private sector experts of various categories with prior experiences in infrastructure government guarantee and or PFI/PPP projects in the UK were interviewed. Triangulation was also ensured for the qualitative data through the analysis of project documents relating to government and accountability procedures for evaluating and approving guarantees were examined.

1.6.4 Questionnaire

To confirm wider relevance and generalizability of findings elicited through the literature review and identified case studies, questionnaire survey to 118 wider audiences among the UK public and private sector employees was administered.

1.6.5 Data Collection and Analysis

A mix of qualitative and quantitative data analysis was employed in this study. Nvivo 10 qualitative analysis software was used for thematic analysis of existing literature, documentary reports and semi-structured interviews with UK public and private sector subject matter experts. This helped unravel various themes and sub-themes from the qualitative data. On the other hand, IBM Amos SPSS (Statistical Package for Social Science) was used for quantitative analysis of the data. Asides confirming the reliability of the data, the IBM AMOS SPSS ensured the development of a structural equation model for evaluating public accountability in PFI/PPP government guarantee scheme.

1.6.6 Research Approach (Explorative to Exploitative Approach)

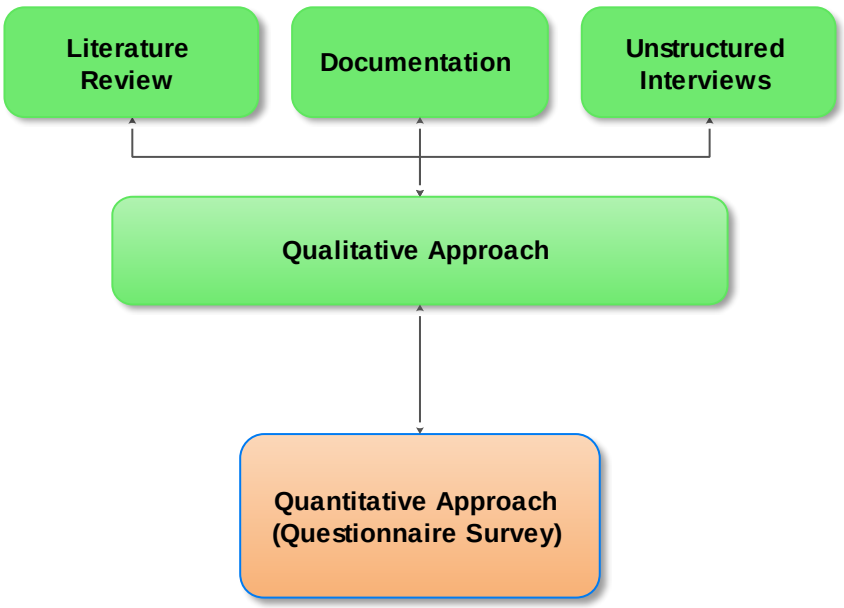

Figure 1.1:The Research Approach (Qualitative approach feeds into in the quantitative approach)

1.7 Contribution to Study

A study is considered useful if it facilitates interaction between practitioners and academicians to explore each other's perspectives in a broader manner and work together to analyse results. Due to global proliferation of project finance technique and Public Private Partnerships (PPP) from both public and private sectors, indepth understanding of issues of public accountability raised in such arrangements and associated issues is therefore essential. This is even more important as government resources are often involved in large amounts with recent PPP mega projects. As such, understanding of the relevant processes, structures and mechanisms to protect public interest and ensure accountability must be in place. This research therefore contributes to existing body of literature in two ways:

1.7.1 Contribution to Theoretical Knowledge.

This research contributes to existing accountability theories in a number of ways. Firstly, the study confirms Boven's (2010) assertion that both "accountability as a virtue" and "accountability as a mechanism" are collectively needed to strengthen public accountability. Although this study examined accountability mechanisms for evaluating PFI/PPP guarantee scheme, themes such as reporting, transparent bidding and tendering, responsibility - all of which are normative concepts that mirrors accountability from a virtuous perspective, were reflected in the research findings, and also statistically contributed towards study. The implication of this is that, for public accountability, especially in transactions with blurry lines of accountability between public and private parties, such as PFI/PPPs, the combination of high moral standards and strong institutional mechanisms of accountability will be important.

Similar to the above perspective, whilst exploring process accountability, Tetlock and Mellers (2011b), opined that most accountability mechanisms are a constantly evolving process-outcome hybrids that lean towards either side, depending on the context or task. According to Tetlock and Mellers, the desirability of one type of accountability is often based on context within which the accountee operates at a given time. As such, in this study, process, ethics, democratic and outcome-based accountabilities were used as theoretical constructs to classify a number of accountability mechanisms investigated. Based on the results from the study, only two accountability mechanisms (benchmarking and budgetary visibility/reporting), each from process and outcome-based accountability constructs were rejected by the respondents. Also, there was no clear cut evidence of any statistically significant differences of opinion on accountability mechanisms among respondents on the basis of their dimension. The implication of this result confirms Tetlock and Mellers (2011),

including Sinclair (1995) suggested that accountability forums favour different types of accountability tools at certain times based on whether their needs are well served by its adoption.

Additionally, this study supports existing assertions in earlier studies such as Broadbent and Laughlin (2005) and Sainati *et al* (2017) that the theoretical notion of off-budget financing of PPPs is untenable since most of the PPPs implemented so far in the UK ended up on government's balance sheet. The conclusion in this study, is therefore based on the study' findings which highlighted how, most contingent liabilities incurred in the name of facilitating PFI/PPPs end up on public sector balance sheet and drive up public sector net debt, which indirectly affects a nation's sovereign credit rating.

1.7.2 Contribution of Study to Public Policy

This study contributes to public policy on infrastructure procurement by suggesting a holistic blend of accountabilities that delivers public value through ethical, democratic and outcome driven processes. Evidences from this study already suggest that, successful management of guarantees depends on how much accountabilities are built into the processes of its evaluation, the assessment of its outcome, the strategies for preventing unethical practices, as well as the extent of democratic control. Apparently, results from the study have huge implications especially for the UK public sector managers. The findings represent an urgent call to policy makers and public administrators to understand that there is no "one size fits all" approach towards addressing public accountability issues in government guarantees for PFI/PPPs. As suggested by Atmo and Duffield (2014), and De Castro *et al.* (2016), the

situation in government guarantees for PFI/PPP is quite complex considering that, guarantee changes the balance and nature of risk allocation in most PPP contracts. This very dicey situation presents huge challenge to public finance in the UK, especially at a time when the global economy faces its longest period of turbulences.

In addition, going by the results of this study which unravelled top-five accountability mechanisms for evaluating PFI/PPP government guarantee scheme which includes, Value for Money (VFM), Competition (C), Socio-Political Impact (SPI), Risk Management (RM) and Parliamentary Scrutiny (PS). The policy implication of these results for government is that, future government guarantee evaluation for PFI/PPPs can integrate these key accountability mechanisms into their due diligence appraisals. This will help ensure that a more comprehensive approach that strengthens public accountability is taken whilst making decisions on deserving projects under the infrastructure guarantee scheme.

1.8 Scope of Study

The scope of this study is the UK public service including central, regional and local levels that has played active roles in successful development and implementation of government policies, including the implementation of Private Finance Initiatives (PFI). Hence, the study would be carried out within the institutional, legal and policy frameworks of PFI procurement in the United Kingdom. The study also focused on exploring the opinions of UK's public and private sector experts on issues relating to public accountability mechanisms, PFI/PPPs and government guarantees. Their responses helped in the development of a structural model for safeguarding public accountability in government guarantees to PFI/PPPs. While three case studies of PPP projects previously backed with government guarantees were explored, only experts with experiences in guarantees and, or PPPs were interviewed. The study also

considered only experts with UK public and private sector experience between 2-25 years, considering that PFI in the UK only became one of government's procurement policy in early 1990s. This therefore helped ensure that selected interview and questionnaire respondents had rich experience and knowledge of government guarantees and or PFI/PPP projects. However some limitations of the study include the principal focus on the United Kingdom. A major reason for this was due to access to data sources, especially interview participants. In addition, the study also focused on perspectives of UK's public and private sector stakeholders alone. Other economies using government guarantees for PPPs have not been considered in this study.

Furthermore, this study also focused mainly on Private Finance Initiatives (PFI) and Public Private Partnership (PPP) projects that have been backed with government guarantee. As such, other methods of infrastructure procurement including contracting and concession were excluded from this study. Another limitation of this study is that only three UK infrastructure PFI/PPP projects were considered for the multiple-case qualitative investigation in this study. A major reason for this is because the UK currently has a small but growing portfolio of government guarantee-backed PFI/PPP projects. This research is also limited to accountability mechanisms and their significant contribution towards strengthening public accountability in PFI/PPP government guarantee scheme. Hence, other forms of accountability including managerial accountability, personal, legal, or political accountabilities were not considered in this study.

Chapter Structure

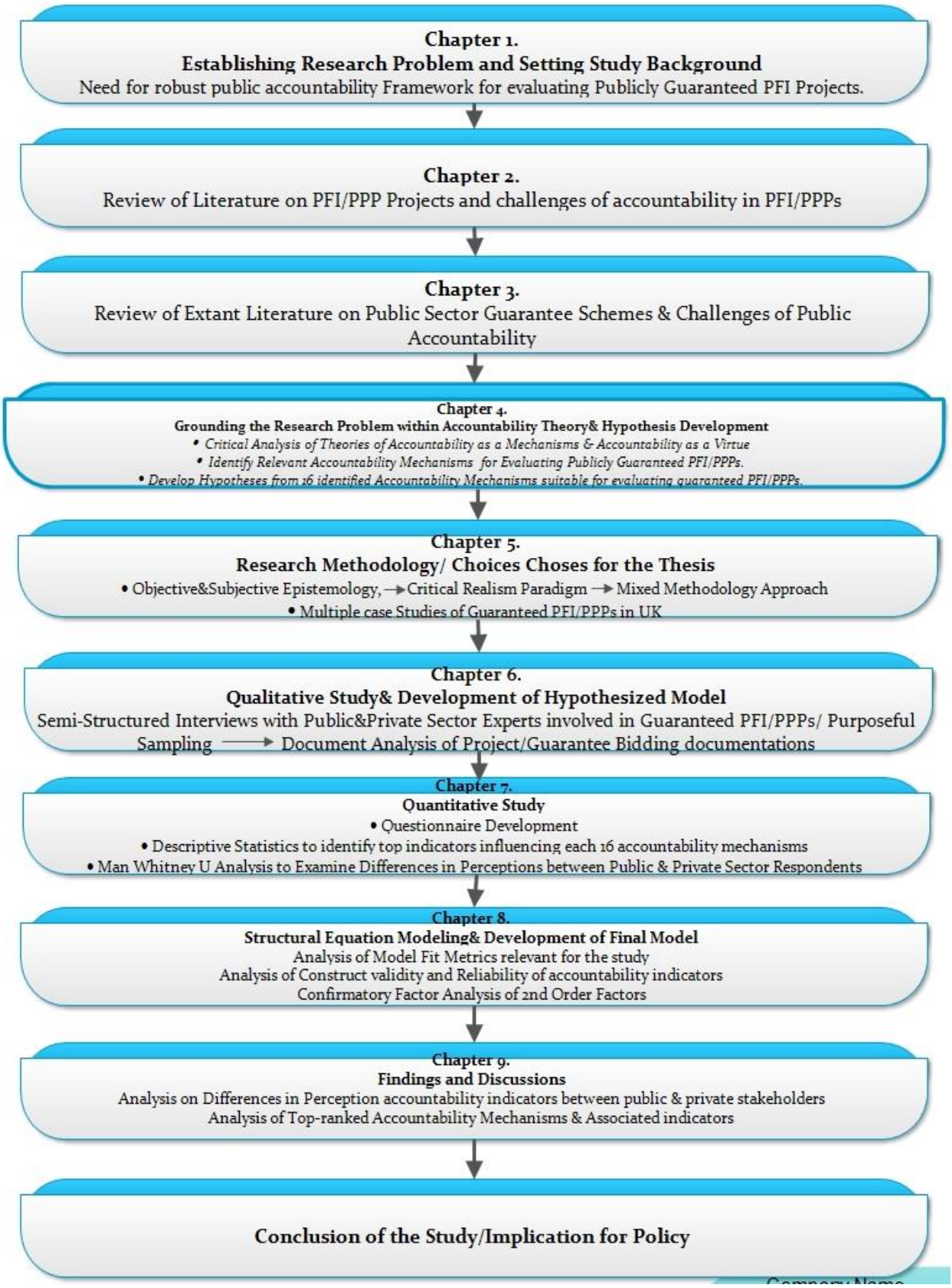

Fig 1.2: The structure of the Thesis

1.9 Chapter Summary

This chapter explored contemporary issues relating to accountability in PFI/PPP infrastructure procurement and government guarantees in the UK. Global economic realities of the last two decades, coupled rising national debt amid growing infrastructure demands have led the UK government to adopt Private Finance Initiatives (PFI) for infrastructure delivery. However, while performance of so called privately procured public projects has recorded mixed results; concerns have been raised about public accountability in such transactions. This is especially as government now uses public sector guarantees to encourage the participation of private investors in such financial huge projects. To that extent, the central theme in this chapter focused on how accountability can be strengthened in the handling and management of government guarantees to PPPs. A major gap in knowledge identified is the paucity of research into key accountability mechanisms necessary for ensuring the protection of public interest in guaranteed projects against abuse, while achieving policy objectives. This chapter therefore sets the motion for the gaps in knowledge as well as justification for the study with a major focus on exploring concepts from accountability theory, to investigate the phenomenon.

Chapter Two: Project Finance, Public Private Partnerships (PPP) and Private Finance Initiatives (PFI) and Accountability Questions

2.0 Chapter Overview

Chapter two aims to set a solid foundation for the study by commencing with section 2.1 which provides overview of history and principles underpinning project finance. Section 2.2 examines Project Finance technique and compares it to other forms of financing approach (corporate finance, asset finance and forfeiture finance model), including the various sectors in which project finance method is being used. Section 2.3 explores the features of project finance and its global application. Section 2.4 extensively examines the "Public Private Partnership" (PPP) procurement model and the emergence of Private Finance Initiative (PFI) in the United Kingdom. Section 2.6 examines accountability issues in PFI/PPPs. Section 2.7 Focuses on Public Sector Guarantees, while section 2.8 examines the recent UK Guarantee Scheme for Infrastructures (UKGSI).

2.1 History and Concepts Underpinning Project Finance

There have been several attempts by researchers across the literature to develop a universal definition for Project Finance, with many studies attempting to underpin the definitions around the core issues in project finance. However, in a recent study by Yescombe (2013, P.7); a consensus definition of Project Finance was presented by the Organization for Economic Cooperation and Development (OECD) as:

> *" The financing of a particular economic unit in which a lender is satisfied to consider the cash flows and earnings of that economic unit as the source of funds*

from which a loan will be repaid and to the assets of the of the economic unit as a collateral for the loan"

Kayser (2013) and Slivker (2011) also described project finance as a financing methodology, used for raising capital on a non-recourse or limited-recourse basis, towards funding an economically-independent capital project, where the financing decision is based on project's ability to make debt repayments and reward capital invested, at a margin commensurable with the amount of risk inherent in the project being executed. In another in-depth study on drivers of economic growth in emerging nations, Kleimeier and Versteeg (2010) also viewed project finance as a unique financial instrument that results in more economic development, improved investment, administration, and governance. Nevertheless, for the purpose of this study, efforts have been made to evolve a more comprehensive definition for project finance as:

"a financing technique whereby large capital projects are executed through a newly formed, legally independent project company, also referred to as a special purpose vehicle, which is funded by a mixture of equity (shares or mezzanine debt) injected by private investors, coupled with a non-recourse or limited recourse debt raised by syndicate of lenders, under an arrangement where the debt is primarily repaid to the lender, from the forecasted cash flows generated from the project with the project assets serving as collateral".

(Hoffman, 2008. pp.4; Mills, 2010; Grimsey and Lewis, 2002; Gatti, 2008; Comer, 1996; Visconti, 2013, Zhang, 2005).

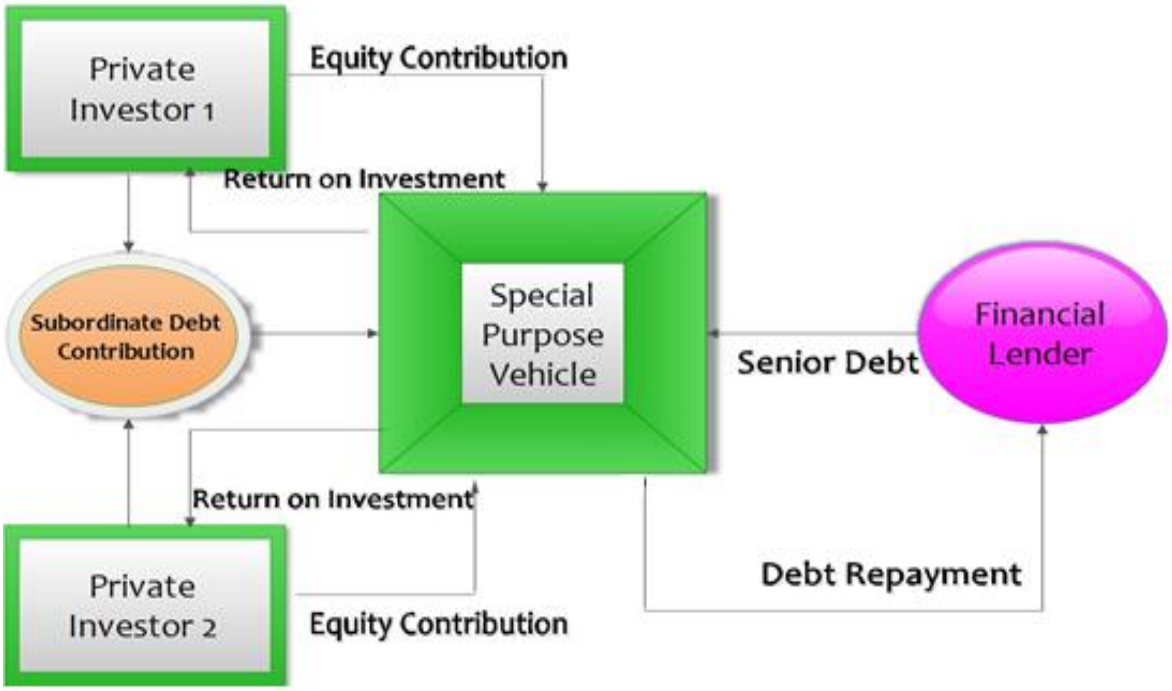

Figure 2.1: Simple demonstration of project finance arrangement

In the last two decades, project finance has become the preferred mechanism for financing high-risk, large-scale infrastructure projects (Visconti, 2013; Demirag *et al.*, 2011). Project finance is often applied, where the capital investments required and risk involved in projects far surpass the capacity of a single company, or even any consortium of firms (Kleimeier and Megginson, 2001; Delmon, 2011). This infrastructure finance method has attained much global relevance especially at the wake of the recent global financial crisis of 2007/2008 (Demirag *et al.*, 2011; Meng and McKevitt, 2011; Gardner and Wright, 2011). Typically, the average maturity of a project finance contract is in the range of 25-30years (Oyedele, 2013; Kleimeier and Megginson, 2001). According to Malini (1997) and Gatti (2008), the application of project finance technique allows private investors to finance new commercial ventures without incurring additional debts on existing balance sheet of the firms, since the new ventures exist as a separate entity (See Fig. 2.1 for Simple Demonstration of Project Finance Arrangement).

However, despite the wide acceptability given to project finance, it is not a new financing approach. According to Comer (1996) and Finnerty (2013), the history of project finance dates back, at least to 1299 AD when the English Royal Crown funded the exploration of the Devon Silver Mines, by reimbursing the Italian Merchants Bank (Frescobaldi) with production from the mines. As opined by Comer, the Italian Bankers were granted a one year mining and lease franchise, which gave them the opportunity to mine as much silver as possible during that year. In another related study, Yescombe (2013) argued that project finance techniques had been used in the 1880s when the French Bank Credit Lyonnais provided finance to the development of the Baku Oil fields in Russia. Additionally, as highlighted by Gardner and wright (2011), Roman and Greek merchants were also suggested to have been traded using the project finance approach to allocate risks inherent in their maritime trade, by repaying loans through the proceeds from their voyage cargoes.

More recently however, the development of the North Sea Oil fields in 1970s (Finnerty, 2013), the construction of the Trans-Alaskan Pipeline in U.S, the Ras Laffan LNG project in Qatar (Farrell, 2002), Teesside power project in the United Kingdom, the Petrozuata heavy oil project in Venezuela, and several other high profile projects across many sectors of the global economy (See Table 2.1 and Fig. 2.2 below), were made possible using the project finance technique (Kleimeier and Megginson, 2001; Comer, 1996; Farrell, 2002). As a result, global application of project finance has grown dramatically from an annual investment of $12.5 billion (bn) in 1991 to $113.4 (bn.) in 2005 (Kleimeier and Versteeg, 2010). According to Kleimeier and Versteeg (2010), almost 4000 projects have been procured across 113 countries, with total infrastructure project finance investments between 1991 and 2005 in

the range of $1077bn (Kleimeier and Versteeg, 2010), while a record of $375bn project investment was made in year 2012 alone (Yescombe, 2013; Demirag *et al.*, 2011).

Table 2.1: Global Volumes of Project Finance investment by sector (2010)

Sectors	US$	%
Telecommunications	13,382.70	6.43%
Transportation	52,315.40	25.13%
Power	73,300.40	35.21%
Leisure & Property	13,824.20	6.64%
Oil & Gas	25,950.80	12.47%
Petrochemicals	11,306.40	5.43%
Industry	6,306.00	3.03%
Mining	8,857.70	4.25%
Water and Sewerage	1,577.50	0.76%
Water and Recycling	1,266.60	0.61%
Agriculture and Forestry	86.3	0.04%
Global Total	**208,173.90**	**100.00%**

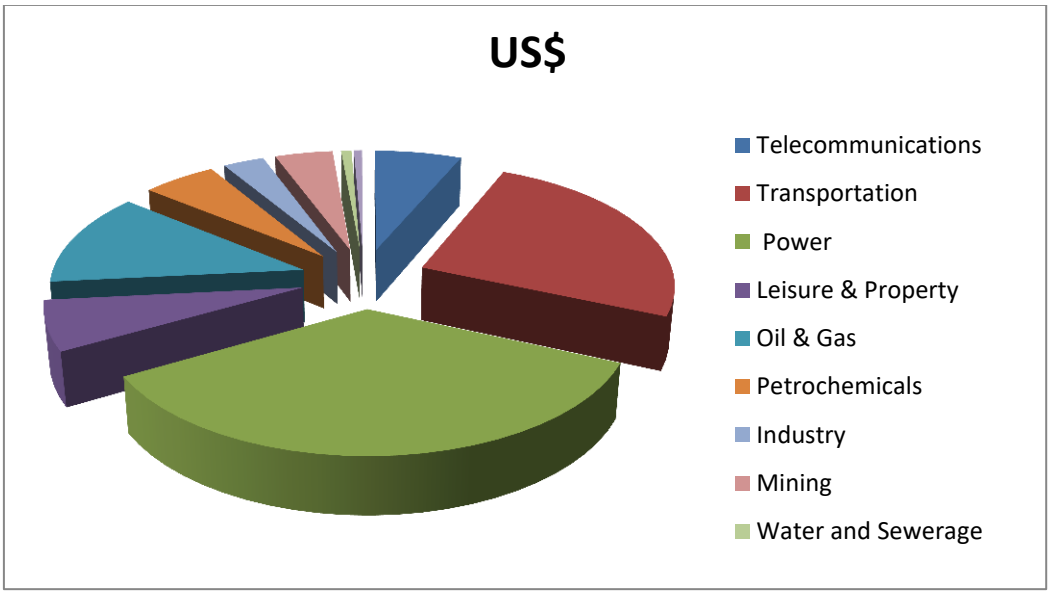

Figure 2.2: Sectorial representation of global project finance market

2.2 Comparing Project Finance with Other Forms of Finance

While, there are different approaches for financing a project, not all approaches are considered as project finance from the perspective of the lender (Mills, 2010). In this regard, this section therefore briefly examines the various existing methods of financing projects, while pinpointing the unique peculiarities of each approach as they differ from project finance.

2.2.1 Corporate Finance

Corporate finance, also known as "Complete Recourse Finance" or "Balance Sheet Finance" (Hoffman, 2008) is a financing approach in which an existing firm raises capital from a lender by means of debt (loan) using its own assets and cash flows as a guarantee (Gatti, 2008; Beaney, 2005). In corporate finance, loans are granted to the investor rather than to a distinct project company (See Fig.2.3 for diagram showing the direction of loan in corporate finance). Hence, a lender has complete recourse to the assets represented on the balance sheet of the borrower in the event that a loan is being defaulted (Gatti, 2008; Mills, 2010; Kleimeier and Megginson, 2001; Slivker, 2011). As such, lender's credit appraisal for corporate loans is carried out by examining the credit and operating history of a business, in order to identify areas of vulnerabilities, weaknesses and strength in the existing firm (Graham and Harvey, 2001; Mills, 2010). In order to grant corporate loan, lenders require some form of guarantee from the borrower, which serves as collateral security towards mitigating default risk (Hoffman, 2008).

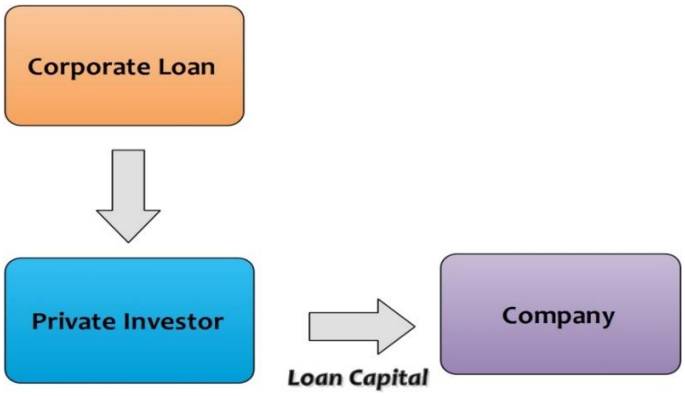

Figure 2.3: Nature of Loan Advances under Corporate Finance.

2.2.2 Project Finance

On the other hand, project finance is an "Off-Balance Sheet" method of financing, which allows private investors to raise loan through a newly formed limited liability company, also known as Special Purpose Vehicle (SPV), in order to finance a mutually exclusive project. In project finance, the project company has no prior operating or credit history (Gatti, 2008). Hence, repayment of debt to lenders is made entirely from expected streams of cash flows generated from the financed project (Comer, 1996; Delmon, 2011; Hoffman, 2008). Lender's appraisal is therefore solely based on the degree of predictability of future cash flows from the project (Chemmanur and John, 1996). As a non-recourse or limited recourse type of financing, lenders have little or no access to the balance sheet of the investor in the event of project failure, since bank loans are given directly to the new SPV, as against the investor (Hoffman, 2008; Kleimeier and Megginson, 2000). Fig. 2.4 depicts the how loans are granted in project finance.

Figure 2.4: Nature of Loan Advances in Project Finance

2.2.3 Asset-Based Finance

Asset-based financing is mainly used for providing structured working capital and term loans to businesses (Finnerty, 2013), where such loans are secured by an asset (i.e. accounts receivable, inventory, machinery, equipment and/or real estate). Here loans are granted directly for the purchase of an asset required for the operations of a business (See Fig. 2.5 for the nature of loan in asset-based finance). Asset-based finance represents a sharp contrast from project finance, in that lender's appraisal centres mainly on the commercial value of the asset to be financed, as against the balance sheet of the firm (Blanc-Brude and Strange, 2007; Hoffman, 2008). As a result, in the event of default on loan, lenders have the recourse power to over such asset (Carter and Barrett, 2006).

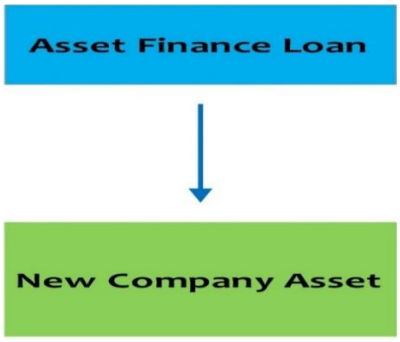

Figure 2.5: Nature of Loan granting in Asset-Based Finance

2.2.4 Forfeiture Model of Finance

Forfeiture model is a method of financing projects in which a private contractor sells a claim of payment arising from the construction of a project for the public authority, to the bank (Daube *et al.*, 2008). The payment claims automatically makes the lender a creditor to the public authority who is now under the obligation to pay for the project's construction cost to the bank by issuing a waiver of objection indicating its' indebtedness to the bank (Loay, 2012). Where the project involves operation and maintenance, the operating charge will be made directly by the public sector to the private contractor. Table 2.2 below examines the similarities and differences in the four methods of financing: corporate finance, project finance, asset-based finance and forfeiture finance model.

Table 2.2: Diagram showing major similarities and difference among the four (4) approaches to finance

Factor	Project Finance	Corporate Finance	Asset Finance	Forfeiture Model
Loan Collateral	Project Cash Flows and Assets	Company and personal assets of the borrower	Company Assets/inventories/Account Receivables	Claim of Payment/Waiver of Objection Certificate
Accounting Treatment	Off-Balance Sheet	On-Balance Sheet	On-Balance Sheet	On-Balance sheet
Capital Structure	Highly Leveraged	Low leverage	Low Leverage	Complete
Nature of Bank Lending	Limited or Non- Recourse	Complete Recourse	Complete Recourse	Non-Recourse
Lenders Appraisal	Cash flow Predictability of project	Operating and Credit history of Borrower	Commercial Value of prospective Assets	Investors credit History and Public Authority's credit rating
Cost of Borrowing	High Cost of Borrowing	Cheaper cost of borrowing	Cheaper than Project finance	Cheaper than project finance
Corporate identity	SPV is separated from the project sponsors	Borrower's identity is same with company	Borrowers identity is same with the company	Borrower is separated from the project

2.3 Project Finance and Its Global Application

Since its emergence into the modern financing arena, project finance has been widely used across many sectors of the global economy (telecoms, Oil and Gas, Energy and Power sectors etc.). Prior to this time, the project finance technique had been majorly applied to financing large capital investments in projects such as on-shore/off-shore oil fields or mining operations with project volumes typically beyond hundreds of millions of US$ (Comer, 1996). However, the early 1990's saw this financing methodology being applied to medium-sized capital projects (Demirag *et al.*, 2008).

According to Shen *et al.* (2006), the introduction of Public Private Partnership (PPP) scheme has resulted in wider application of project finance strategy. PPP model reflects the underlying principles of project finance in terms of financing and contractual arrangements (Delmon, 2011). Table 2.3 below highlights some of the sectors in which project finance technique has been used to facilitate investments.

Table 2.3: Common Sectors where the application of Project Finance has been more prolific in recent time

Oil and Gas	Telecommunications	Infrastructures via PPP/PFI	Power & Energy	Other Sectors
▪ **Exploration and development of oil fields,** ▪ **pipelines,** ▪ **Liquefied Natural Gas export and import plants,** ▪ **petrochemicals,** ▪ **Pipelines etc.**	▪ Satellite Networks ▪ Fibre upgrades ▪ wireless / mobile, wire-line projects, ▪ Cloud computing Infrastructures. ▪ Telepresence Infrastructures	PFI/PPP Concessions: (User pays or Public sector pays) ▪ Toll Roads ▪ Hospitals ▪ Schools ▪ Prisons ▪ Malls ▪ Water ▪ Waste and Sewage facilities ▪ Football stadium ▪ Ports ▪ Airports	▪ power generation (PPAs) & transmissions, ▪ Sustainable Energy: ➢ Wind Farms ➢ Photovoltaics ➢ Solar energy ➢ Hydro Power projects	▪ Leisure & Property ▪ Water & Sewerage ▪ Waste & Recycling ▪ Agriculture & Forestry

2.4 Important Principles of Project Finance

2.4.1 Non-Recourse Financing

In non-recourse financing, the lender solely relies on the project cash flows as the means of debt repayment (Dew, 2005). Therefore, lender's access to the project sponsor(s) is limited to the amount of equity contributed by the sponsor(s). As such, where the project cash flows become insufficient to fulfil debt repayment obligations, lenders have no legal powers to convert the assets of the sponsor. In the same view, the project sponsor has no legal obligation to make payments for the debt or accrued interest on the project (Hoffman, 2008; Delmon, 2011; Kleimeier and Megginson, 2001). The underlying assumption behind non-recourse financing is that project sponsors transfer all risk inherent in a project, to the lenders who then charges a very high interest on loan to cover for returns on investment as well as the risk assumed on the project (Mills, 2010; Delmon, 2009).

2.4.2 Limited Recourse Financing

Project finance has mostly been referred to as 'Limited Recourse Finance' and this is because there is hardly any financing that is entirely non-recourse (Hoffman, 2008). Limited Recourse lending is founded on the argument that, well-structured project financing requires careful analysis of inherent project risks, with every party to the project assuming certain risk, which it has control over (Grimsey and Lewis, 2002). In this regard, the lender may still have certain limited recourse to the sponsor, most likely to the extent of the sponsors' equity contribution and in some cases, as may be agreed upon between the lender and sponsor during the pre-funding negotiation.

2.4.3 Off-Balance Sheet Financing

According to Shah and Thakor (1987) and Delmon (2011), in project finance arrangements, the project sponsor (borrower) is able to finance new capital investments off the balance sheet of the existing company. As such, debts and liabilities arising from the new project do not impact on the leverage structure of the existing company, but rather increases the debt capacity of the sponsor (Chemmanur and John, 1996). Off Balance sheet financing allows the possibilities of bypassing the debt constraints imposed by accounting rules on existing balance sheets of companies (Broadbent and Laughlin, 1999).

2.4.4 Risk Sharing and Transferability

One of the major attractions in project finance is the equitable distribution of project risks among various stakeholders involved in the project, including the lender (Daube *et al*., 2008). As highlighted by the HM Treasury (2007a) and other studies such as Hoffman (2008), Thomas *et al.* (2006), Yescombe (2007) and Zhang (2005), project finance allows project risks to be contractually transferred or allocated among stakeholders under the principle of allocating risks to the party that best manages and controls such risk. According to Hoffman (2008), risk allocation or diversification engenders successful delivery of projects since each party has a stake and some roles to play towards the development of the project. Although there is an economic cost (premium) for transferring risks to parties in project finance, but sponsors are usually willing to accept such costs as long as it is reasonable (Klein, 1997; Wibowo and Kochendörfer, 2005).

2.4.5 High Leverage Capital Structure

The capital structure of a project company in typical project finance contracts is a mixture of debt and equity. However, unlike in corporate finance, the amount of equity capital or subordinate loan, which is usually contributed by a private investor is quite less (in the range of about 10% -

30% of a project's construction cost), while lenders (banks) provide the largest share, known as senior debt, up to the tune of 70% - 90% (Yescombe, 2013; Shah and Thakor, 1987; Brealey *et al.*, 1996). According to Hoffman (2008), the ratio of debt to equity in project finance is not static and often varies among projects. There are instances where the project lender may not be convinced of the credit risk of the sponsor or the predictability of the projected cash flows (Mills, 2010). Such situations will often influence the Debt Equity Ratio accepted by the financier (Grimsey and Lewis, 2002).

2.5 Public Private Partnerships (PPP) and Private Finance Initiatives (PFI)

The most common form of project finance in recent years is the Public Private Partnership (PPP) scheme (Gardner and Wright, 2011). According to Ng *et al*. (2012), a number of partnership and collaborative programmes between Governments and the private sector had existed since around 1970s. However, the emergence of the UK version of PPP known as Private Finance Initiative (PFI), in November, 1992 led to the global proliferation of project finance, and had since become the model application of project finance technique (Oyedele, 2013, Demirag *et al.*, 2011).

Public Private Partnership is defined as:

> *"A long term contractual relationship between parties in the public sector and the private sector for the purpose of providing public infrastructures such as roads, rail networks, Hospitals, schools etc." (Delmon, 2011. p.2).*

Yescombe (2007) also referred to PPP as a private sector investments in public utilities, which involves long-term provisioning of service by the private sector, and the management of risks inherent in projects. In another related study by Jacob *et al.* (2014), the term Public Private

Partnership was also described as a holistic model which involves planning, construction, funding, operations, and maintenance of public infrastructural projects by private sector parties.

According to Malini (2006) and Liu *et al.* (2014), PPP has become the preferred procurement method for public infrastructures, and has continued to receive global acclaim, against the backdrop of the widening gap between state resources and the immediate demands for infrastructures. In PPP arrangements, the age long traditional method of procurement through budgetary allocations is completely jettisoned by the public sector. The public sector is therefore allowed to bypass budgetary constraints to ensure that finance as well as innovative technologies of the private sector are optimally tapped to deliver large infrastructure facilities such as: Roads, Schools, Hospitals, Prisons etc. (Grimsey and Lewis, 2002; Zhang, 2005).

According to Oyedele (2013), the underlying philosophy in PPP is using the finance and entrepreneurial skills of the private sector to develop facilities through a whole life approach. Whole life approach in PPP involves construction, operations and maintenance of constructed facility throughout the tenure of the contract, which usually ranges from 25-30 years (Demirag *et al.*, 2011; Ng *et al.*, 2012). This approach stems from the assumption in public sector that the private sector is better positioned to transparently deliver quality and timely projects with a better value for money to the taxpayers (Delmon, 2011).

PPP projects are usually very complex, high-risk, long-term commercially driven projects, which require extensive paper work and negotiations (Delmon, 2009). Most PPPs are carried out through a newly formed project company (SPV), which is established for the specific purpose of

executing a particular project, where the project cash flows and assets serves as both collateral and source of debt repayments to the project lenders (Yescombe, 2007). According to Delmon (2011), PPP projects are mostly implemented through Concession Contracts, which represents an explicit agreement of output specifications and performance standards between the Government and the private sector consortium. Other contractual structures in PPP include: Lending Contract, Offtake Contract, Operations and Maintenance Contract, Construction Contract, Input Supply Contract, Lenders direct contracts with Construction and O&M contractors etc. (Delmon, 2011).

A notable assumption in PPP is the transfer of risks inherent in a project from the public sector party to the private sector consortium, who then manages these risks through effective and equitable allocation of risks to the party that best controls such risk (HM treasury, 1997b; Hoffman, 2008). The major parties in PPP arrangements usually include the project company, the public sector as the procuring authority, syndicate of lenders, construction, and facilities management (FM) sub-contractors (See Fig.2.6 for parties involved in PPP contracts). There is also a lifecycle sub-contractor, an insurer, an off-taker and various input suppliers; all bonded by various contractual agreements that requires ensuring successful delivery and operation of the project (Grimsey and Lewis, 2004; Oyedele, 2013).

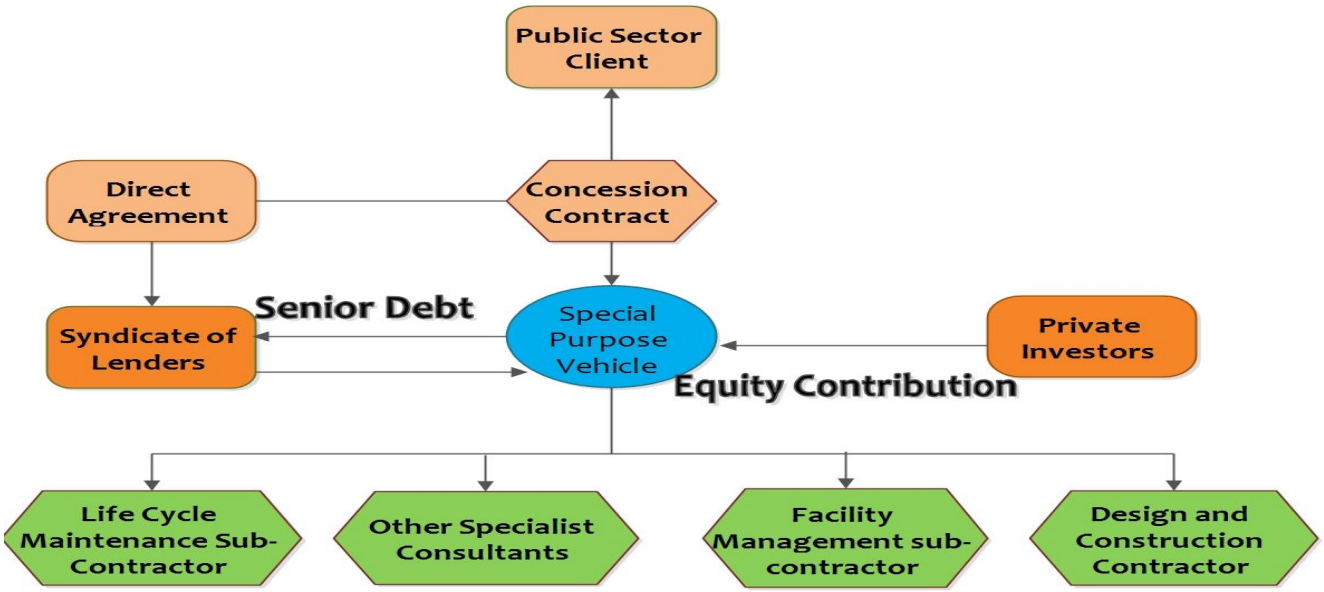

Figure 2.6: Major parties to PFI/PPP arrangement and the complex contractual relationships

Typically in PPPs, the public sector enters into a concession contract with the project company, where the SPV is charged with the responsibility for the design, build, finance and operation (DBFO) of a facility as well as maintaining and servicing it throughout the concession term (Ogunsanmi, 2014). The public sector pays the SPV a "Unitary Charge" at regular intervals (i.e. monthly or quarterly) over the life of the contract (Mills, 2010). However, the unitary charge payment is usually dependent upon the project's achievement of various contractual deliverables stipulated in the concession contract (availability and operation targets).

In most cases, payments of the unitary charge does not commence until after the new facilities have been constructed. This suggests that the procuring authority (government) only makes payment for the service being provided by the private sector (Oyedele, 2013). However, in other instances, the authority may seek to retain responsibility for delivering the main public service, as is common in education or medical services, which often adopt Build and Transfer (BT) PPP procurement model (Grimsey and Lewis, 2004, Hoffman, 2008).

2.6 Procurement Models in PFI/PPP

According to Regan *et al.* (2010) and Delmon (2011), there are various procurement models or structures in PPP. While most of these models involve eventual transfer of projects to the public sector, they all indicate different types of cooperation within the wider range of public-private partnerships. Table 2.4 below presents some of the procurement models in PPP Arrangements.

Table 2.4: Procurement Models in PFI/PPP.

Models	**Full Meaning**
BOO	Build-Own-Operate
BOOT	Build-Own-Operate-Transfer
DMO	Design-Manage-Operate
DBF	Design-Build-Finance
BOT	Build-Own-Transfer
DCMF	Design-Construct-Manage-Finance
DBFO	Design Build Finance Operate
DFBOT	Design Finance Build Operate Transfer
DFO	Design Finance Operate
BOOM	Build Own Operate Maintain
LDO	Lease Develop Operate

Source: (Mishrah and Muhanty, 2010; Delmon, 2011, Zhang, 2005)

Rather than using these structures to differentiate PPPs from one another, its' accepted to consider them as representing diverse forms of cooperation that may be used or combined for delivering projects. Some of the most common of these PPP structures are the BOT, BOOT, DBFO and DBF (Yescombe, 2011). These structures are briefly described below.

2.6.1 Build Operate Transfer (BOT)

This form of public private partnership involves a contractual arrangement in which the public sector engages the private sector to build and operate a facility over a specified duration of time usually between 10-25years (Oyedele, 2013). As such, responsibilities of designing and construction are combined with the operations and maintenance of the facility (Carbonara *et al.*, 2014). Under a BOT arrangement, the private sector eventually transfers the project facility to the public sector at the expiration of the concession (Dey and Ogunlana, 2004). Thus, the client takes over the operations and ownership of the project at this stage. The cost of BOT projects often comprise the cost of building the facility and the maintenance cost over the concession life cycle (Delmon, 2011). The maintenance or operation of the projects is however carried out in line with pre-agreed operational and maintenance standards between the client and the project company (Hoffman, 2008).

2.6.2 Build Own Operate Transfer (BOOT)

The BOOT and BOT has similar features and in most cases may be used to refer to similar kinds of PPP arrangements (Yusof and Salami, 2013). However, it is instructive to clarify the concept on "ownership" in this type of PPP structure. The central argument under the BOOT arrangement is that, while the project is being designed, built and operated, the private sector assumes ownership of the project during its concession life (Osei-Kyei and Chan, 2015). As such, every obligations relating to the project and its operations and maintenance during this

period becomes the sole responsibility of the private sector until the project is finally transferred to the client (Boussabaine, 2013).

2.6.3 Design Build Finance and Operate

The most common type of PPP under the UK's PFI arrangement is the Design Build Finance and Operate (Bing *et al,* 2005). According to Robinson and Scott (2009), DBFO is central to the cardinal notions behind government's transfer of infrastructure procurement to the private sector in the UK. The PFI concept centers on the application of private sector finance, expertise and managerial acumen towards the delivery of public infrastructures (Broadbent and Laughlin, 2003). Under DBFO, the private sector is charged with the responsibility to design a project, build, finance and manage the operations of such facility under a robust contract (Javed *et al.*, 2013). Most PFI projects in the UK have been procured under DBFO arrangement including schools, roads, prisons and energy stations across different geographical locations. The essential point under DBFO is that, unlike traditional procurement methods or other forms of PPPs where the government provides or supports with funds for constructing a facility, the financing of facilities under DBFO is entirely through private capital (Oyedele, 2013). Such capital is then recouped by the investors over the 10-30years concession life through various schemes or strategies such as direct tolls, shadow tolls, other forms of user charges, or unitary payments (Boussabaine, 2013).

2.6.4 Design Build Finance (DBF)

Another form of Public Private Partnership is the design, build and finance approach (Delmon, 2011). Under DBF, the private sector is only charged with the responsibility to design, build and finance the procurement of a facility (Dey and Ogunlana, 2004). The operations of such facility is either handled by the public sector directly or contracted out to another body (Boussabaine,

2013). This form of PPP is often used where the operations of a facilities requires certain level of special expertise, or involves services which the government feels more comfortable to run on its own (Ogunsanmi, 2014). Examples of such kind of PPPs can be found within the UK NHS Trusts where hospitals are delivered through private sector funds but operated by the public sector, public schools and rail services among others (Robinson and Scott, 2009). Usually, most of these services are considered public goods and their delivery are not often handed over to the private sector (Robinson and Scott, 2009).

2.7 (PF2) Private Finance 2

Although the UK PFI policy was introduced in 1992 with the aim of harnessing private sector's commercial expertise and management skills for delivering public infrastructure (Bing *et al.*, 2005; Robinson and Scott, 2009), criticisms have since trailed the approach on different fronts (Boussabaine, 2013; Zhou *et al.*, 2013; Panayiotou and Medda, 2014). Apart from the plethora of public outcry regarding its political rationale, analysts, academics and a significant section of the public have questioned the supposed value for money, risk allocation and cost efficiency claims of the PFI method (Heald, 2003; Carrillo et al., 2008; Eaton et al., 2006). Different studies such as Quiggin, (2005) and Hodge and Greeve (2007) have lamented that the PFI procurement process is slow and exorbitant, lacks flexibility and often lopsided in the treatment of risks in projects. Confirming these popular criticisms, the HM Treasury Report on New Approach to PPPs (2012, pp.15) agreed that PFI in some aspects have proved ineffective and resulted in sub-optimal value for money in many projects, while transparency regarding the true cost of future PFI liabilities have become a challenge.

In addressing these shortcomings, the HM Treasury kick started a wave of reviews and reform strategies (Hellowell *et al.,* 2015), but in December 2012 embraced the phasing out of the PFI method (HM Treasury, 2012). A new approach to Public Private Partnerships was introduced under the name PF2 (Private Finance 2) (HM Treasury, 2012). According to the UK Government's infrastructure policy document (HM Treasury, 2012, pp.11), PF2 addresses various concerns under the PFI by redefining issues relating to equity holdings in projects, efficiency, value for money, accelerated project delivery, flexible service provision, and greater transparency among others. Quoting directly from the Treasury Policy Document (2012, pp.11-12):

"*The UK Government has engaged directly with institutional investors, banks, credit rating agencies and the European Investment Bank (EIB) to assess the range of alternative financing options available to support infrastructure delivery and the credit requirements and project characteristics required to meet investor requirements. PF2 will be structured in such a way that it:*

a. *Facilitates access to the capital markets, capitalising on the appetite of institutional investors and of other sources of long-term debt finance. Capital markets, whether public or private, have a deep pool of investors who are attracted to the relatively low risk infrastructure asset class;*
b. *Provides deleveraged capital structures, facilitated by public sector co-investment, combined with better risk allocation and the removal of certain operational risks which are expected to facilitate access to institutional investor capital; and*

c. *Continues to encourage alternative financing sources including loan, guarantee and credit support products provided by commercial banks, the EIB and other financial institutions. To achieve this, the tender process will require bidders to develop a long-term financing solution where bank debt does not provide the majority of the financing requirement. Institutional investment will, therefore, become an important source of finance for PF2".*

Coming from the above perspective, it suffice to say that the private sector will continue to play a major role in UK's infrastructure financing as it proceeds into the future (Martin and Pollard, 2017), with over 64% of future infrastructure investment being targeted to come from the private sector (NAO, 2015). This new drive has therefore seen different infrastructure funding practices and mechanisms being adopted in various places across the UK, with new forms of contracting and funding engagements emerging between the public and private sector parties (Martin and Pollard, 2017).

2.8 Accountability Challenges in PFI/PPP Infrastructure Projects

The challenge of public accountability has become one of the more important of the policy questions raised especially with the increased adoption of PPPs, (see, e.g., Guttman 2000; Sclar 2000). According to Forrer et al., (2010), PPPs alter the dynamics of public accountability by involving private partners in government decision making and program delivery. While governments work to serve the public in capital investment projects, private partners are understandably "focused on recouping [their] investment and on generating a profit" (Buxbaum

and Ortiz 2007, 8). Willems (2014) argued that accountability easily gets lost in the cracks of horizontal and hybrid governance' that is typical in PPPs. A dominant account in the literature on PPPs points exactly to this assumed lack of accountability. According to Skelcher (2010), PPPs raise important issues of governance due to the changed nature of the state when it engages in cooperative activities with private actors'. Hodge (2009) suggest that PPP erodes the principle of ministerial responsibility, which is considered crucial for embedding democratic accountability. As argued by Boussabaine (2013) PFI/PPPs also ensure government accumulates huge future debt in unitary payments on PFI/PPP projects, while placing public expenditure outside the direct control of the state (Gaffey, 2010). Some of these accountability flaws have led Hodge and Greve (2007) to question whether the present method of public expenditure accounting and disclosure can result in proper accountability for public resources and transactions.

In a recent study, Fombard (2012) emphasized how PFI/PPPs blur the lines of accountability, especially with the erosion of direct control of government ministers becoming more evident in such contractual arrangements (Forrer *et al.*, 2010). Also, Siemiatycki (2007) highlighted the raging tensions between public clamor for transparency and private quest for commercial confidentiality in PFI/PPPs. He argued that the establishment of appropriate safeguards was crucial for preventing public interests and policy objectives from being sacrificed for private profit motives in PPPs. According to Li and Akintoye (2003), although responsibilities are shared between public and private actors, the imbalance of responsibilities in PPPs weighs heavily on the public sector. This is because the public sector not only has to contribute to project success by accepting certain residual risks and project monitoring, but also ensure the achievement of overall policy goals designed for the projects (Hodge and Greve, 2011). Coming

from the above perspectives, urgent calls for robust accountability mechanisms for holding both public managers accountability in PPPs have become popular across diverse literature (Clifton and Duffield, 2006; Robinson and Scott, 2009; Hodge and Greve, 2010; de Castro et a., 2016).

2.9 Chapter Summary

Although Project finance dates back to many centuries ago, it is currently becoming the preferred method of financing long-term and high-risk capital projects. This chapter therefore examined the principles underlying project finance as a non-recourse and limited recourse method of financing, its comparison with other methods of financing (Corporate finance, Asset-Based Finance etc.) as well as its applications, especially in Public Private Partnership (PPP) schemes. The chapter also discussed the evolution of Private Finance Initiative (PFI)/Public Private Partnership (PPP) Schemes. Some Procurement models under the PFI/PPP method was also explored. The chapter was wrapped up by shedding light on the newly introduced approach to Public Private Partnership in the UK popularly referred to as PF2.

Chapter Three: Public Sector Guarantee for Infrastructure and Challenges of Accountability.

3.0 Chapter Overview

This chapter explores public sector guarantee scheme from a theoretical perspective by describing its features and the various forms of guarantee that are often used in relation to PFI/PPPs. Given its critical influence as context for this study, the UK Government Guarantee Scheme for Infrastructures is extensively elaborated. Furthermore, the critical issue of accountability in government guarantee schemes is examined from a theoretical perspective. This then followed by a critical review of existing studies on government guarantee scheme and PFI/PPP infrastructures. Other critical topics relevant to accountability in PFI/PPP government guarantee scheme such as transparency, Austerity and Efficiency were also extensively explained.

3.1 Public Sector Guarantee

Generally speaking, guarantee refers to a person's promise to pay the debt of another person's in the event the beneficiary fails to make repayment or to fulfill certain contractual obligation (Gropp and Tonzer, 2016). From the above definition, guarantee (or suretyship) represents a secondary contractual obligation (Ng and Loosemore, 2007; Mouraviev and Kakabadse, 2015). However, the term may also be interpreted from a broader sense, to mean something that assures a specific outcome (Takashima et al., 2010), which may take a legal form of indemnity, or certain undertaking. Within the context of this study, public sector guarantees are contracts under which a sovereign entity ("**Government**") agrees to undertake some or all the cost of a project (Gropp and Tonzer, 2016). Coming from this perspective, government assumes financial obligation in the likely occurrence of specified events in a project (Wibowo *et al.,* 2012). According to Baglioni and Cherubini (2013), guarantee constitutes a contingent liability for which there is uncertainty as to whether the Government may be required to make good her pledge in terms of payments. Government guarantees may come in different forms and could include an indemnity, insurance policy, financial option among other types of contractual pledges.

Generally in practice, governments commonly adopt guarantees when debt providers (e.g. international financial institutions, national, commercial banks, capital markets, and hedging firms etc.) become unwilling to lend to a project company due to various concerns (Allen *et al.,* 2015). These concerns may range from issues relating to the credit risk profile of the project investors, technical consideration that heightens potential for losses, high country risk profile, project viability issues among others (Wibowo et al., 2012). As highlighted by Asenova (2013),

the last one decade has seen government guarantees become a major policy tool for promoting private sector involvement in Public Private Partnership (PPP) projects. Many nations across the world including the United Kingdom, Argentina, Chile, France, Germany etc., have used one form of state guarantee or the other in infrastructure procurements, depending on the various peculiarities within their domain. For instance, France uses a type of state guarantee for PPP known as "cessions", which is a mechanism for securing certain percentage of debt repayments to senior lenders (Bordeleau, 2014). In order to avoid accepting performance related risks in PPP projects, French banks request for cessions from the government, which allows the government to accept the payment of certain amount of repayments under specific conditions, regardless of whatever happens to the project (Bordeleau, 2014). In Germany, a "Forfeiture model" of state guarantee is used, in which government and lenders enter an agreement (Kostka and Fiedler, 2016). This agreement allows public authority to waive its rights to suspend payments of certain components of the unitary charge through which debt repayments are made, in the case of poor or non-performance of a PPP project (Doloi, 2012). In the UK, although various government guarantee schemes have been implemented in the past and across different key areas including businesses loan guarantees, export guarantee, depositors' guarantee among others (Cowling, 2010). However, the July 2011 enacted UK Government Guarantee Scheme for Infrastructure (UKGSI) is seen as the most recent in terms of state aids for infrastructure PPPs (NIP, 2011).

3.1.1 UK Guarantee Scheme for Infrastructure (UKGSI)

Following the aftermath of the last global financial crisis which resulted in drastic reduction in long term private financing for numerous critical infrastructures (Meng and McKevitt, 2011; Hampl et al; 2011; Demirag et al; 2011; Farrell, 2003), the UK Government in 2012, passed into

law the Financial Assistance Act. This act empowered the Treasury Department to provide financial guarantees for critical infrastructure in the UK (Owolabi *et al.,* 2015) and resulted in the introduction of a 4year UK Guarantee Scheme for Infrastructures (UKGSI). The UKGSI was conceived to provide an unconditional government cover for risks as well as other liabilities associated with financing large-scale infrastructures in UK. This HM Treasury's policy was backed by a £40billion cover made accessible to potential investors in UK infrastructures. The scheme was to facilitate successful implementation of the 2011 National Infrastructure Plan (NIP). The NIP, which is a 5-year infrastructure master plan, is coordinated by Infrastructure UK (IUK), a department in the HM Treasury. The NIP highlighted priority sectors for new infrastructural investments within the UK economy. Additionally, the policy had earlier documented about 500 new infrastructure projects within the UK, requiring investments to the tune of £250billion, with two-thirds of such investments to be privately financed using schemes such as the PFI/PPP. See Fig.3.1 below for conceptual framework of the scheme and the focus of the study:

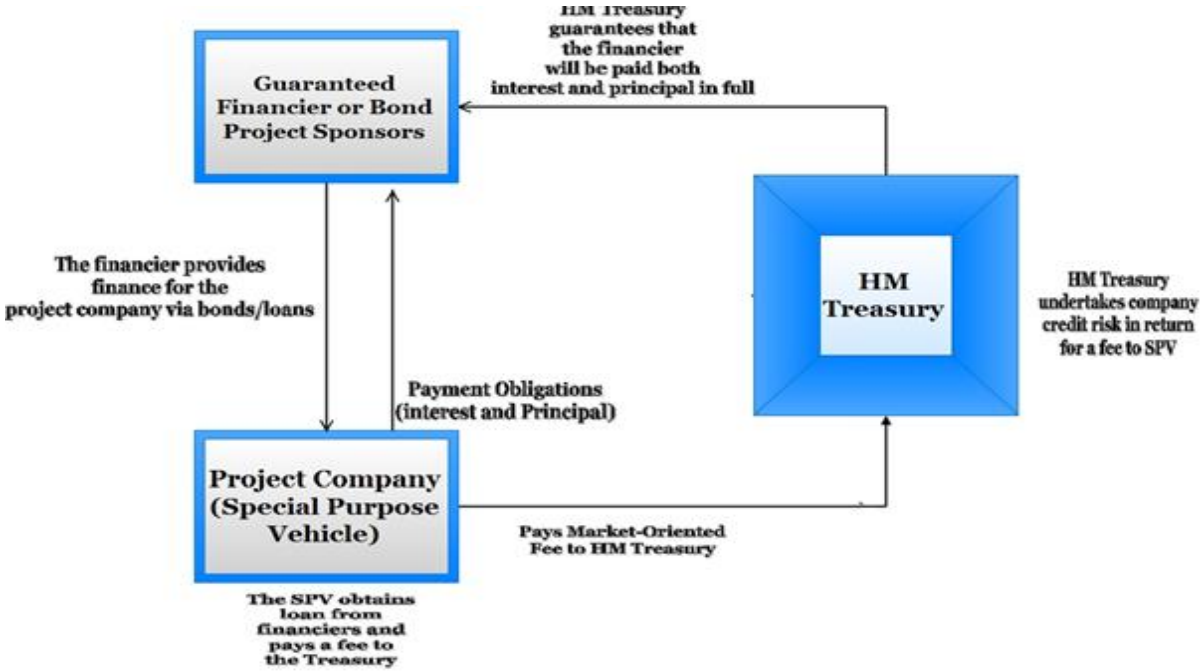

Figure 3.1: Conceptual Framework for UK Guarantee Scheme for Infrastructures

3.1.2 Other Generic Forms of Government Guarantee in PFI/PPP Concessions

Below in Table 3.1 are other forms through which government guarantee may be applied in infrastructure PPPs.

Table 3.1: Various Types of Government Guarantee Common in PFP/PPP Concession

Operations & Construction Guarantee	**GG1. Guarantee to prevent competition**	The host government provides guarantee to the private sector to prevent competition that may affect the project from making income (e.g. where government promises not to construct another project that could compete with the current one in terms of income).
	GG2. Operating Revenue Guarantee	A pledge by the government to the private sector by providing minimum income guarantee relating to minimum investment earnings, minimum purchase price etc.

	GG3. Guarantee for supply of raw materials	Government promises the private sector to guarantee the provision of raw materials needed for construction of project
Financing Guarantee	**GG4**. Loan Guarantee	The government provides the bank with guarantee to repay a part or whole of the loan sum granted to a private sector and pledges that the investor is able to fulfil debt obligations.
	GG5. Standby loan	Government provides standby loan to the project company in case its income drops to a minimum due to certain agreed reasons
	GG6. Guarantee through stock capital	A guarantee by the host government to provide funds as stock capital to the private investor
Legal & Political Guarantee	**GG7.** Legal risk guarantee	Government provides guarantee to the private investors against changes in law that could result in economic loss to the investors and affect the PPP contract.
	GG8. Concession right guarantee	Government promises to ensure reasonable reimbursement to the private sector in the event that the concession was cancelled due to public interest considerations.
Macro-economic environment guarantee	**GG9**. Foreign exchange guarantee	Government guarantees to allow the private investor repatriate the project income into foreign convertible currencies and in the event of exchange rate fluctuation below agreed margins, government guarantees to reimburse the shortfall.
	GG.10 Interest rate guarantee	The government provides guarantee to the private sector against interest rate fall below agreed margins and agree to reimburse the investor in the event of loss due to exchange rate fluctuation. With a letter of comfort, government encourages private investor to invest in a project and assures of her support.

Others	**GG11.** Letter of Comfort	

3.2 Accountability Questions in Government Guarantees

Various studies have explored the significant roles played by government guarantee in the development of PPP projects globally (Burnside et al., 2004; Hemming, 2006; Alonso-Conde et al., 2007; Takashima et al., 2010; Newberry, 2015). According to Atmo and Duffield (2014), the world's most vibrant PPP markets are those where the government sustains and advances projects through incentives such as public guarantees. Many developing economies have been able to fast-track their infrastructure development by offering state guarantees to the private sector (Cowling, 2010; Grande and Visco, 2011; Willems, 2014). For Instance, Canada and Brazil, who are globally considered one of the major PPP markets, have used state guarantee including what is referred to as, "Project viability gap fund" to transform their nation's infrastructure portfolio (Setiawan and Surachman, 2016). Other major economies such as the UK, Singapore, Malaysia and Hong Kong have also launched numerous guarantee schemes at one point or the other. All these were aimed at stimulating the bankability of much needed critical infrastructures via PFI/PPPs (Owolabi et al., 2015), while maintaining government supervisory and regulatory roles (Yang et al., 2013).

However, while government guarantee may not be wrong from a public policy perspective, it has raised serious questions of public accountability (Willems, 2014). These questions range from: "Should the government really assume demand risk in a project? Could government accurately estimate the cost of its guarantee prior to granting approval? If so, does government have enough mechanisms and processes in place to prevent abuse and ensure the achievement of policy goals?

More generally, could government projects have been cheaper if implemented using the direct procurement route, as against PFI/PPP private finance? Or would it have been better to adopt other methods of state support such as subsidy, grants rather than using guarantees (Xu et al., 2014). These questions are ranging and they seat at the epicenter of current policy debates on government guarantee scheme for PPPs.

In a relevant study by Kostka and Fiedler (2016), government guarantee for PFI/PPP is suggested to suffer from fundamental flaws, especially as it theoretically contradicts the basic assumptions of PPP. As argued by Maarse and Jeurissen (2016), the theoretical assumption behind PFI/PPP is premised on private sectors' managerial expertise, finance and capacity to assume and handle project risks that are commensurate with investor returns. Hence, since the private sector traditionally expects a risk-reward relationship in PFI transactions (Walker et al., 2016), it therefore has the duty to ensure projects truly transfers risk away from the public sector (Smyth and Whitfield, 2016). From this perspective, Xu et al., (2014) argued that the adoption of guarantees, at any rate, effectively erodes the private sectors' initiative and risk taking responsibility to successfully deliver projects structured purely on commercial terms. According to De Schepper et al., (2014), contingent liabilities associated with PFI/PPPs are usually contracted on a long term basis and relies heavily on a nation's economic and political scenarios, making it difficult to identify the inherent risks. Hence, De Bruyckere, et al. (2013); Bringselius (2014) and Xu et al., (2014) argued that successful application of guarantee for PPPs requires comprehensive framework and sufficient definition of mechanisms governing its implementation.

3.3 Existing Literature and Knowledge Gaps

Numerous studies have explored the issue of government guarantee and associated fiscal risks, while others have also examined its adoption for PFI/PPP infrastructure projects (De Bruyckere, et al., 2013; De Schepper et al., 2014; Bringselius, 2014; Xu et al., 2014). For instance, Wibowo and Kochendoerfer (2011) explored the selection of BOT/PPP infrastructure projects for government guarantee under conditions of budget and risk. The study used a project selection methodology called the "Chance-Constrained Goal-Programming" (CCGP) framework to select a project portfolio of guaranteed projects that yields maximum gain to the welfare of the economy and lowest fiscal risk to the public sector. The study found that using the CCGP methodology allows government to examine relationships among budget-at-risk allocated for guaranteed projects and expected total payment. However, despite the huge contribution, the study failed to explore the issue of public accountability in the allocation of guarantee to PPP projects. In addition, since the focus of the study was on Indonesia, which is a developing economy, it is therefore unlikely that the findings from the study may be generalizable to developed economies such as the UK.

In another related study, Gropp et al., (2013) examined the impact of public sector guarantee on Banks' Risk-Taking behaviors. Using secondary data from a sample of 452 Savings Banks in Germany between 1996 and 2006 to carry out an experimental study. The study examined the behaviour of banks to risks when guarantee is available and when guarantee is removed. The result showed that Savings banks whose government guarantee was removed tend to mitigate credit risk by declining credit lines to the riskiest borrowers. Banks also adjust their liabilities away from debt instruments with high risk profile. Although this study helps confirm previous

studies on many issues that are central to the criticisms of PPP financing under guarantees (Glaister, 1999; Ahadzi and Bowles, 2004); the study only focused on lenders risk attitude and failed to recognize public sector concerns on accountability.

In another recent study by Newberry (2015) on public sector reforms and sovereign debt management, accruals-based appropriations by government and outcome-based strategy statements were identified to weaken legislative control on the executive arm of government regarding the management of sovereign debt. Using thematic cum discourse analysis, the study examined patterns from strategic government statements published in New Zealand between 2002 and 2014. Newberry argued that governments' strategic planning and statements offer little in terms of accountability especially in relation to managing sovereign debt. Despite the contribution of his study, the principal focus was on New Zealand government and failed to unpack the critical components of sovereign debt, one of which is government guarantees.

Furthermore, in another relevant study by Burnside et al., (2004); the role of government guarantee in banking-currency crisis and composition of banks' assets and liability was explored. With the aid of a simple-equilibrium model, the study demonstrated how banks willingly expose themselves to exchange rate risk when borrowing foreign currencies. This, it argued leads to a "Twin Risk", in which the availability of government guarantee influence's banks' appetite for foreign currency risk exposure and agents' self-fulfilling beliefs that fixed exchange rate will collapse. The study argued that as banks' default on their foreign currency borrowing and file for bankruptcy when devaluation occurs, contingent liabilities turn to actual liabilities for government. Despite its huge significance, the fundamental flaw remains that the study's

government guarantee impact evaluation did not explore accountability impacts of government guarantee and lenders behavior, especially as it relates to privately financed public projects.

Finally, Xu et al., (2014) carried out a study to determine the appropriate government guarantee for concession projects using a sample of Chinese PPP projects. Using content analysis, the performance of 10 guaranteed PPP projects were compared relative to the amount of guarantee provided by the government. Findings from the study suggested many instances of government issuing guarantee to undeserving projects while excessive guarantee was noted to result in high performance cost for government. This was identified a clog preventing smooth implementation of concession agreement (Xu et al., 2014). Although the study contributed significantly to the literature by calling for more understanding on risk sharing between public and private sectors, the sampled PPP projects reflects only Chinese features and contexts (see Xu et al., 2014, pp366). The study also offered no perspectives on what structures or processes may be needed to achieve better understanding of risk, while it completely ignored accountability issues relating to government guarantee in PFI/PPPs.

Although other studies such as Tiong (1995); Zou et al., (2008); Kwak et al., (2009) also examined government guarantee for PPP concession contracts, however, most of these studies have neglected the core accountability questions raised by the adoption of public guarantees for PPPs. In addition, existing studies on government guarantee have only been examined within the context of other economies such as Germany, China, New Zealand among other (Xu et al., 2014). Currently, there is a dearth of academic literature on government guarantee within the context of the United Kingdom, especially as it examines public accountability issues in PFI/PPP

projects. This therefore represents a huge gap in knowledge, precipitating the necessity of the current study.

3.4 Austerity and Implication for Government Guarantee

Practitioners and researchers alike have tried to examine the complex issues that resulted in the last global financial crisis, which provoked broad adoption of austerity reforms among Eurozone governments (Andon, 2012; Blyth, 2013; Krugman, 2013; Bracci et al., 2015). While the goal of this study is not to venture into such issues (Bracci et al., 2015), it is instructive to say that many advanced economies had initially implemented economic stimulus packages, the most popular of which was financial bailouts to banks (Grimshaw and Rubery, 2012). These fiscal stimulous were intended to galvanise economic activity and strengthen consumer's purchasing power, which is necessary for curtailing the recession and restoring economic growth (Laeven and Valencia, 2008). However, by the beginning of 2010, the massive government debt resulting from financial bailouts to banks had plunged many Eurozone economies into serious national debt crisis (Bechtel et al., 2014; Bracci et al., 2015). In the UK, the increasing value of contingent liabilities such as government guarantees, pension's scheme, etc. that is reflected on the public balance sheet and the huge debt in future unitary payments on PFI projects, had piled additional pressure on gross national debt, which stood at £1.387Trillion by the end of 2012. Consequently, the adoption of austerity measures by the European Union at the 2010 G20 summit meeting in Toronto was argued on the need to bring down public debt to sustainable levels (Bracci et al., 2015). According to Bracci et al. (2015), the UK government was at the forefront in calling for immediate uptake of austerity policies and the adoption of fiscal discipline, by introducing far-reaching fiscal reforms within the public service (Peters, 2012).

One of the most important austerity policies (asides privatisation, tax cuts, wage freeze etc.) propagated by the European Union is the "Six-pack" and "Two-pack" Fiscal Compact Treaty (Verdun, 2015). Enacted in December 2011 to strengthen the Stability and Growth Pact (which itself is a Treaty founded on ensuring stability of the Economic and Monetary Union through fiscal surveillance on member states and yearly fiscal recommendations), the "six pack" and "two pack" policy extends the Union's powers to macroeconomic surveillance on the 28 member states (Verdun, 2015). It commits all Eurozone nations, including the UK to a country-specific medium-term objective (MTO) that prescribes strict compliance to deficit within 3% of GDP and public debt not exceeding 60% of GDP (Greer, 2014). Hence, with the adoption of accrual accounting treatment for government guarantee (Milesi-Ferretti and Moriyama, 2006), state aids such as guarantees constitute liability on the public balance sheet, contributing to the national deficit and affecting compliance to the MTO fiscal requirement of the EU. In the overall, with increasing significance of fiscal surveillance through macroeconomic parameters (i.e. debt/GDP ratios, balance budgets, etc.), contingent liabilities like government guarantees have come under immense pressure (Buti and Pench, 2012).

3.5 Transparency and Implication for Government Guarantee

Although it has been used interchangeably with accountability in many studies (Gleeson and Donnabháin, 2009; Shaoul, 2005; Smyth, 2012), transparency in public service focuses on openness and absence of opaqueness in the process of public decision-making (Boven *et al.*, 2014). It also involves reasonability of decisions being made and availability of information about such decisions in the public domain (Boven *et al.*, 2014). Bringing this perspective into PFI/PPP, transparency in the procurement process is considered essential for enhancing value for money (Bing *et al.*, 2005). The transparency notion rests on efficient and open communication

among project parties, precise requirements and decisions, and full information disclosure (Gupta, 2008). As an essential accountability dimension, transparency in the handling of government guarantees is critical to fiscal discipline, which is a major issue for governments under austerity. According to Hemming (2006), Cangiano *et al.* (2006), Junxiong (2007) transparency in valuation and reporting of government guarantees would help protect public finances against fiscal shocks, especially during the period of economic crisis. Wang and Tiong (2000) argued that the recent adoption of accrual accounting methods by many developed nations had provided some clarity regarding accounting treatment for government guarantees. Relly and Sabharwal (2009) and Campbell *et al*. (2009) suggested improving transparency in government guarantees might be further strengthened by incorporating supplementary information about such liability in reports and other budgetary documents.

3.6 Efficiency and Government Guarantee

Efficiency in public service provisioning and procurements is another dimension of accountability that is crucial for achieving government's policy objectives under the infrastructure guarantee scheme (NAO, 2015). The central argument behind efficiency in public service delivery centres on having a slim government, in which decreasing public activity results in cost savings and speed of service (Lapsley, 2008). Promoters of efficiency in public service had hinged this on the need to reverse perceived lack of cost effectiveness and competition, unprofitability, and wastage associated with the public sector (Bovaird, 2004; Coulson, 2008; Järvinen, 2009; Bracci *et al.*, 2015). This accountability criterion has played a crucial role in PFI/PPP procurements in recent times (Humphrey *et al.*, 1993). According to Robinson and Scott (2009), the introduction of penalties, performance bonuses, output specification, and competitive bidding processes among other measures have become major components of new public

procurement policies. However, in government guarantees, efficiency consideration for PFI projects should focus on policy requirements that promote public savings on associated fiscal cost of insuring private investments in infrastructures (Burnside *et al*., 2004). Such requirements may include ensuring competitive process for evaluating and awarding guarantees to only projects that deliver better value with minimal commitment in public resources, among other measures (Ruane, 2010).

Chapter Summary

This chapter explored public sector guarantee in relation to PFI/PPP. To contextualize the study, the chapter also explored UK government guarantee scheme for infrastructure by looking at its various features. Other forms of public sector guarantee often adopted in the case of PPP infrastructures such as revenue guarantee, legal risk guarantee among others were examined. The critical question of accountability as it relates to government guarantee scheme and PFI/PPP projects are also dealt with. The study proceeded to discuss a critical review of existing studies on government guarantee schemes. This is then followed by an exploration of some the critical issues like austerity, efficiency and transparency as they affect government guarantee scheme for infrastructures.

Chapter Four: Theory of Accountability and Hypotheses Development.

4.0 Chapter Overview

This chapter examines the theoretical approach to the study. In this chapter, accountability as a concept is deeply explored especially as it relates to "giving account" in the interest of the public. Since the case of government guaranteed PFI/PPP projects centers on judicious application of public resources, public accountability was examined in relation to accountability mechanisms suitable for evaluating publicly guaranteed PFI/PPP projects in UK. In this sense, the study explored Bovens' "Two concepts of Accountability" as a conceptual basis by examining "Accountability as a virtue" and especially "Accountability as a Mechanism". It is important to note that "Accountability as a Mechanism" is central to this study. As such, various theoretical hypothesis generated from the identified accountability mechanisms were developed for empirical investigation. In summary, Section 3.1 of the chapter examined accountability and some of its conceptual arguments and controversies. Section 3.1.1 explored various dimensions of accountability (i.e. Legal, Managerial, Public accountabilities). Section 3.1.2 of the chapter looked deeply at Public accountability due to its significance to the study. Section 3.2 examined Bovens' Conceptualisation of "two-accountabilities" and specifically focused on Accountability as a Mechanism. Section 3.3 identified various Public accountability mechanisms relevant for evaluation government guaranteed PPP projects. Finally, section 3.4 developed series of theoretical hypothesis from identified mechanisms to be tested for empirical analysis in the study. The chapter ultimately ended with a chapter summary.

4.1 Theory of Accountability and Conceptual Issues

Accountability has been termed an abstract, evocative, and multi-faceted concept (Sinclair 1995; Robinson, 2002, Demirag and Khadaroo, 2011). Sinclair (1995, pp. 219) once described the "chameleon-like" nature of accountability due to its constantly changing dynamics and contexts. Accountability, despite its popularity in political, policy and academic discourses is understood to mean different things for different set of people (Bovens et al., 2008). As defined by Auel (2007, pp. 495), "accountability means being answerable for one's actions to some authority and having to suffer sanctions for those actions". In another study, Bovens (2009, pp.184) also define accountability as "a social relationship in which an actor feels an obligation to explain and to justify his or her conduct to some significant other". Although, these definitions provide valuable insights into its basic structures, in practice however, Willems (2014) believes accountability is more complex and muddled than definitions suggest.

Conceptualising accountability has apparently become an exercise enmeshed in what Bovens et al. (2015, pp.7) described as minimal "conceptual confusion". This is due to the fact that "many authors take different ways" and "address different accountability dilemmas, practices and potential crisis" (Bovens, 2010, pp.947). Roberts and Scapens (1985 pp.447) while exploring accounting and organisational contexts, presented vital elements of accountability namely, - a relationship, an account and an underlying power basis. According to Roberts and Scapens (1985), for any arrangement to be classified as accountability, (1) there must be an evident relationship between the account giver and receiver, (2) an obligation to be performed and upon which an account is demanded including (3) the power of the accountee to demand account. Dubnick (1996, 1998, 2003&2005) in his own studies proposed a framework for conceptualising

accountability based on ethical theory. According to Dubnick (2003), two major perspectives of accountability exist namely: the ethno-methodologist view of "accountability of conduct" (Dubnick, 1998, 2001; Fombad, 2012; Behn, 2002), and the political scientists' legal and institutional framework concerned with the "conduct of accountability" (Dubnick and Justice, 2002). Describing the former as exploring individuals' use of rationalisation and excuses during event of perceived wrongdoing due to feeling of being accountable, Dubnick labels the later as "answerability" (Dubnick, 2014). According to Dubnick (2014), actors, under answerability notion give answers and account on demand concerning obligations, particularly due to the position they occupy (Dubnick, 2014).

However in a separate study, Smyth (2012, pp.231) criticised as misleading, the interpretation of accountability as simply "answerability", a confusion he opines currently "pervades the literature, where accountability is used interchangeably with diverse concepts". In confirming Smyth's perspective, Visoka and Doyle, (2014) differentiates between accountability, responsibility, answerability and responsiveness. Kamuf (2007) also identified this challenge, especially where other concepts like transparency are equated with accountability. While Bovens et al. (2015, pp.4) framed accountability as a relational phenomenon and communicative mechanism of account giving, Smyth (2012, pp. 232) challenged that accountability relationship is meaningless without an essential core that focuses on "reward and sanctions". In addition to these ensuing arguments, various other studies such as Sinclair (1995), Mulgan, (2000), Jantz and Jann (2013), Willems (2014), and Smyth (2017) have also emerged on the changing nature of accountability. Accountability is considered a very fluid concept that adapts to different stakeholder demands, different information expectations and also different nature of "account giving" (Newcomer, 1998; Willems, 2010; Bebbington et al., 2014).

To sum this up, the multiplicity of thoughts on accountability has continued despite concerted efforts at producing a consensual understanding (Bovens, 2010, Schillemans and Busuioc, 2015). According to Dubnick and Justice (2004 pp.7) this "notorious ambiguity", has allowed observers generate different dimensions of accountability that suits their persuasions. Some of these dimensions of accountability include professional accountability, managerial, personal, bureaucratic, political, legal or even public accountabilities - upon which this study is based (Jones, 1977; Sinclair, 1995; Bovens et al., 2008; Christensen and Lægreid, 2015).

4.1.1 Accountability Dimensions

Relevant to this study is the clarification of the question *"what dimension of accountability fits the context of scrutinising publicly guaranteed PFI/PPP projects in the UK"?* This is quite essential, especially since accountability as a concept has now expanded into various contexts and typologies (Forrer et al., 2010; Brenton, 2014; Bovens et al., 2015). As can be seen across different literature, perspectives into accountability vary from providing answers to a forum (Mulgan, 2000) or some element of responsiveness and responsibility (Bovens et al., 2015); to oversight and control (Robinson, 2003); explaining and taking responsibility for one's actions (Bovens, 2007); versus facing consequences for one's actions and inactions (Dubnick, 2003); accounting for the use of public resources (Humphrey *et al.,* 1993), among others. Such evolving nature of accountability has allowed different typologies of accountability to emerge (Roberts and Scapens; 1985; Barberis, 1998; Tan and Kao, 1999; Dubnick 2003; Bovens, 2010; Boven et al., 2015).

According to Bovens et al. (2015), public, outward or horizontal accountability may be described as account giving for the interest of the public, in which information provided by the actor is freely accessible to the public. This could involve account giving to interest groups, clients, affected stakeholders or other stakeholders from the larger society (Luke, 2010; Morallos and Amekudzi, 2008). Political or upward accountability involves account giving to political forums, including members of parliaments or other political agents (Willems, 2014; Bovens et al., 2015). Robinson (1971) and Luke (2010) refer to managerial accountability as direct or formal way of account giving to superiors at an organisational or ministerial level and involve bureaucratic arrangements and processes. Managerial accountability is often referred to as hierarchical or vertical accountability across diverse literature.

In the same vein, Ashworth (2000), Brandsma and Schillemans (2012) describe administrative accountability as involving account giving to forums such as regulatory and administrative bodies, including courts of audits, inspectorates and commissions. In the case of professional accountability, actors are obliged to comply as members with regulations and standards fixed by professional bodies, government and industry regulators (Luke, 2010; Bovens et al., 2015). In addition, legal accountability involves accountability to forums that include legal bodies, such as judges, courts, magistrates and other prosecutors (Flinders, 2001; Noonan et al., 2009). However, in this study, the principal focus is on public accountability, especially as it affects identifying relevant accountability mechanisms for protecting public interest in PFI/PPP government guaranteed projects in the UK.

4.1.2 Public Accountability

As suggested by Ismail and Azzahra (2014), PFI/PPP changed the dynamics of public accountability particularly with the involvement of private partners in government project delivery. However, with the wide adoption of government guarantee schemes for promoting PPPs globally (Wibowo et al., 2012), concern for the protection of public interests has become even more pertinent (Anginer *et al.,* 2014). Government guaranteed PPP projects is connected with the use of public resources and thus remains a matter for public debates (Yakubu and Anigbogu, 2016). It is therefore conceptually appropriate to examine the research topic within the public dimension of accountability. As analysed by Bovens et al. (2015), accountability to the public is essentially an examination of the public character of formal accountability. This concept has long been identified as the foundation for successful public sector management (Forrer et al., 2010). Public accountability focuses on structural, systemic accountability forms for public service provisioning (Bovens et al., 2015). According to Allen et al. (2013), the concept of "publicness" in accountability can be viewed from two perspectives. Firstly, the word "public" epitomises "openness" or "transparency" (Bovens et al., 2015; Hall et al., 2016). In this context, account giving is carried out openly and information are not treated as confidential but freely accessible by members of the public (Hall et al., 2016). The second perspective to "publicness", which is central to this study relates directly to the public sector (Allen et al., 2013; Hall et al, 2016). This perspective of accountability has to do with account giving regarding the exercise of public authority, power, policy, or the application of public resources among others (Klenk, 2015).

Bovens' careful evaluation of scholarly literature and political discourse has revealed the dominance of two conceptual usage of public accountability (Bovens et al., 2015). These are

"Accountability as a Virtue" and "Accountability as a Mechanism" (Bovens et al., 2010; Bovens et al., 2015). According to Bovens et al. (2015, pp.7) accountability has so far been examined by many authors, either *"as a set of behavioural standards for evaluating public actors"* or *"as an institutional relation or mechanism for holding actors accountable"*. Bovens referred to these concepts as accountability patterns and went further to highlight the contexts within which each pattern of accountability may be found or applied.

Coming from the above, since this study looks to identify and explore suitable accountability mechanisms for evaluating PFI/PPP government guaranteed projects, hence, Bovens' conceptualisation of "two accountabilities" form the theoretical core of this study. As such, this research brings under focus, the important role of institutional mechanisms for holding public agents accountable within the context of government guarantee scheme for PFI/PPPs in the UK. The study argues that there is an important nexus between institutional mechanisms and the notion of accountability. This nexus apparently requires adequate strengthening in recent times, especially given the increasingly blurry lines of accountability in many public-private procurements. Although, the study also carefully explored "accountability as a personal virtue" (Friedrich, 1940; Gallie, 1962; Bovens, 2010), its central focus lies in the significance of "accountability mechanisms" and their efficacy for strengthening public sector accountability in government guaranteed PFI/PPP projects.

4.2 Bovens' Conceptualisation: "Accountability as Virtue" and "Accountability as a Mechanism"

Bovens' theoretical concepts of "two-accountabilities" has become an essential branch of literature on public accountability (Bovens, 2010, pp. 946; Goodyear, 2015; Bovens et al., 2015). This conceptualisations quite opened up new frontiers for empirical investigation by differentiating between "Accountability as a virtue" and "Accountability as a mechanism". In this regard, the study contributes to existing literature by developing hypothetical propositions from key accountability mechanisms, while testing their empirical validity and suitability within the context of the UK government guaranteed PFI/PPP projects.

4.2.1 Accountability as a Virtue

According to Bovens (2007), "accountability as a virtue" describes accountability as a desirable attribute of states, institutions, firms and individuals. Bovens (2010) referred to this pattern of accountability as a normative concept, which focuses on the actual behaviour and performance of public actors (public officials, government, institutions etc.). Accountability here centres on the existence of certain behavioural standards upon which performance and compliance of public managers are measured (Luke, 2010; Bovens et al., 2015). For example, accountability has been loosely used as synonyms for normative concepts like "Transparency", "Openness" or "Responsibility", all of which alludes to accountability as a desirable attribute. As suggested by Bovens *et al*. (2015), examining accountability as a personal virtue takes individualistic view towards determining whether a public actor demonstrates the quality of "being accountable". In this context, lack of accountability is mirrored as wrong behaviour, ineffectiveness, poor governance, unresponsiveness, irresponsibility among others (Bovens, 2010). For example,

sayings such as *"public officials need to show that they are accountable and render accountability"* are some of the utterances that explain accountability as a desirable quality.

Although, virtuous accountability is much popular in the American, Canadian and some European academic and political discourse (Bovens, 2010; Romzek, 2015). Interestingly, similar governance approaches can be noticed within the UK public service, especially under the Private Finance Initiatives (PFI) and Public Private Partnerships (PPP) schemes. Albeit, these exist at a minimal level. Nevertheless, issues such as the public outcry against commercial confidentiality in PFI/PPP procurements (Glaister, 1999; Hodge and Greeve, 2007), emphasis on transparent and competitive bidding (Mustafa, 2017), and clamour for increased visibility for government's unitary charge payments and contingent liabilities in PFI/PPP deals (Smyth and Edkins, 2007; Forrer et al., 2010; Harada, 2015), all highlight demands for accountable behaviour from UK public officials (Anderson, 2014; Orchard and Stretton, 2016). As expected, the issue of "Transparency" or "Open disclosure"- which is a popular normative concept - remained at the epicentre of these discourses, as observed from above. Although viewed from the angle of a social mechanism rather than a mere acceptable behaviour, transparency in UK government transactions is considered essential for improving efficiency and trust in the public service (Hodge and Greve, 2009; Eadie et al., 2013; OBR, 2015). According to Pete (2014), increased regulation on information disclosure has had huge impact on the UK public service by entrenching public confidence and encouraging better collaboration and operational performance. König *et al*. (2014) emphasized transparent reporting and disclosure as a huge panacea for minimising various risks associated with public sector transactions.

However, without seeking to diminish the above supposition, it is important to highlight that, the extent to which "accountability from a virtuous behaviour standpoint" is reflective of governance across the UK public sector transactions remains debatable. Highlighting Bovens (2010) and Bovens *et al* (2015), the British usage of accountability is considered narrower, often descriptive and tend to view accountability as a mechanism rather than a desirable quality from a public actor. In this regard, it is fair to say that virtuous approach to accountability (Romzek, 2015) has minimal presence within the British discourse on public accountability as argued by Ferry and Eckersley (2015) and Allen *et al*. (2016). From the perspective of Allen *et al.* (2016), accountability within British academic and public discourse thrives heavily on the existence of institutional arrangements, mechanisms and systems. Hence, a mere focus on accountable behaviour, within the context of this study, would restrict the scope of investigation into the research problem.

In addition to the above, studies such as Bovens (2010, pp.949), Romzek (2015), Christensen and Lægreid (2016) and Pawar *et al.* (2017) have highlighted some conceptual weaknesses in mirroring accountability as a "virtuous behaviour". According to Bovens (2010) and Romzek (2015) this conceptual approach is strongly flawed since there is absence of overwhelming consensus regarding the standards for defining accountable behaviour. As argued by Romzek (2015), standards of accountable behaviour vary in line with roles, context and political perspectives. For instance, Goodyear (2015) identified confidentiality as an ethical demand which falls under the domain of "Responsibility" - an aspect of accountable behaviour. According to Goodyear (2015), public officials' confidentiality responsibilities, on a lot of occasions often clash with government's statutory demands for disclosure. As such, what is

viewed as accountable behaviour may stumble on other forms of accountabilities, thereby creating conflicts and more complexity regarding what accountable behaviour entails.

4.2.2 Accountability as a Mechanism

"Accountability as a mechanism" is a theory describing a relationship or arrangement in which actors may be held to account by another actor or institutions (Kaboolian, 1998; Mulgan, 2003; Philip, 2009; Forrer et al., 2010; Bovens, 2015). Pollit (2003) referred to this concept as a social arrangement involving a commitment to provide justification and clarification for ones' conduct. Under this notion of accountability, the issue of whether a public actor demonstrates accountable behaviour is not as important as the way in which institutional arrangements shape and govern actors' behaviours (Bovens, 2010). As Schillemans and Bovens (2015) puts it, the accountability standpoint here goes beyond the provision of information about performance and conduct, but equally involves the likelihood of debates, questions by forums and answers by the actors including the passing of verdict on the actor's conduct. Thus the concept of holding actors to account using various mechanisms or arrangements i.e. tools, process and systems, is the hallmark of accountability as a mechanism (Bovens, 2010; Bovens *et al*.,, 2015; Schillemans and Bovens, 2015). Expectedly, this perspective of accountability has become very prominent across numerous economic, political and socio-legal transactions in the UK public sector in recent times (Bovens, 2010; Forrer et al., 2010; Salmond, 2014; Bovens et al., 2015). Described as multiple accountabilities, Salmond (2014) and Schillemans and Bovens (2015) noted the emergence of dispersed and complex governance mechanisms in UK public sector management. According to Pollock and Winton, (2016), public administration now thrives on increasing pressure of managing multiple and oftentimes competing accountability demands. Hence, conventional view

of political responsibility and administrative accountability no longer fit the current reality of public management (Bovens and Schillemans, 2011).

Bringing these perspectives to accountability within public sector guarantee for PFI/PPP projects, the need for more accountability mechanisms has become increasingly important. This is very essential due to the huge vulnerabilities of government guarantee schemes to fiscal opportunism and policy abuse (Hix, 2014). According to Hix (2014), the typical lack of rigorous public scrutiny due to its contingent nature, and the rising public debt in unitary payments to many PFI/PPP projects (Krumm, 2016), all make increased accountability necessary within public guarantee schemes. Albeit recent adoption of various fiscal governance and accountability mechanisms within the European Union (EU) has brought state aids (especially guarantees schemes) under much spotlight (Bracci *et al.,* 2015). However, the dearth of academic literature examining broad-based accountability mechanisms and framework for publicly guaranteed PFI/PPP projects, is apparent.

4.3 Accountability Mechanisms in PFI/PPPs and Government Guarantee Scheme

4.3.1 Process-based Accountability Mechanisms

A general review of extant literature on PFI/PPP and government guarantee have revealed different important mechanisms for ensuring public accountability. Relying on the works of Brennan and Solomon (2008), and Bovens *et al.* (2015) some of these mechanisms may be put in two broad categories namely, process-based accountability mechanisms and outcome-based accountability mechanisms. According to Tetlock and Mellers (2011b), most accountability mechanisms are evolving process-outcome hybrids that lean towards either side, depending on

the context or task. Patil *et al.* (2014) while examining "Process vs. Outcome Accountability", suggested process-based accountability mechanisms focus on the procedures or methods through which accountability is ensured across public transactions. Theorists of process accountability argue that realisation of desired outcomes may not be as important as efforts and systems that are put in place to arrive at informed judgements (Simonson and Staw, 1992; Lerner and Tetlock, 1999; Langhe *et al.,* 2011; Patil *et al.,* 2014). Hence, accountability concerns should be to strengthen processes or systems through which decisions are reached (Patil *et al.,* 2014). In this sense, mechanisms in PFI such as competitive bidding (Broadbent and Laughlin, 2003), monitoring (Robinson and Scott, 2009), benchmarking (Eadie *et al.,* 2013) and public sector comparator (Smyth and Edkins, 2007; Boussabaine, 2013) tend to reflect themselves as process-oriented tools focusing on improving governance in PFI/PPPs. Robinson and Scott (2009), Smyth and Whitfield (2016) and Santandrea *et al.* (2016) also identified audits and internal control as process driven mechanisms common in the UK public sector and have been used by public managers for embedding best practices and accountability in PFI over time.

4.3.2 Outcome-based Accountability Mechanisms

Outcome-based accountability or accountability based on the realisation of stipulated goals have also received increased attention within the literature (Lerner and Tetlock, 1999; Schalock, 2001; Carnoy and Loeb, 2002; Bovens *et al.,* 2015). Although, this accountability standpoint is often based on different contexts, more managers in the UK public service in recent times are having their performances evaluated based on the achievement of certain policy goals or outcomes (Bracci et al., 2015). As such, outcome-based accountability mechanisms in UK public procurement may include value for money (Heald, 2003, Akintoye et al., 2003; Demirag and Khadaroo, 2010), budgetary visibility or reporting (Smith, 1993; Nisar, 2007), service

quality/output specification (Akintoye et al., 2003), environmental sustainability (Deegan and Rankin, 1996), risk management (Clifton and Duffield, 2006; Robinson and Scott, 2009), collaborative partnership (Forrer *et al.*, 2010) among others. These accountability mechanisms have all become prominent performance mechanisms for bringing accountability into PFI/PPP procurement.

4.3.3 Ethics-based Accountability Mechanisms

In addition, existing literatures within accounting, legal, political, and public administration fields have also examined diverse accountability mechanisms outside the context of PFI/PPP and public sector guarantees. For instance, Bersoff and Miller (1993), Luke (2010), Fombad (2013) explorations of ethics and accountability provided valuable insights into issues such as public trusts, responsibility and moral accountability mechanisms. Theorists described ethical accountability as a concept that focuses on the actors' moral conscience and the feeling of being responsible or accountable (Finlay, 1996; Zadek, 1998; Shearer, 2002; Banks, 2004; Frederickson and Ghere, 2013). In public administration, ethical mechanisms of accountability emphasizes institutional systems for curtailing indiscretions among public actors and holding them accountable to certain moral standards (Mulgan, 2000). As such, popular mechanisms such as whistle-blower-policy (Hodge and Greve, 2007; Bovens et al., 2015), and anti-corruption (Gendron *et al.*, 2001; Meagher, 2005) have been very important for imposing high moral responsibilities on public managers.

4.3.4 Democratic Accountability Mechanisms

There is also fairly widespread consensus that well-developed institutions are essential constituents of democratic accountability, and a lack of effective accountability processes and

arrangements weakens democracy (Olsen, 2013). Institutions in this context are portrayed as mechanisms for oversight, control and compliance. Public actors are presumed to be more likely to act in the interest of the public when they are accountable to the governed (Bovens *et al.*, 2015). Democratic accountability mechanisms therefore play huge role in holding public managers accountable to the people within a democratic system (Bertelli and Sinclair, 2016). To this end, Bovens *et al*. (2008), Luke (2010) and Bovens *et al.* (2015) identified three mechanisms relevant for holding public office holders accountable within democratic systems, which include rule of law, parliamentary scrutiny and stakeholder engagement. In another related studies Ranson (2003) and Ashworth (2000) identified social and political impact assessment as another key mechanism for ensuring that actors take into cognizance the interest of the larger society, especially in terms of impact of public policy (see Table 4.1 below for accountability mechanisms).

Table 4.1: Accountability Mechanisms identified for Evaluating Government Guarantee Schemes for PFI/PPPs

	Outcome-Based mechanisms	**Literature Sources**		**Ethics-based Mechanisms**	**Literature Sources**
1.	Risk Management	Lowry et al. (1998)	1.	Whistle-blower-policy	Hodge & Greve (2007)
2.	Environmental Sustainability	Deegan & Rankin (1996)	2.	Anti-corruption	Meagher (2005)
3.	Collaborative Partnership	Forrer et al. (2010)			
4.	Budgeting (visibility)	Hodge & Greve (2007); Grout			
5.	Value for Money	Demirag and Khadaroo (2010)			
	Democratic Mechanisms	**Literature Sources**		**Process-related Mechanisms**	**Literature Sources**
1.	Social and Political Impact	Forrer et al. (2010)	1.	Competition Bidding	Kaboolian, (1998)
2.	Stakeholder engagement	Brandsma & Schillemans (2012)	2.	Benchmarking	Goddard (2005)
3.	Rule of Law	Afonso *et al*. (2005)	3.	Monitoring	Nisar (2007)
4.	Parliamentary scrutiny	Luke (2010); Morallos &	4.	Audits	Bovens et al. (2010)
			5.	Public Sector Comparator	Bovens et al. (2015)

Based on the above analysis, this study identified eighteen (16) mechanisms. These mechanisms are considered relevant for evaluating accountability in PFI/PPP government guarantee schemes (See Table 4.1 above for Accountability Mechanisms identified for Evaluating Guarantee Schemes for PFI/PPPs). The next section will therefore analyse the significance of each accountability mechanism within the above context by developing hypotheses for the study.

4.4 Hypothesis Development under Outcome-based Accountability mechanisms

This sections explored each of the six (6) outcome-based accountability mechanisms identified from the literature. Being constructs from accountability, each mechanisms were theoretically discussed in order to identify factors contributing to each concepts (Table 4.2 below for accountability mechanisms with associated measures and literature sources). This is in addition to the theoretical framework for the study in Fig 4.1.

4.4.1 Value for money (VFM) and Government Guarantee

Many studies including Heald, (2003), Ball *et al.* (2003), Pollock *et al.* (2007), and Coulson (2008) have described the concept of Value for Money (VFM) as ambiguous and difficult to evaluate in PFI/PPPs. However, assessing for VFM is considered even more essential when considering accountability in government guarantee schemes for PPPs (Chan *et al*., 2010). According to Burnside *et al*. (2004), the use of government guarantee schemes needs to be justified in terms of the public value it brings to taxpayers. Corbacho and Schwartz (2008) also suggested that, unless government obtains value that is equal or greater to the incentives derived by private investors, public guarantee schemes may become a mere generous reward for doing nothing. Defining VFM however has often focused on the critical drivers that defines value in

projects. According to Ameyaw *et al.* (2015), cost or price is often a major determinant of value in PFI/PPP projects. Ameyaw suggested that most PPP clients prefer projects with the least procurement cost as cost efficiency is directly attributed to value. However in a different study, Yescombe (2007) rejected as misleading suggestions that cost may be the main driver of value in PPPs. From Yescombe's perspective other important qualitative value metrics such as service quality, equitable risk transfer (Ball *et al.,* 2003), and whole life costing (Robinson and Scott, 2009) are very crucial for evaluating VFM. This position aligned with a report by Arthur Andersen and Enterprise LSE (commissioned by Treasury Taskforce 2000), which identified three critical drivers of value for money in PPP as risk transfer, output specification and long term contracts. According to the report, PFI/PPP project performance is a measure of how well projects meet pre-agreed technical and operational standards specified by the concession. Outputs specification may also relate to service quality in which the project contractor is expected to deliver innovative solutions that meets or surpassed client's expectations (Rintamaki *et al.,* 2007; Coulson, 2008). Due to the high risk profile of PPPs (Ball *et al.,* 2003), projects risks must be equitably distributed to parties best capable of managing such risks (Wojewnik-Filipkowska and Trojanowski, 2012), whilst effectively managing the project over the long term period (Chan *et al.,* 2010). Different studies have also suggested that VFM may be justified if associated costs incurred by the project is marginal compared to generated income streams over the project's whole life cycle (Eadie *et al.,* 2013; Ismail, 2013; Atmo and Duffield, 2014) including a competitive bidding process that allows creative and valued added options (Pollock *et al.,* 2002). Based on the above perspectives, this study hypothesise that:

Hypothesis 1 (VFM): *Determining the Value for money in guaranteed projects will contribute positively towards public accountability in PFI/PPP Government Guarantee Scheme.*

4.4.2 Risk Management and Government Guarantee Schemes for PPPs

Risk Management is now considered a critical dimension of accountability and service delivery in public administration (Palermo, 2014). According to the National Audit Office Report on Managing Risks to Improve Public Service (2004, pp.1), the UK government considers effective risk management as a vital tool for curtailing failures in service delivery and improving overall efficiency. In view of this, government has consistently advocated the adoption of risk management strategies and controls across all public sector transactions (Drennan *et al*., 2014). However, despite the seeming importance, many public organisations often neglect the idea of managing risks systematically (Mulgan and Albury, 2003; Diabat and Govindan, 2011). A major reason for this is, whilst some public transactions does not appear to be very risky (.i.e. schools, public transport etc.), once risks are effectively prevented, nothing actually happens (Drennan *et al.,* 2014). Such lack of definable output to prove that risks management has been successful typifies the current accountability issues in government guarantee schemes (De Castro *et al.*, 2016). Albeit, public guarantees pose risks with huge fiscal consequences for governments especially during uncertain economic conditions such as now (Setiawan and Surachman, 2016), most policy formulators appear passive about these risks and have continued to guarantee many PFI/PPPs (Owolabi *et al.*, 2015). In view of this, studies such as Drennan *et al*. (2014) and Correa *et al.* (2014) have suggested further developments of public sector competences in managing contingent risks especially in hybrid relationships like PFI/PPPs. According to Drennan *et al*., (2014) and De Bruyckere (2013), integrating risk management systems into public sector evaluative frameworks will help prevent failures and strengthen public accountability. Boussabaine (2013) also suggested regular risk identification and reporting as a contributing factor for improving public sector risk management capabilities. Proactive

evaluation of past risk events is also suggested to help public organisations spot warning signs and eliminate risks before they get out of control (Drennan *et al.,* 2014). Sparrow (2011, pp.195) in a recent study on "controlling risks and managing compliances" suggested that a strong stance on compliance with regulatory frameworks in public organisations will curtail risk-induced behaviours in public transactions and prevent breach of public trust. Coming from the above perspective, this study therefore developed the two hypothesis below:

Hypothesis 2 (RM): *Effective public sector risk management will strengthen public accountability in PFI/PPP government guarantee scheme.*

4.4.3 Collaborative Partnership

The complex nature of PFI/PPP projects and the long time frames between conception and project completion requires robust management of relationships among parties (Broadbent and Laughlin, 2003; Smyth and Edkins, 2007). According to Zou *et al.* (2014), evidences have shown that most successful PPP arrangements are the ones in which greater collaboration exist between the government and private parties. When PPPs enjoy government guarantee backing, collaboration among project parties becomes even more essential considering the intertwined objectives of government and huge stake on such project (Nugroho, 2014). As suggested by Smyth and Edkins (2007), developing non-adversarial relationships among parties in PFI/PPPs is seen by the government as an effective way to improve project effectiveness. Studies on managing stakeholders in PPPs such as El-Gohary *et al.* (2006), Yang et al. (2011) and Stapel and Schneider (2014), have suggested open and honest communication among project parties as a means of building trust and ensuring better cooperation. Such transparent and honest dialogue is crucial for avoiding the usual incidence of information asymmetries and moral hazards associated with government guarantee schemes (Zou *et al.,* 2014; Shi *et al.,* 2016). Although, all

parties in PPP projects are exposed to one form of risk or the other (Delmon, 2011), however, public guarantee schemes present additional risk to the public sector (Ismail, 2013), which may only be avoided via successful project delivery (Roumboutsos and Pantelias, 2015). In line with this perspective, Jelodar et al. (2016) and Pal et al (2017) suggested that commitment and participation of senior officials among public-private parties on the project is needed to drive the required vision for successful partnership. As such top management efforts will ensure that the relationship being build is not superficial (Pal *et al*., 2017). Hwang (2013) also suggested other factors encouraging collaboration in PPPs such as existence of clearly defined relationship and communication sharing strategy among project parties, commitment of the project delivery team (Torchia *et al.,* 2015;); fair risk allocation among public-private parties (Du et al., 2016), multidisciplinary team to be responsible for handling collaboration with project parties (Noble and Jones, 2006), integrating information systems with all projects parties (Weihe, 2008), and early warning signals for detecting and solving conflicts or crisis (Meng, 2015). In line with the above perspective, this study hypothesised that:

Hypothesis 3 (CP): *Better collaboration between government and private sector parties on publicly guaranteed projects will strengthen accountability in government guarantee scheme to PFI/PPPs.*

4.4.4 Budgetary Reporting of Government Guaranteed PFI/PPPs

Wildavsky (1975) once described budgeting as a rational way of making hundreds of actors agree on thousands of budget lines in a very short period of time. According to Wildavsky (1986), budgeting is an art of transforming monetary resources into human purposes, by connecting projected expenditures to future happenings. Budgeting has been the major vehicle of

fiscal policy in both advanced and developing economies, especially in the past three to four decades (Bhatti and Phaup, 2015). In public administration, it is a tremendous policy tool that has huge ramifications for the smooth functioning of government and the larger society (Rubin, 2016). As argued by Mikesell and Mullins (2011), budgets are used for achieving important fiscal objectives including (1) maintaining fiscal discipline, responsibility, control and fiscal sustainability (2) providing transparent information about public finances and programmes among others. Lately, the issue of reporting government's contingent liabilities (government guarantee etc.) and, future PFI/PPP payments on the budget statements have attracted much debate within the UK public sector (Ma, 2013; Lindwall, 2013; Funke *et al.,* 2013; Kopits, 2014). According to Bergmann (2014), the non-fiscal nature of contingent liabilities creates some form of ambiguity regarding such sensitive financial obligations of government. As such, by reporting government guarantees and other contingent liabilities in the national budget (through accrual accounting method), much needed fiscal clarity is provided the parliament, which ultimately allows better fiscal judgements (Newberry, 2014; Chan and Zhang, 2013). In addition, Funke *et al.* (2013) and Marcel (2014) argued that the critical essence of budgetary reporting of fiscal liabilities is not so much about information disclosure, but the facilitation of oversight and control. Such fiscal vigilance in the application and administration of public guarantee schemes provides a means of ensuring the long term financial well-being of government (Dabbicco, 2013). Based on this background, this study hypothesised that:

Hypothesis 4 (BR): *Reporting government's contingent liabilities in publicly guaranteed PFI/PPPs on national budgets will improve public accountability in government guarantee scheme for PPPs.*

4.4.5 Environmental Sustainability and Government Guaranteed PFI/PPPs

Environmental sustainability is described as responsible preservation of the environment to prevent depletion of natural resources and ensure quality environment in the long term (Bjørn and Hauschild, 2013; Marans, 2015). Hirsh (2014), also referred to sustainability as the adaptation of individual behaviours and organisational policies to the long-term survival of human society. Many perspectives of sustainability abound in the literature, from the strategic management literature - *sustainability as a means to fortify competitive advantages* (Anderson et al., 2010; Nidumolu et al., 2009), to the cultural domain - *the important role of organizational identity* (Albert and Whetten, 1985; Gioia et al., 2013). In addition, environmental management perspective of sustainability focuses on resource efficiency (Carrillo-Hermosilla et al., 2010; Frondel et al., 2008; Potts, 2010). This standpoint emphasises the utilisation of natural resources in a manner that generates lasting benefits to the population of a country, while protecting the environment (Bell and Morse, 2013; Chambers *et al.,* 2014). In the UK, sustainability is a critical policy and regulatory issue, with most aspects of public sector and corporate dealings needing to comply and promote practices that helps preserve the environment and encourage socio-economic transformation (Radnor and Johnston, 2013; Ball *et al.,* 2014). Currently, different sustainability policies and initiatives have gained much relevance such as reduction in carbon emissions (Marans, 2015), energy efficiency in constructed facilities (Potts, 2010), construction and food waste minimisation (Ajayi *et al.,* 2015), Landfill Tax and Climate Change Levy (Akadiri and Fadiya, 2013), Sustainable Business and Sustainable Procurements among others (Walker and Brammer, 2009/2011; Lawrence *et al.,* 2013). Under the UK's sustainable procurement agenda, all public sector procurements are legally required to conform with various sustainability laws and standards of the government (Brammer and Walker, 2011; Meehan and

Bryde, 2011). Amidst all of these, government retains the dual role of being a purchaser, using her purchasing power to promote agendas of socio-environmental justice while also carrying out regulatory functions (Akadiri and Fadiya, 2013). However, from the procurement outlook, the UK's largest public procurement is clearly within the construction sector (NAO, 2001; Hall and Purchase, 2006), with government procuring nearly 40% of the nation's construction activities (NAO, 2001; Eadie *et al*., 2011). It therefore suffice to say that where public projects are delivered including via contracting routes such as the PFI/PPPs, a critical component of public accountability is the evaluation of the project's impacts on sustainable environment (Nisar, 2013). Putting this perspective in the context of PFI/PPP projects, accountability through socio-environmental protection is very important and studies like Hall and Purchase (2006), Du Plessis (2007), Zainul Abidin *et al.* (2013), Nawawi *et al*. (2015) and Akadiri and Fadiya, (2013) have identified different sustainability indicators in projects. For instance, Nawawi *et al.* (2015) suggested three indicators of sustainable projects as project's contribution to social participation and inter-racial cohesion, project's contribution to increased utilisation of local materials, and adoption of energy efficient solutions. In another related study Akadiri and Fadiya (2013) and Zainul Abidin et al. (2013) identified project's contribution to reduction in material wastage and compliance with regulatory standards on sustainable construction. Also, prevention of massive changes to landscape (Korkmaz *et al.*, 2010), project's impact of surrounding plant and animals are considered as relevant sustainability considerations during project development (Swarup *et al.,* 2011). Contribution to economic and social prosperity of surrounding communities in terms of impacts of on peoples' lives and business were also suggested to define sustainable project performance (Du Plessis, 2007). Security of project host community (Dangelico and Pujari, 2010) and Contribution towards replenishing non-renewable mineral and energy resources

(Labuschagne et al., 2005) are also identified as indicators of sustainability in project delivery. As such, coming from the above perspective, this study hypothesise that:

Hypothesis 5 (ES): *Ensuring sustainable project delivery will strengthen public accountability in Government Guarantee Scheme for PFI/PPP projects.*

4.5 Hypothesis Development under Ethics-Based Accountability Mechanisms

This sections explored each of the two (2) ethics-based accountability mechanisms identified from the literature. Being constructs from accountability, each mechanisms were theoretically discussed in order to identify factors contributing to each concepts.

4.5.1 Whistle-Blowing and Accountability in PFI/PPP Government Guarantee Schemes

In recent times, whistle blowing has become an important governance mechanism amidst rising cases of corporate scandals in many multinational corporations (Maroun and Atkins, 2014; Alleyne *et al.,* 2013; Henik, 2015). Whistle-blowing is defined as "the disclosure by an organization's member [or former member] of illegal, immoral or illegitimate practices under the control of their employers to persons or organizations that might be able to effect action" (Miceli & Near, 1992:pp15). Whistle blowing could also mean disclosures of matters' of public interest by members of an organisation (Brown, 2013; Department of Business Innovation and Skills, 2015). Within the UK public sector, reports have shown that more employees are passing on information against perceived violations and wrongdoings especially in the Health, social services and banking sectors (Vandekerckhove and Lewis, 2012; Moberly, 2012; Jones and Kelly, 2014). The Government's whistle blowing law (Public Interest Disclosure Act 1998) has

also recently widened offences covered under the Employment Rights Act 1996, to include disclosures relating to personal grievances such as work place bullying, discrimination and harassment (NAO, 2014; Department for Business Innovation and Skills, 2015). However, whilst voluntary disclosure culture has gained acceptance in some sectors (Outterson, 2012; Reader and Gillespie, 2013), much has not been seen within public sector procurements. The UK public procurements especially in PFI/PPPs have remained tainted by criticisms of commercial confidentiality of financing terms including the true fiscal cost of associated government guarantee cover (Koenig-Archibugi and Macdonald, 2013; Jones and Kelly, 2014). Hence, employee-voluntary disclosures have long been canvassed as a necessary mechanism for strengthening accountability in such hybrid contracts (Lambert and Lapsley, 2006; Whitfield, 2007; Spence and Dinan, 2011; Kew and Stredwick, 2016). Different studies have identified key drivers of voluntary disclosure within public sector institutions (Bashir *et al.,* 2011; Brown, 2013; Miceli and Near, 2013; Jones and Kelly, 2014). Jones and Kelly (2014) suggested the existence of effective institutional arrangement to inculcate culture of openness among staff through open meetings. This, according to Jones and Kelly (2014) helps staffs especially new employees to freely express their concerns while also aligning them with organisational culture of openness from inception. Studies such as Bashir *et al.,* (2011) and Ash (2016) also canvassed adequate protection for whistle blowers against institutional witch hunt or ostracism. Protections such as confidentiality of whistle-blower identity and protection of whistle blowers' personal and employment rights will help facilitate transparency and accountability (Ash, 2016). In addition, implementing procedurally correct actions to address reported wrongdoings is suggested to help strengthen openness and compliance (Brown, 2013; Miceli and Near, 2013). Callahan and

Dworkin (1992) also suggested financial incentives for encouraging whistle blowing among public employees. Based on the above analysis, this study developed three hypothesis:

Hypothesis 6 (WB): *Encouraging whistle blowing among employees involved in PFI/PPP government guarantee scheme will have positive impact on public accountability.*

4.5.2 Anti-corruption and Accountability in PFI/PPP Government Guarantee Schemes

One of the biggest concerns in government guarantee schemes is the problem of corruption arising from moral hazards and other vulnerabilities (Rose-Ackerman, 2013). Corruption is described as a fraudulent and unethical conduct by a person or persons seeking to obtain underserved personal advantage in a transaction (Rose-Ackerman, 2013). According to Allen *et al.* (2015), corruption can have debilitating impacts on policy goals under government guarantee schemes and often create rooms for resource leakages and abuse of systems and institutions (Philip and Peter, 2013). From the perspective of Moser *et al*. (2008) and Bringselius (2014), the challenge for government with guarantee schemes is not only about fulfilling targeted objectives but avoiding vulnerabilities that could encourage opportunistic behaviours from beneficiaries and applicants alike. As such, effective management of state guarantees is often a tricky one given government's limited in-house expertise in complex financial structuring (Niehaus and Sukhtankar, 2013). According to Bringselius (2014), guarantee schemes are often replete with reports of different corrupt behaviours like of false or incomplete information declaration (Huang and Wang, 2012), conflict of interest in decision-making, undue political influence, fraud in evaluations (OECD, 2016), dubious documentation (Bringselius, 2014), and sometimes weak due diligence and scrutiny by public officials (Farhi and Tirole, 2012; Rowell and Connelly, 2012). As a result, studies such as Moser *et al.* (2008), Agusman *et al.* (2014), Bringselius (2014), and

OECD (2016) have suggested strong stance against corruption in guarantee schemes while also highlighting different strategies for combatting such menace. According to OECD (2016), clear, adequate and timely information about happenings, processes and rules creates level playing field for businesses and ensure transparency. Investors often require adequate information in order to make business decisions in terms of how government support schemes benefits businesses. Also, Turner (2011) suggested effective internal and external oversight and control as a key mechanism for preventing risk-induced behaviour among public officials and the private sector in state aid arrangements. In another study, Campbell *et al.* (2009) and Niehaus and Sukhtankar (2013), also identified effective sanctions against corrupt practices as an important panacea for curbing corruption in public procurements. According to Campbell *et al.* (2009), sanctions against corruption and similar tendencies helps create deterrence and stimulate compliance among officials and stakeholders. In addition, Agusman *et al.* (2014), suggested more robust due diligence appraisals through extensive information gathering, will ensure better reaction to fraud by public officials. Coming from the above analysis, this study hypothesise that:

Hypothesis 7 (AC): *Prevention of corrupt practices and dishonest behaviours in the handling of PFI/PPP government guarantee scheme will have a positive impact on public accountability.*

4.6 Hypothesis Development under Process-Based Accountability Mechanisms

This sections explored each of the six (6) process-based accountability mechanisms identified from the literature. Being constructs from accountability, each mechanisms were theoretically discussed in order to identify factors contributing to each concepts.

4.6.1 Competition and Accountability in PFI/PPP Government Guarantee Schemes:

Market competition is an essential ingredient of free-market innovations like the PFI/PPPs (Smyth and Edkins, 2007). According to Kappelman *et al.* (2006), competition is described as an instrument of choice that allows the elimination of market inefficiencies by facilitating rivalry among suppliers within an economic system. Gentzkow and Shapiro (2008) suggested that when firms compete to achieve goals such as maximising profits, increasing market share or bigger turnover, innovation and value is brought to the market thereby resulting in efficient allocation of resources and value. In PFI/PPP procurements, the role of market competition has also become pivotal to cost efficiency and value for money considerations (Osei-Kyei and Chan, 2015). Through competitive bidding and tendering processes, public authorities are able to award PFI/PPP concessions to contractors based on different value indicators like least procurement cost, innovation, performance, quality, and equitable risk transfer among project parties (Smyth and Edkins, 2006; Galford and Drapeau, 2004; Robinson and Scott, 2009). However, when PFI/PPP concessions are provided government support via guarantee schemes, accountability gaps become noticeable, especially because competitive bidding is not known with government guarantee approval processes (NAO, 2015). Such flaw, according to the NAO (2015), may result in underserving projects benefiting from government support, irrespective of their unsuitability. As such, studies have suggested the need for a competitive process in choosing guarantee-deserving public projects (NAO, 2015; Whyte, 2015; Owolabi *et al.*, 2015). Such competitive arrangement is believed could help free up UK's infrastructure finance market space for potential investors, and thus enhance efficiency in the guarantee scheme (Georghiou *et al.,* 2014; NAO, 2015). In the light of the above perspective, different drivers of competition in public sector procurement have been suggested (Loader, 2013; Georghiou et al., 2014; Gong and Zhou, 2015;

Osei-Kyei and Chan, 2015). According to Georghiou *et al.* (2014), increasing the number of potential bidders or applicants will stimulate competition in public sector bidding processes. Such atmosphere of competition also require level playing field among participants in order to prevent skewing the process in favour of select few (Gangwar and Raghuram, 2015). These will allow thus encourages investors to compete through innovative and quality solutions that bring better value to the public sector (OECD, 2011). In another study, Botswana (2013) argued that the amount of in-house commercial skills available to the public sector will influence government's ability to create and drive competitive procurement. According to Botswana, government requires sufficient in-house expertise to understand targeted market including its various attributes and trends that may jeopardise the desired competition. Uyarra (2013) and Gong and Zhou (2015) also suggested open and comprehensive bidding parameters as an essential factor for creating an unbiased competitive procurement process. This, as argued by Loader (2013) allows all bidders have access to similar information which helps eliminate unfair advantage. Similarly, while Raisbeck *et al*. (2010) suggested transparent bidding and tendering process, Marty and Voisin, (2008) suggested timely dissemination of information to bidders, and Lember *et al.* (2014) proposed adequate incentives to encourage the supply of innovation from the private sector, . According to Lember, such incentives could catalyse bidder competition since most participants will seek to take advantage of such incentives to drive down their cost. Coming from the above analysis, the study suggested the proposition below:

Hypothesis 8 (CA): *Competitive project selection process under government guarantee scheme for PFI/PPPs will have positive impact on public accountability*.

4.6.2 Bench-Marking and Accountability in PFI/PPP Government Guarantee Schemes:

Over the years, evidences has shown the vast difference in the performance between leading companies and average companies in performing particular activities (Berger and Gattorna, 2001; Rolstadas, 2013). Through benchmarking, leading organisations have experienced significant success in upgrading their organisational capabilities (Boussabaine, 2013). The ambition and drive of organisations and governments to measure best value and performance has heralded the increasing application of various benchmarking techniques (Boussabaine, 2013). Halachmi and Montgomery (2000: p 406) defined benchmarking as "*a systematic process of comparing, measuring and analysing the products, services or processes of an establishment against current best practices of other establishments in order to attain superior performance".* According to Van Dooren *et al*. (2015), benchmarking as an instrument for quality improvement has become prominent in the transformation of public-sector organisations especially under the New Public Management philosophy. In public sector procurements especially under PFI/PPPs, benchmarking remains a critical tool for assisting project stakeholders to identify key indicators and success factors for measuring projects' performance (Boussabaine, 2013). Benchmarking allows the performances of projects at construction and operations stages to be measured against pre-agreed output specifications, which helps deliver quality services to levels desired by clients (Bogetoft, 2013). As an accountability tool, benchmarking can play crucial roles in managing infrastructure projects to be approved or approved for government guarantee schemes. However, the selection of guarantee-deserving projects have over time been done based on contextual factors peculiar to different nations under different circumstances (Feng *et al.,* 2015), as against widely applied global benchmarking best practises for potential projects (Wanhill, 2013; Hamza *et al.,* 2014). According to Karafolas and Woźniak (2014), comprehensive articulation of

historically good practices and processes will help public sector learn from experiences and understand measures that have yielded better outcome over time. Projects can therefore be benchmarked against carefully articulated measures, as a starting point before any complex evaluation (Karafolas and Woźniak, 2014). Mori Junior *et al*., 2016) also suggested that benchmarking techniques require constant improvements in line with current realities in order to succeed as a useful mechanism. In addition, Yasin (2002) also suggested a provision of adequate resource committed to benchmarking exercises. Based on the above viewpoint, this study evolved two hypotheses:

Hypothesis 9 (BM): *Benchmarking potential guaranteed PPP projects against historically good standards and processes under the government guarantee scheme will have positive impact on public accountability*.

4.6.3 Monitoring and Accountability in PFI/PPP Government Guarantee Schemes:

In PFI/PPPs, the existence of a suitable monitoring mechanism is seen as a critical element for ensuring effective service delivery through vigilant observation of actors' behaviours (Asenova, 2013; Stelling, 2014). According to Liu *et al.* (2016), monitoring helps avoid poor decision-making that may result in undesired consequences for projects. Evidences have shown that, where monitoring is lax, abuse and inefficiency hinders the achievement of public policy goals for PPPs (Hodge and Greve, 2007; Campagnac, 2011; Shaw, 2011). As suggested by Robinson and Scott (2009), fulfilling the theoretical value for money (VFM) claims in PFI will also largely depend on the effectiveness of the monitoring mechanisms in place for ensuring practical value in service delivery. McDowall (2000) adds that since PFI projects involve the public sector paying for services delivered over 25-30years of concession, effective project performance

monitoring is necessary for achieving service level agreements. However, despite its importance and the well-known monitoring role of project lenders in PPPs (Oyedele, 2013), monitoring of government guaranteed projects often become less vigilant once projects are given guarantee (Allen *et al*., 2015). A good reason for this is because project lenders, inspite of their knack for monitoring PFI/PPP progress, often succumb to adopting riskier investments and leverages once loans are guaranteed by government (Gropp et *al.,* 2013; Allen *et al.,* 2015). According to Gropp *et al.* (2013), the presence of loan guarantees often encourage lenders to willingly expose themselves to different forms of risks ranging from currency risk to leverage risk. This apparently creates moral hazard situations with grave consequences for government's fiscal sustainability and policy objectives. Based on this reality, the normal monitoring regimes for PPPs may therefore prove insufficient for handling the complexities of publicly guaranteed projects. Studies such as Beck *et al.* (2010), Mladenovic *et al.*, (2013), and Javed *et al.* (2013) have argued that continuous monitoring of corporate and external dealings of the project consortium during the period of guarantee may be needed to prevent practices that could later jeopardize the project. In addition, Priemus *et al. (*2007); Robinson *et al,* (2009); and Boussabaine, (2013) have called for more qualitative public awareness on fiscal risks arising from contingent liabilities and external monitoring through audit institutions. Carbo-Valverde et al. (2013) and Gozzi and Schmukler, (2015) also suggested the use of sanctions against wrong practices to serve as incentive for actors to ensure effective monitoring or projects and scheme. Based on the above-mentioned perspectives, this made the propositions below:

Hypothesis 10 (M): *Effective monitoring of government guarantee scheme, actors and beneficiary PFI/PPP projects will have positive impact on public accountability.*

4.6.4 Performance auditing and Accountability in PFI/PPP Government Guarantee Schemes

Evaluation of performance through audits is a critical ingredient of the neo-liberal market philosophy of New Public Management (NPM) (Arnaboldi *et al.,* 2015). Performance audit is an impartial evaluation of clearly stated administrative goals or objectives of projects, programs, functions and activities, based on economy, efficiency, effectiveness and 'good management (Pollitt *et al.,* 1999, Robinson and Scott, 2009). According to Pollitt *et al*. (1999, pp128), auditing of effectiveness and good management 'demands an investigation of outcomes, which by definition, take place in the world beyond the organisation or program', and requires the use of independent evaluation criteria. Performance audits focuses on measuring improvements in outputs (efficiency) and outcomes (effectiveness) of public sector products or services against pre-articulated standards (Ameyaw *et al.,* 2015). Under PFI/PPP procurement, auditing project performance is seen as a critical aspect of accountability especially given PFI's political and financial significance (Edwards *et al*., 2004; Pollock and Price, 2004). A major reason for this is due to various theoretical and empirical arguments regarding the validity, cost and value of privately procured public infrastructure (Owolabi *et al.,* 2015). As suggested by Yaun *et al.* (2009), conducting effective performance audit relies on a clearly identified overall objective for such evaluation. In the case of PFI/PPPs, the ultimate objective for the public sector client is the achievement of best value in projects and service delivery (Christensen and Lægreid, 2015). Best value, which Oyedele (2013) described as the maximum obtainable outcome from any infrastructure development, emphasizes value elements such as quality, effectiveness, efficiency, value for money and performance (Yaun *et al*., 2009). The significance of these best value elements is often reliant on the integration of stakeholder requirements, project characteristics

and the achievability of the value elements vis-a-vis available resources (Bawole and Ibrahim, 2016). In line with these perspectives, studies have suggested different performance indicators that mirrors best value proposition in PFI/PPPs and thus require audit evaluations (Diefenbach, 2009; Yaun *et al*., 2009; Hodge and Greve, 2013; Fombad, 2014). Bourn (2007) suggested project life cycle cost reduction as an indicator of performance which originally has huge impact on the overall rationale for adopting a private procurement route. Adequate risk transfer among project parties (Akbıyıklı, 2013), acceptable project quality (Diefenbach, 2009), and quality service delivery (Christensen and Lægreid, 2015) were also identified a measures determining the performance of PFI infrastructure. In another related study, Hodge and Greve (2013) and Fombad (2014) also suggested on-time project completion, and economic empowerment of local community as essential factors reflecting the performance of PPP projects. Based on the above analysis, this study put forward a proposition that:

Hypothesis 11 (PA): *Greater effective performance auditing of projects benefitting from government guarantee scheme will have positive impact on public accountability.*

4.6.5 Public Sector Comparator and Accountability in PFI/PPP Government Guarantee Schemes

Public sector comparator (PSC) is the hypothetical, risk-adjusted cost of a project when that project is financed, owned and implemented by government (Bain, 2010; Cruz and Marques, 2013). PSC is commonly used in public procurement decision-making as a yardstick against which private investment proposals are compared (Khadaroo, 2008). If, when converted into present values, the private costs are lower than the PSC, then the proposal is deemed to be more efficient than conventional public-sector procurement (English, 2007). Thus, PSCs are central in

the decision-making process about where, when and how to use privately-financed infrastructure solutions—such as those encouraged under the UK's private finance initiative (PFI) (HM Treasury 2003).

The UK HM Treasury claims the use of the PSC is designed in a way as to ensure there is no preference for any particular model of infrastructure financing (HM Treasury, 2007). However, various criticisms of the PSC abound in the PFI/PPP literature ranging from the apparent bias of ministers and other political actors for PSC (Coulson, 2008), arbitrary choice of parameters to suite PFI as against traditional procurement (Grimsey and Lewis, 2002), contentious arguments about possible cost savings from PFI and bias of public evaluators for PFI among others (Hodge and Greve, 2007). In a scathing remark against the PSC, Ball *et al.* (2001), described the tool as lacking in objectivity, clarity and necessary information regarding methodological approach. However, despite these disapprovals, PSC remains the important tool for deciding PFI procurements and important considerations like value for money, risk transfer, and projects' impact assessments among others still form the core of it (Cruz and Marques, 2013). In the context of publicly guaranteed PFI/PPPs, the possible use of the PSC will attract serious accountability questions. One of the big questions is the supposed relevance of the PSC in government guarantee program, and whether the comparison of overall benefit derived from guaranteeing private infrastructure finance vis-a-vis the immediate and contingent cost to government may necessary. In addition, since government guarantee is considered a booster to projects' bankability, initial PSC exercise at PPP stage therefore requires revisiting. This study therefore argue that, given the shortcomings in the objective evaluation of projects under the current infrastructure guarantee scheme (NAO, 2015, pp7; Whyte, 2015), introducing PSC for

deciding guarantee-deserving projects offers best value to the public. In addition, the study also posit that PSC evaluation at both PPP and guarantee scheme levels will have significant impact is aligning possible accountability cracks in project evaluation under government guarantee schemes. This study therefore hypothesize thus:

Hypothesis 12 (PSC): *Adopting public sector comparator for deciding guarantee-deserving infrastructure projects will have positive implication for public accountability under PFI/PPP government guarantee scheme.*

4.7 Hypothesis Development under Democratic Accountability Mechanisms

This sections explored each of the four (4) democratic accountability mechanisms identified from the literature. Being constructs from accountability, each mechanisms were theoretically discussed in order to identify factors contributing to each concepts.

4.7.1 Socio-Political Impact and Accountability in PFI/PPP Government Guarantee Schemes

One of the underlying arguments behind PFI/PPP is maximising the social welfare of the project users and host communities, whilst fulfilling government's political objectives (Pierre, 1998). Hence, designing PPPs often involve considerations for various social and political factors and benefits (Qi *et al.,* 2010). According to the HM Treasury Green Book (2003), examining wider society's impact of projects plays important role in value for money (VFM) analysis. Example of social factors that may be examined include project's impact on job creation and unemployment (Ugwu and Haupt, 2007), project's impact on travel time and journey quality (Warner, 2013), affordable user charges (Tsamboulas *et al.,* 2013), access to services (Ng *et al.,* 2012), better stakeholder engagement (Shen *et al.,* 2011), adequate security (Marcelino-Sádaba *et al.,* 2015),

impact on biodiversity among others (Leigh and Neill, 2011; Zeng *et al.*, 2015). As argued by Vining and Boardman (2008), social impact analysis of projects facilitates more comprehensive cost-benefit evaluation, by ensuring net gains to the society outweighs unintended negative impacts (Ruckert and Labonté, 2014). In addition, political imperatives of government and pressures of host communities also have huge influence on PPP projects (Aldred, 2008). As suggested by Brugha, and Zwi (1998) most PPPs are a product of high level political considerations, therefore often get caught in the web of different political manoeuvres and pressures (Ng *et al.*, 2012). As such, key considerations during PPP appraisals usually focus on some factors that has political cum policy implications such as sufficient risk transfer away from public sector (Asenova, 2013), adequate response to public needs through timely project delivery (Kalidindi and Singh, 2009), minimal life cycle cost (Hu *et al.*, 2014), and better collaboration between public and private sector (Essig and Batran, 2005). However, whilst socio-political impact evaluation of PPPs abound in the literature as common practice (Pierre, 1998; Boardman and Vining, 2012; Warner, 2013, Ameyaw and Chan, 2015), it remains opaque how government guarantee evaluators examine socio-political impact of guarantees when deciding on projects. According to the NAO (2015), without objective means of choosing guarantee-deserving projects, comprehensive impact assessment of projects appear unrealistic. In this regard, given that sovereign guarantee provides project investors with stronger credit standing with lenders (Immergluck, 2008), a benefit which could not be obtained elsewhere (Saunders and Allen, 2010), a more robust socio-political cost-benefit evaluation of projects under the scheme is fundamental. Coming from the above background, this study hypothesize that:

Hypothesis 13 (SPI): *Robust social and political impact evaluation of PPP projects at the government guaranteed scheme level will have positive effect on public accountability.*

4.7.2 Stakeholder Engagement and Accountability in PFI/PPP Government Guarantee Schemes.

Stakeholder engagement is a key aspect of corporate social responsibility (CSR) and has been considered one of the critical success factors in PFI/PPP (Sierra-García *et al.,* 2015). According to Ei-Gohary *et al*. (2006), many PPP projects across the world have failed as a result of poor management of stakeholders resulting in public opposition in most cases. Typically, PPP involves multiple participants that include but not limited to the project client (governing authority), project sponsors, senior lenders, construction and operation contractors, insurers, host communities among others (Li *et al*., 2005; Smyth and Edkins, 2007; Cheung *et al*., 2010). However, on most occasions, the interests of these participants often conflict due to competing motivations and objectives (Smyth, 2008). In addition, the complex arrangements in PPP contracts in addition to the long term nature of the relationships among project parties sometimes create difficulty in aligning all interests at all times (Boussabaine, 2013). As such, engagement among project stakeholders is seen as a means of reaching common grounds while also achieving individual objectives (De Schepper *et al.,* 2014). That said, under infrastructure government guarantee schemes, the nature of relationships among parties become even more complex due to increased number of participants and the complexity of such fiscal transactions (Owolabi *et al.,* 2015). New parties such as the guarantee administering authority (i.e. HM Treasury), Infrastructure and Project Authority (in the UK it's called Infrastructure UK), external stakeholders like pressure and advocacy groups, the media among others all contribute towards the protection of different vested interests (NIP, 2011). Due to the increased complexity, Swoszowski *et al*. (2013) suggested effective communication and dialogue as a necessary condition for managing every stakeholder in order to achieve successful project delivery.

According to Wiek *et al.* (2012), dialogue provides a means for parties to express their candid views and thus allow smooth resolution of issues. Two-way free flow of communication also ensures all stakeholders are on the same page at all times (Assaf and Al-Hejji, 2006). Other studies such as Anvuur *et al.* (2011) and Golob and Podnar, (2014) have also suggested effective communication channels and staff commitment to laid down stakeholder engagement strategy. In another study Erkul *et al.* (2016) and Yang *et al*. (2009) also identified transparent decision-making process and clear understanding of stakeholders' area of interests as critical success factors for managing projects' stakeholders. Based on the above standpoint, this study develop the following hypotheses:

Hypothesis 14 (SE): *Effective management of all stakeholders involved in government guaranteed PFI/PPPs will have positive impact on public accountability.*

4.7.3 Rule of Law and Accountability in PFI/PPP Government Guarantee Schemes

The concept of rule of law is considered the fundamental basis of modern democratic society (O'Donnell, 2004). As suggested by Belton (2005), the origin of the notion may be traced to the French phrase 'La Principe de Legality', which means "the principle of legality". Rule of law refers to the submission of people to the dictates of the law regardless of their position in the society (poor or rich, high born or low born) (Fallon Jr, 1997; Chesterman, 2008). From a narrower perspective, rule of law implies that government's authority may only be exercised in line with enshrined laws (Skaaning, 2010). In this sense, the law is superior to the wishes or dictates of individuals or rulers. Albeit, governments' authority permeates all aspects of public sector transactions with various parties (Endicott, 1999; Møller and Skaaning, 2014), such dealings or contracts often happen within legal limits (Skaaning, 2010). In public sector

transactions such as PFI/PPP procurements, government's interaction with the private sector is also governed by legally bonded contractual arrangements which are enforceable under the law (Yehoue *et al.,* 2006). This fact is also applicable to transactions like government's implicit or explicit guarantees, with such arrangements having legal implications within relevant public policy frameworks (Joshi, 2010). However, under government guarantee schemes for public-private procurements, the big legal concern is the intertwined role of the public sector as a project partner, regulator and supervisor (Hodge and Greve, 2007; Forrer *et al.*, 2010). Such complex and conflicting roles creates ambiguity regarding public accountability (Hodge and Greve, 2007), and could weaken public managers' resolve towards enforcing the rule of law (Fombad, 2014). In line with these challenges, studies have suggested effective enforcement of contractual agreements (De Jong *et al.*, 2010) and adequate institutional arrangements for enforcement (Fombad, 2013; Fombad, 2014), would ensure public accountability in public-private contracts. Whilst Shen *et al.* (2006) and Hodge and Greve (2007) also suggested legal scrutiny and evaluation of policy, projects and performance; Zhang *et al.* (2015) and Delmon (2017) argued for more clarity in legal/contractual rights and responsibility among PPP project parties. Based on the above perspectives, this study developed the following hypotheses below:

Hypothesis 15 (RL): *Upholding the rule of law in the management of PFI/PPP government guarantee scheme will have positive impact on public accountability.*

4.7.4 Parliamentary Scrutiny and Accountability in PFI/PPP Government Guarantee Schemes

In recent times, one issue that has attracted policy analysts' and academics' clamour for more use of parliamentary scrutiny is the management of' fiscal liabilities (Gulati and Buchheit, 2013).

The World Bank and European Union recently attributed the economic crisis in some Eurozone countries to, among other factors, poor management of fiscal liabilities (Nelson *et al.,* 2011; Lane, 2012). Many scholars have called for greater parliamentary oversight on EU member nations' management of state aids (Featherstone, 2011; Buiter and Rahbari, 2012; Beck, 2012; Karanikolos *et al*., 2013). Government guarantee schemes, which is one of the commonest forms of state aids for promoting private investments in the economy, has come under heavy knocks for weak scrutiny (Maskin and Tirole, 2008; Reinhart and Rogoff, 2011; Weil *et al.,* 2013). Parliamentary scrutiny is an institutional activity that involves the evaluation of the expenditures, policies and general administration of government (Grube, 2014; Thompson, 2014). From a broader perspective, scrutiny is one of the three cardinal responsibilities of the parliament, with the remaining two being the enactment of legislation and approval of government's financial budgets (Ward, 2015). In parliamentary democracies like UK, Belgium etc., the traditional vertical accountability has often placed much emphasis on ministerial responsibilities (Bovens, 2005). As such, formal accountability is often done via ministerial responsibilities to the parliament, while public managers are not considered politically accountable (Bovens *et al.,* 2015). However, over the past decades, hierarchical accountability approach has given way to diversified accountability relationships, with more studies calling for more parliamentary engagement of public managers (Shaoul et al., 2010; Laegreid and Christensen, 2013; Bovens *et al.,* 2015). Accountability forums are now calling for increased use of parliamentary questioning and policy debates to hold public managers to account in the performance of their specific duties (Bovens *et al.,* 2015; Van Dooren and Van de Walle, 2016). Such accountability dimension of bringing institutions and individual officials under parliamentary scrutiny could help address the criticisms of weak scrutiny of government guarantee schemes, especially in relation to PFI/PPPs.

This study therefore argue in addition that, since government guarantees involves a decision with great futuristic importance, perspectives of broader stakeholder of experts and interest groups should be allowed for better insights (Ennser-Jedenastik, 2014; Willems and Van Dooren, 2016). More parliamentary oversight will therefore step up accountability on individual public managers making monumental decisions on behalf of government. Based on the above perspective this study hypothesized that:

Hypothesis 16 (PS): *Parliamentary scrutiny of public managers' decisions and actions as they affect effective management of government's fiscal liabilities on guarantee schemes to PPPs will strengthen public accountability.*

Based on the above critical analysis, Table 4.2 below presents the sixteen (16) accountability mechanisms and 85 associated measures identified from the literature. In addition, Table 4.3 below also presents the 16 theoretical hypotheses formulated from the sixteen (16) accountability mechanisms identified from the study.

Table 4.2: Latent measures and Observed Measure for Initial Model Development

Latent Variables/Constructs	Observed Variables/Measures	Abbreviation	References
Outcome-based Accountability Mechanisms			
Value for Money	***Hypothesis 1:*** *Determining the Value for money in guaranteed projects will contribute positively towards public accountability in PFI/PPP Government Guarantee Scheme*		
	▪ Least procurement cost	VFM1	Ameyaw et al. (2015), Yescombe (2007), Heald, (2003); Pollock et al. (2007), and Coulson (2008), Rintamaki et al., (2007), Coulson, (2008), Eadie et al., (2013), Ismail, (2013), Atmo and Duffield (2014), Robinson and Scott, (2009).
	▪ service quality/output specification	VFM2	
	▪ equitable risk allocation among project parties	VFM3	
	▪ minimal whole life costing of project	VFM4	
	▪ effective management of project over the long term period	VFM5	
	▪ competitive bidding process	VFM6	
	▪ innovative solutions	VFM7	
Risk Management	***Hypothesis 2:*** *Effective public-sector risk management will strengthen public accountability in PFI/PPP government guarantee scheme*		
	▪ Improved public sector risk management competences/capabilities.	RM1	Drennan et al. (2014), Correa et al. (2014), Drennan et al., (2014), De Bruyckere (2013), Sparrow (2011), Drennan et al., (2014), Mulgan and Albury, (2003), Diabat and Govindan, (2011).
	▪ Integrating risk management systems into public sector evaluative frameworks	RM2	
	▪ regular risk identification and reporting	RM3	
	▪ Proactive evaluation of past risk events	RM4	
	▪ strong stance on compliance with regulatory frameworks	RM5	
Collaborative Partnership	***Hypothesis 3****: Better collaboration between government and private sector parties on publicly guaranteed projects will strengthen accountability in government guarantee scheme to PFI/PPPs.*		
	▪ open and honest communication among project parties	CP1	El-Gohary et al. (2006), Yang et al. (2011, Stapel and Schneider (2014), Zou et al., (2014), Shi et al., (2016), Delmon, (2011), Jelodar et al. (2016), Pal et al (2017), Hwang (2013), Torchia et al., (2015), Du et al., (2016), Meng, (2015), (Noble and Jones,
	▪ Consortium senior officials' commitment towards successful collaboration	CP2	
	▪ existence of clearly defined relationship and communication sharing strategy	CP3	
	▪ commitment of the project delivery team	CP4	
	▪ fair risk allocation among public-private parties	CP5	

	▪ Early warning signals for detecting and solving conflicts or crisis.	CP6	2006), Weihe, (2008).
	▪ Multidisciplinary team to be responsible for handling collaboration with project parties.	CP7	
	▪ integrating information systems with all projects parties	CP8	
Budgetary Reporting	***Hypothesis 4:*** *Reporting government's contingent liabilities in publicly guaranteed PFI/PPPs on national budgets will improve public accountability in government guarantee scheme for PPPs.*		
	▪ reporting government guarantees and other contingent liabilities in the national budget	BR1	Newberry, (2014), Chan and Zhang, (2013), Funke et al. (2013), Marcel (2014)
	▪ oversight and control	BR2	
Environmental Sustainability	***Hypothesis 5:*** *Ensuring sustainable project delivery will strengthen public accountability in Government Guarantee Scheme for PFI/PPP projects*		
	▪ project's contribution to social participation and inter-racial cohesion	ES1	Hall and Purchase (2006), Du Plessis (2007), Zainul Abidin et al. (2013), Nawawi et al. (2015), Akadiri and Fadiya, (2013), Nawawi et al. (2015), Akadiri and Fadiya (2013), Zainul Abidin et al. (2013), Korkmaz *et al.*, (2010), Swarup et al., (2011), Du Plessis, (2007), Labuschagne et al., (2005), Dangelico and Pujari (2010)
	▪ project's contribution to increased utilisation of local materials	ES2	
	▪ adoption of energy efficient solutions	ES3	
	▪ project's contribution to reduction in material wastage	ES4	
	▪ compliance with regulatory standards on sustainable project delivery	ES5	
	▪ prevention of massive changes to landscape	ES6	
	▪ project's impact of surrounding plant and animals	ES7	
	▪ Contribution to economic and social prosperity of surrounding communities	ES8	
	▪ Security of project host community	ES9	
	▪ Contribution towards replenishing non-renewable mineral and energy resources	E10	
Ethics-Based Accountability Mechanisms			
Whistle-Blowing	***Hypothesis 6:*** *Encouraging whistle blowing among employees involved in PFI/PPP government guarantee scheme will have positive impact on public accountability.*		
	▪ effective institutional arrangement to the inculcate culture of openness among staff	WB1	(Bashir et al., (2011), Brown, (2013), Miceli and Near, (2013), Jones and Kelly, (2014), Jones and Kelly (2014), as Bashir et al.,
	▪ adequate protection for whistle blowers against institutional witch-hunt	WB2	

	▪ implementing procedurally correct actions to address reported wrongdoings	WB3	(2011), Ash (2016), Brown, (2013); Miceli and Near, (2013), Callahan and Dworkin, (1992).
	▪ Financial incentives for encouraging whistle blowing among public employees.	WB4	
Anti-Corruption	***Hypothesis 7:*** *Prevention of corrupt practices and dishonest behaviours in the handling of PFI/PPP government guarantee scheme will have a positive impact on public accountability.*		
	▪ strong stance against corruption in guarantee schemes	AC1	Moser et al. (2008), Agusman et al. (2014), Bringselius (2014), OECD (2016), Turner (2011), Campbell et al. (2009), Niehaus and Sukhtankar (2013), Campbell et al. (2009), Agusman et al. (2014).
	▪ clear, adequate and timely information about happenings, processes and rules	AC2	
	▪ effective internal and external oversight and control	AC3	
	▪ effective sanctions against corrupt practices	AC4	
	▪ robust due diligence appraisals through extensive information gathering	AC5	
Process-Based Accountability Mechanisms			
Competition	***Hypothesis 8:*** *Competitive project selection process under government guarantee scheme for PFI/PPPs will have positive impact on public accountability.*		
	▪ Increasing the number of potential bidders or applicants	C1	(Loader, (2013), Georghiou et al., (2014), Gong and Zhou, (2015), Osei-Kyei and Chan (2015), Georghiou et al. (2014), OECD, (2011), Botswana (2013), Uyarra (2013), Gong and Zhou (2015), Loader (2013), Lember et al. (2014), Marty and Voisin, (2008).
	▪ Availability of in-house commercial skills within the public sector.	C2	
	▪ Open and comprehensive bidding parameters and requirements	C3	
	▪ Transparent bidding and tendering process	C4	
	▪ Adequate incentives to encourage the supply of innovation from the private sector	C5	
	▪ Timely dissemination of information to bidders	C6	
Bench-Marking	***Hypothesis 9:*** *Benchmarking potential guaranteed PPP projects against historically good standards and processes under the government guarantee scheme will have positive impact on public accountability.*		
	▪ comprehensive articulation of historically good practices and processes	BM1	Karafolas and Woźniak (2014), Mori Junior et al., (2016), Yasin, (2002).
	▪ Constant improvements on benchmarking techniques.	BM2	
	▪ Adequate resource committed to benchmarking exercises	BM3	
Monitoring	***Hypothesis 10:*** *Effective monitoring of government guarantee scheme, actors and beneficiary PFI/PPP projects will have positive impact on public accountability.*		
	▪ continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee	M1	Beck et al. (2010), Mladenovic et al., (2013), Javed et al. (2013), Priemus et al. (2007), Robinson

	▪ more qualitative public awareness on fiscal risks arising from contingent liabilities	M2	et al, (2009), Boussabaine, (2013), Carbo-Valverde et al. (2013), Gozzi and Schmukler, (2015).
	▪ External monitoring through audit institutions and other interest groups.	M3	
	▪ the use of sanctions against wrong practices	M4	
Performance Auditing	***Hypothesis 11:*** *Greater effective performance auditing of projects benefitting from government guarantee scheme will have positive impact on public accountability.*		
	▪ project life cycle cost reduction	PA1	Diefenbach, (2009), Yaun et al., (2009), Hodge and Greve, (2013), Fombad, (2014), Bourn (2007) Akbıyıklı, (2013), Diefenbach, (2009), Christensen and Lægreid, (2015).
	▪ Adequate risk transfer among project parties	PA2	
	▪ acceptable project quality	PA3	
	▪ quality service delivery	PA4	
	▪ on-time project completion,	PA5	
	▪ economic empowerment of local community	PA6	
Public Sector Comparator	**Hypothesis 12:** *Adopting public sector comparator for deciding guarantee-deserving infrastructure projects will have positive implication for public accountability under PFI/PPP government guarantee scheme.*		
	▪ Compulsory PSC evaluation both at project and guarantee scheme levels.	PSC1	Cangiano et al. (2006), NAO, (2015), Whyte, (2015).
	▪ Integrating PSC evaluation into government guarantee-decision making process.	PSC2	
Democratic Accountability Mechanisms			
Socio-Political Impact	***Hypothesis 13:*** *Robust social and political impact evaluation of PPP projects at the government guaranteed scheme level will have positive effect on public accountability.*		
	▪ project's impact on job creation and unemployment	SP1	Ugwu and Haupt, (2007), Warner, (2013), Tsamboulas et al., (2013), Ng et al., (2012), Shen et al., (2011), Marcelino-Sádaba et al., (2015), Leigh and Neill, (2011), Zeng et al., (2015), Ruckert and Labonté, (2014), Aldred, (2008), Brugha, and Zwi (1998), Ng et al., (2012), Asenova, (2013), Kalidindi and Singh, (2009), Hu et al., (2014), Essig and Batran, (2005), Saunders and Allen, (2010).
	▪ project's impact on travel time and journey quality	SP2	
	▪ affordable user charges	SP3	
	▪ access to services	SP4	
	▪ better stakeholder engagement	SP5	
	▪ adequate security	SP6	
	▪ project's impact on biodiversity	SP7	
	▪ sufficient risk transfer away from public sector	SP8	
	▪ adequate response to public needs through timely project delivery	SP9	
	▪ minimal life cycle cost	SP10	
	▪ better collaboration between public and private sector	SP11	
Stakeholder	***Hypothesis 14:*** *Effective management of all stakeholders involved in government guaranteed PFI/PPPs will have*		

Engagement	*positive impact on public accountability.*		
	▪ effective communication and dialogue	SE1	Swoszowski et al. (2013), Wiek et al. (2012), Anvuur et al. (2011), Golob and Podnar, (2014), Erkul et al. (2016), Yang et al. (2009).
	▪ Clear and effective communication channels	SE2	
	▪ staff commitment to laid down stakeholder engagement strategy	SE3	
	▪ transparent decision-making process	SE4	
	▪ clear understanding of all stakeholders' area of interests	SE5	
Rule of Law	***Hypothesis 15:*** *Upholding the rule of law in the management of PFI/PPP government guarantee scheme will have positive impact on public accountability.*		
	▪ enforceability of contracts and agreements in projects	RL1	De Jong *et al*., (2010), Fombad, (2013), Fombad, (2014), Bovens et al. (2015), Shen et al. (2006), Hodge and Greve (2007), Zhang et al. (2015), Delmon (2017).
	▪ adequate institutional arrangements for supporting contract enforcement	RL2	
	▪ Legal scrutiny and evaluation of policy, projects and performance.	RL3	
	▪ Clarity in legal/contractual rights and responsibility among project parties.	RL4	
Parliamentary Scrutiny	***Hypothesis 16:*** *Parliamentary scrutiny of public managers' decisions and actions as they affect effective management of government's fiscal liabilities on guarantee schemes to PPPs will strengthen public accountability.*		
	▪ Effective use of committee hearings to evaluate the management of government guarantee scheme	PS1	(NAO, 2015), Grube, (2014), Thompson, (2014), Martin and Vanberg (2004).
	▪ Interactions with external experts and interest groups to examine wider impact of government guarantee scheme	PS2	
	▪ Encouragement of policy debates on government guarantee scheme	PS3	

Table 4.3: List of Sixteen (16) Theoretical Hypothesis Formulated from Accountability Literature

List of Hypotheses	***Propositions***
Hypothesis 1 (VFM)	*Determining the Value for money in guaranteed projects will contribute positively towards public accountability in PFI/PPP Government Guarantee Scheme*
Hypothesis 2 (RM)	*Effective public-sector risk management will strengthen public accountability in PFI/PPP government guarantee scheme*
Hypothesis 3 (CP)	*Better collaboration between government and private sector parties on publicly guaranteed projects will strengthen accountability in government guarantee scheme to PFI/PPPs.*
Hypothesis 4 (BR)	*Reporting government's contingent liabilities in publicly guaranteed PFI/PPPs on national budgets will improve public accountability in government guarantee scheme for PPPs.*
Hypothesis 5 (ES)	*Ensuring sustainable project delivery will strengthen public accountability in Government Guarantee Scheme for PFI/PPP projects.*
Hypothesis 6 (WB)	*Encouraging whistle blowing among employees involved in PFI/PPP government guarantee scheme will have positive impact on public accountability.*
Hypothesis 7 (AC)	*Prevention of corrupt practices and dishonest behaviours in the handling of PFI/PPP government guarantee scheme will have a positive impact on public accountability.*
Hypothesis 8 (CA)	*Competitive project selection process under government guarantee scheme for PFI/PPPs will have positive impact on public accountability.*
Hypothesis 9 (BM)	*Benchmarking potential guaranteed PPP projects against historically good standards and processes under the government guarantee scheme will have positive impact on public accountability.*
Hypothesis 10 (M)	*Effective monitoring of government guarantee scheme, actors and beneficiary PFI/PPP projects will have positive impact on public accountability.*
Hypothesis 11 (PA)	*Greater effective performance auditing of projects benefitting from government guarantee scheme will have positive impact on public accountability.*
Hypothesis 12 (PSC)	*Adopting public sector comparator for deciding guarantee-deserving infrastructure projects will have positive implication for public accountability under PFI/PPP government guarantee scheme.*
Hypothesis 13 (SPI)	*Robust social and political impact evaluation of PPP projects at the government guaranteed scheme level will have positive effect on public accountability.*
Hypothesis 14 (SE)	*Effective management of all stakeholders involved in government guaranteed PFI/PPPs will have positive impact on public accountability.*
Hypothesis 15 (RL)	*Upholding the rule of law in the management of PFI/PPP government guarantee scheme will have positive impact on public accountability.*
Hypothesis 16 (PS)	*Parliamentary scrutiny of public managers' decisions and actions as they affect effective management of government's fiscal liabilities on guarantee schemes to PPPs will strengthen public accountability*

Chapter Summary

Accountability as a theory continues to be dynamic and evasive, with multiple contexts, meanings and dimensions constantly emerging. This chapter explored Bovens' "Two Concepts of Accountability" (accountability as a virtue and accountability as a mechanism), which is used as a theoretical framework to examine the importance of accountability mechanisms in strengthening PFI/PPP government guarantee scheme in UK. Hence, different concepts of accountability such as Process-based, Outcome-based, Ethics-based and democratic accountability, were theoretically explored. In the process, the study identified eighteen accountability mechanisms that are considered useful for investigating public accountability in PFI/PPP government guarantee scheme. Each accountability mechanism were analysed, leading to the generation of sixteen hypothetical propositions which were later empirically tested through Structural Equation Model.

Chapter Five: Research Methodology

5.0 Chapter Overview

This chapter examines the entire research design employed in the study. Sections 4.2 to 4.3 explored the ontological and epistemological underpinnings of the study with a strong justification for the adoption of critical realism theoretical perspective. Section 4.4 discussed retroduction as the research approach for the study, as against induction, deduction and abduction. Section 4.5 examined the research strategy for the study i.e. Case study strategy as well as the motivations for its adoption. Section 4.6 centres on the research choice where a mixed methodological approach was employed in the study. Sections 4.7 however examined the research methods adopted to generate relevant data for the study: unstructured interviews and literature review. Section 4.8 focuses on the strategies for data analysis. Two main strategies were adopted in the study: qualitative analysis using a Nvivo 10 software and quantitative analysis using Amos IBM SPSS tool.

5.1 Research Design

Research planning often involves the consideration of over lapping themes and action plans such as conceptual approach, design, strategies for data collection, sampling techniques among others. The Saunders's (2011) research onion diagram gives a clear illustration of a typical research design which many studies have borrowed leave from. In the onion diagram, the entire research design is captured in hierarchical and sequential order to present a holistic framework for the research process (Mizsey and Fonyo, 1995). This includes research philosophy, approach, strategy, choice, time horizon, techniques and procedures (Saunders's, 2011). Research problem in the current study will be addressed by borrowing ideas from the onion diagram. However, a more comprehensive approach to the entire process will be introduced. The selected research options are highlighted in Table 5.1.

Table 5.1: Important Choices in the Research Designs

Area of Choice	Available Choices	Choice employed
Ontology	Realism (Objective) Idealism (Subjective)	Realism
Epistemology	Objectivism Subjectivism Constructionism	Subjectivism/Objectivism
Research Paradigm	Positivism Interpretivism Constructionism Post-Positivism Postmodernism Participatory Action Research Critical Realism	Critical Realism
Research Approach/Reasoning	Deduction Induction Retroduction	Retroduction
Method of	Qualitative Design	Mixed Method Design

Inquiry/Design	Quantitative Design Mixed Method Design	
Research Strategy	Narrative Research Phenomenology Grounded Theory Ethnography Case Study etc.	Case Study
Type of Case Designs/Studies	Single-Case Designs Multiple-Case Designs	Multiple-Case Designs
Sampling Strategy for Selecting Case studies and research participants	Random Sample Stratified Sample Maximum Variation cases Paradigmatic Cases Convenience Sample Purposive sampling Snowball Sampling	Maximum Variation case studies, Purposive sampling and Snowball sampling strategies
Source of Qualitative and Quantitative Evidences.	Documentations Archival Records Existing Literature Interviews Direct Observation Participants Observations Questionnaire survey	Documentations, case study Interviews, literature review and questionnaire survey.
Methods of Data Analysis	Reparatory Grid Self-Questions Cognitive Mapping Thematic Analysis Conservational Analysis Statistical Analysis	Thematic and Structural Equation Modelling (Statistical Analysis)
Analytical Strategy	Use of Theoretical Propositions/ Research Questions/Themes Developing Case Descriptions Use of Qualitative and Quantitative Data	Use of Research Questions& theoretical propositions.
Analytical Technique	Pattern Matching Explanation Building Time-series Analysis Cross-case Analysis	Cross-case Analysis

5.2 Research Process

Research process or research workflow is described as series of logical and systematic actions or steps carried out in order to generate knowledge (Gerrish and Lacey, 2010). It involves sequential procedures for examining a research problem as well as the techniques of data collection and analysis (Corbin and Strauss, 1990). For the purpose of this study, the research process is diagrammatically represented in Fig 5.2 below and depicts the order in which the entire research was carried out.

5.3 Research Philosophy

Every research stems from a belief background or assumption about the nature of reality and how such reality can be known (Crotty, 1998). These belief systems and the means of knowledge acquisition often provide justification for our approach to research, methodology and adopted methods (Barnett-Page and Thomas, 2009). Research Philosophy therefore examines the theoretical assumptions underlying our research using two lenses, namely Ontology and Epistemology (Crotty, 1998).

5.3.1 Ontology

Ontology is the study of independent nature and reality of being (Heidegger, 1962). Ontology examines what can be known or what is possible for us to know about reality (Ritchie *et al.*, 2013). This reality claim may be classified into Realism and Idealism (Rosenberg, 1980). According to Popper (1972), cited in the study of Cruickshank (2007), the ontological assumption that reality and knowledge exist independently of our perceptions, interpretations and beliefs is regarded as realist (objectivist) ontology. On the other hand, Idealist (subjectivism) ontological assumption describes the philosophical claim that reality exists only as experienced by the subject of the research (Airenti and Colombetti, 1992; Archer 2007).

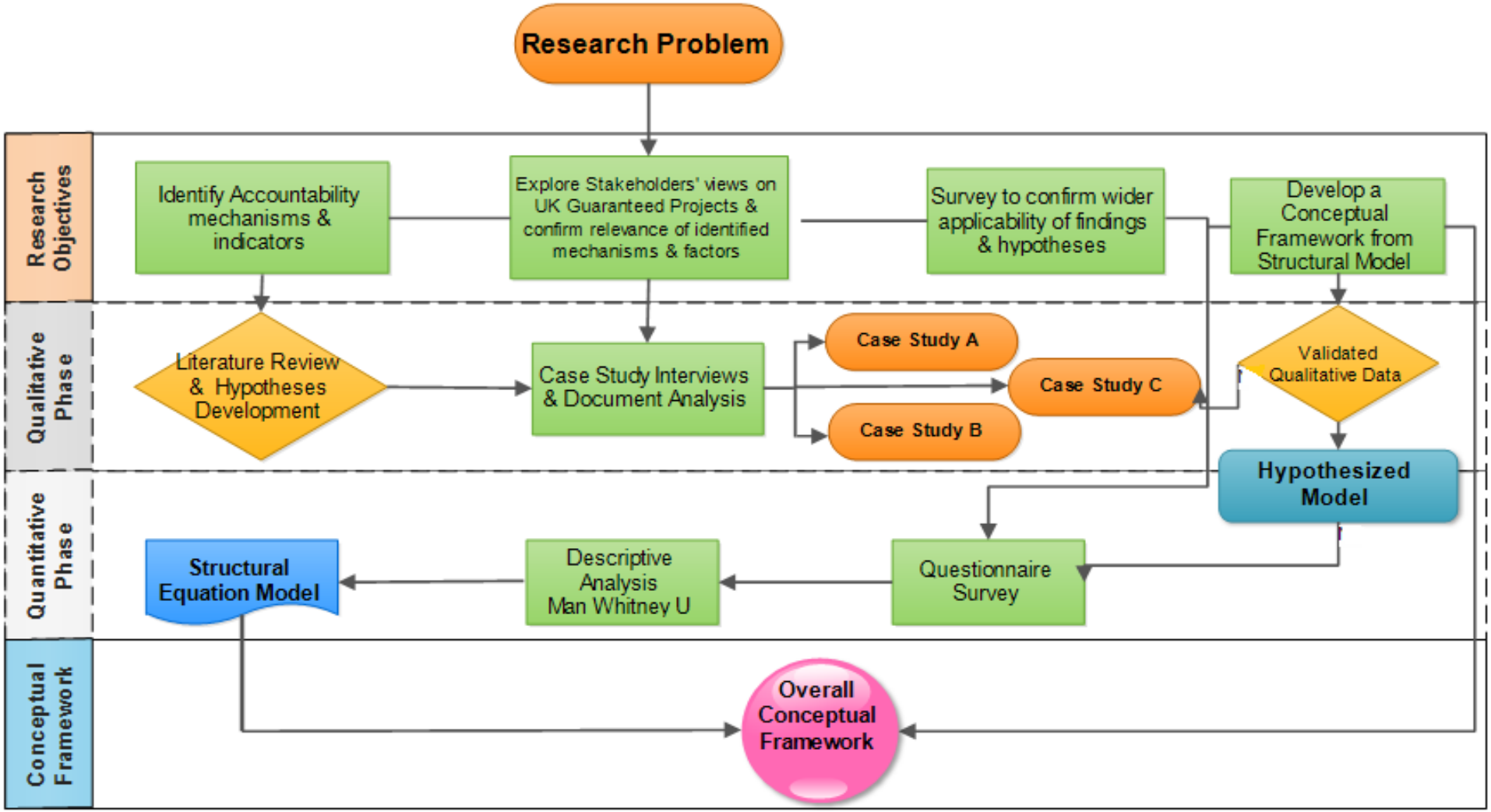

Figure 5.1: The Research Process for the study

Every researcher therefore embarks on his research activities on the basis of either of these two ontological assumptions about reality and knowledge claims (Burns, 2000).

- **Ontological assumption underpinning the current Study:**

In this study a realist ontological assumption based on the acceptance of value free knowledge of reality is embraced. By this philosophical stance, we argue that truth or knowledge claims (accountability) exist as an independent theoretical model (Bhaskar, 1975). Our actions as researchers are therefore that of a causative agent for the observed phenomenon. This study posits that, the impact of public accountability on government guaranteed projects can be known from observation of regular sequence of causes and effects. Therefore, externality of reality within the context of observed phenomena strongly holds.

5.3.2 Epistemology

The word epistemology emerged from two Greek words *episteme*, (knowledge) and *logos*, (reason) (Grix, 2002). Epistemology is described as the theory of the source, nature and limits of knowledge or social reality (Blaikie, 2007). According Crotty (1998), epistemology examines the way we understand and acquire the knowledge of reality. The question of what constitutes valid knowledge is therefore an epistemological question (Guba and Lincoln, 1994; Blaikie, 2007). As argued by Da Silva (2011), the demarcating line between epistemology and ontology is quite blurred. In most cases, ontological assumptions usually inform epistemological stances on knowledge claims (Blaikie, 2000). As suggested by Crotty (1998), three major epistemological assumptions about knowledge have been identified namely, Objectivism, Subjectivism and Constructionism.

Objectivism

As Agassi (1990) rightly opined, objectivist epistemology holds the assumption that truth or knowledge is pre-existing, fixed, out there and that only careful scientific research can obtain such scientific knowledge. Hence, only researches conducted with strict adherence to

scientific laws are regarded as valid knowledge of reality (Burns, 2000; Guba and Lincoln, 1994). According to Guba and Lincoln (1994), objectivist epistemological view argues that, if a real "reality" exists at all, then the relationship between the knower and the known must exhibit value freedom. To obtain such knowledge in a credible manner will therefore require a value-free approach that is outside the bias interpretation of the researcher (Burns, 2000).

Subjectivism

Subjectivist epistemology on the other hand, is rooted in scepticism of the universality of theory or value-free objective reality (White, 2007). This theoretical assumption holds that the knowledge of reality is only based on the interpretations that individuals and groups ascribed to it (Crotty, 1998). Therefore, meaning is imposed on reality via the subjective experience of the individual (Burns, 2000). According to Blaikie (2011), subjectivist epistemology is regarded as idiographic and focuses on individual interpretation of meaning rather than establishing universal laws.

Constructionism

Constructionism is a philosophical assumption that the world is socially constructed and knowledge of reality is created out of the interplay between the researcher and the external world (Crotty, 1998). According to Parker (1998), since a number of people may have different interpretations of reality, therefore, knowledge of reality is constructed based on individual perceptions through social relations and interactions with reality. From the perspective of Blaikie (2007), constructionist theoretical assumption presupposes that meaning arise through the collectively shared perception of reality (inter-subjectivity) by social actor.

- **Epistemological stance underpinning the current study:**

After thorough consideration of the aim, objectives and research questions for this thesis, a subjectivist epistemological assumption is adopted for the study. This may sound a little contradictory, based on the adoption of realist ontology (Value-free reality) for the study. However, doubts over the choice of epistemology will be cleared when discussing the research paradigm underpinning this study (Critical Realism). But more importantly, although the study believes in the objectivist approach towards examining accountability theory is essential; the subjective interpretations of reality from actors experiences is not neglected in this study (Bhaskar, 1975). To this end, the study combined actors' (UK public and private sector employees) subjective accounts of "accountability and mechanisms" suitable for evaluating government guarantee in PPPs, with value-free data collection methods to explore wider views of participants.

5.4 Research Paradigm

Weaver and Olson's (2006, p. 460) as quoted in Bally (2012) defines research paradigm as *"patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames and processes through which investigation is accomplished"*. Research paradigm, also referred to as theoretical perspective, describes an all-embracing and procedural thought process that organises scientific research (Bettis and Gregson, 2001). Paradigms represent the world view of the researcher which informs the approaches, strategies and methods adopted for our research process (Guba and Lincoln, 1994; Crotty, 1998). Some of the popular paradigms in social science research are Positivism, Interpretivism, Constructionism, Postmodernism, Critical Realism, Logical Positivism, Radical Structuralism, Post-Positivism etc. (Bashkar, 1978; Burrell and Morgan, 1979; Guba and Lincoln, 1994; Crotty, 1998; Blaikie, 2007).

Although the theoretical assumption underpinning this study emerged from critical realism philosophical paradigm, however, efforts will still be made to offer brief discussion on few of the major paradigms (Positivism, Interpretivism, Constructionism and Critical Realism) in order to draw adequate comparisons and justification for its adoption (Table 5.2 highlights the different research paradigms).

Table 5.2: Research Philosophies and Applications

Philosophical Basics	**Positivism**	**Interpretivism**	**Critical**
Ontology	Objectivist	Subjectivist	Objectivist
Epistemology	Objectivist	Subjectivist	Subjectivist
Theory	Generalize	Particular	Particular
Reflexivity	Methodological	Hyper	Epistemic
Role of Researcher	Distance from data	Close to data	Close to data

5.3.1 Positivism

The philosophical assumption of positivist research is objectivism (Crotty, 1998). Positivism philosophical paradigm lays claim to value-free proposition, that is, knowledge exist independently of the mind (Smith *et al.*, 1996). This proposition sees a separation of the knower (researcher) from the knowledge attained (Johnson and Onwuegbuzie, 2004). According to Guba and Lincoln (1994), positivist research assumes that scientific knowledge can only be acquired through standardized questions, numerical data, facts, statistics, random sampling etc. Therefore, any dilution of research with the subjective interpretations of the researcher will create bias as well as weaken generalizability of research findings (Crotty, 1998). Positivism paradigm rejects the idea that meaning is either socially constructed or

imposed on reality (Olsen, 2004). This research philosophy is very common in natural and some social science researches (Burns, 2000).

5.3.2 Interpretivism

In contrast to the positivist's stance on meaning and world reality, interpretivism philosophical assumption stems from idealist or subjectivist ontological and epistemological background respectively (Tuli, 2011). Interpretivism theoretical assumption challenged the value free proposition of positivism and argued that, meaning and social reality only exists on the bases of the interpretations ascribed to it (Gerring, 2003; Crotty, 1998). Hence, knowledge or meaning is relative and does not exist outside of the mind (Blaikie, 2007). Rather, meaning is imposed through subjective interpretations of the individual (Williams, 2000). As a result, interpretivism focuses on research techniques that demonstrate interactions between the researcher and the participants.

5.3.3 Constructivism

According to Crotty (1998), constructivist research holds the assumption that there is nothing as objective truth, neither is there such thing as subjective reality. Rather, constructivism argues that knowledge or meaning is only constructed by individual through interactions with the external environment (Blaikie, 2007). According to Neuman (2003), social dialogue and interplay defines what reality is under a constructivist philosophical paradigm. Hence, meaning is made out of the relationship between the knower and the known (Blaikie, 2007).

5.3.4 Critical Realism and Justification for its adoption in the study

As stated earlier in the study, the theoretical assumption underpinning this thesis is critical realism. Critical realism emerged due to the challenge of sustaining the concept of universality or independent reality of being, in the face of knowledge relativity (Bashkar, 1975; Archer, 2013). According to Danermark (2002), critical realism theoretical perspective

holds that the relationship between independent reality (quantitative) and the perceptions that we make of it (qualitative) is the primary focus of research. This therefore allows objective reality to find a common ground with socially interpreted reality (Guba and Lincoln, 1994). Critical Realism combines ontological realism (objectivism) with epistemological relativism (subjectivism) as well as an emancipatory axiology (Easton, 2010; Archer *et al.,* 2013). Although, critical realism agrees with the positivists' assertion of value free proposition, it argues that such knowledge of reality is socially constructed (Denzin and Lincoln, 2008: pp 17).

Within the context of this study, the adoption of critical realism philosophical paradigm was based on three essential considerations which include:

1. This study seeks to investigate theoretical constructs from accountability. "Accountability" is considered a socially constructed theory regarding the notion of being answerable for ones' actions or inactions to a forum or a superior authority (Auel, 2007; Bovens, 2008). Being abstract concept, objective testing of theoretical assumptions is necessary for obtaining generalizable findings (Archer et al., 2013). However, since accountability here is treated as an abstract mechanism (Bovens et al., 2015), independent reality is only understood via human interactions (subjective interpretations) with the phenomenon (Downward and Mearman, 2007). Critical realism therefore enables objective reality to be combined with subjective reality (Downward and Mearman, 2007). Also, the motive of this study, which focuses on exploring public accountability mechanisms through the views of UK public and private sector experts on PFI/PPP government guarantee, is perfectly in line with this study.

2. Triangulation – critical realism paradigm encourages triangulation of data, methods, theory and investigators in a research activity (Olsen, 2004). Hence, it allows the researcher to extract ideas and insights from various data sources and employ suitable methods to generate diverse viewpoints (Seale, 1999). Triangulation improves internal rigor in research and helps to cross validate findings (Creswell, 2007). According to Downward and Mearman (2007), through triangulation, qualitative findings can be validated through quantitative analysis of findings and vice versa. This study will thus rely on extracting qualitative data as inputs for quantitative analysis.

3. Methodological Pluralism – the adoption of critical realism is also based on method pluralism. Method pluralism rests on the proposition that research method and methodology in a study is influenced by the identified research questions (Wildemuth, 1993; Olsen, 2004). This assumption, as further buttressed by Danermark (2002), allows combination of different research methods or methodology. As such, this study will triangulate qualitative data collection methods with quantitative methods of data collection and analysis respectively. This approach is common in inter-disciplinary research where data and findings may emerge from disciplines having different ontological believes (Danermark, 2002). Critical realism thus allows such interface of standpoints and methodology to hold in a single study.

Based on the above arguments, it suffices to say that critical realism is the appropriate philosophical paradigm for this study. It encourages mixed method triangulation which my thesis strongly rely on, in terms of using quantitative techniques to analyse qualitative findings.

5.4 Research Approach

The research approach in this thesis is **"Retroduction"**, as against deduction (theory testing), induction (theory generation). According to Peirce (1998), Reichertz (2004) and Downward and Mearman (2007), retroduction, also regarded as abduction in many studies (Peirce, 1957; Darden, 1987; Paavola, 2004; Deledalle,1990), borrows ideas from existing known structures (induction and deduction) (Sæther, 1998). Retroduction encourages triangulation of methods, especially quantitative and qualitative methods (Downward and Mearman, 2007). This therefore allows it to avoid the epistemological weaknesses of inductive and deductive reasoning (Walters and Young, 2005), in order to extend the boundary of knowledge (Downward and Mearman, 2007). As Oliver (2011) and Downward and Mearman (2007) right opined, the major tool in critical realism is retroductive inference (See Fig 5.2 below).

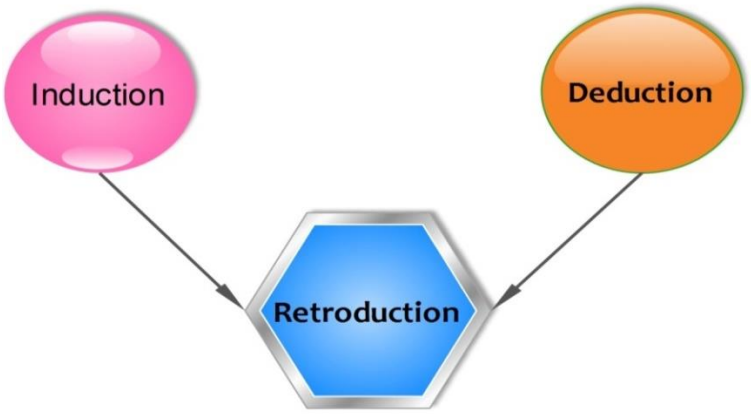

Figure 5.2: Retroduction borrows ideas from inductive and deductive approaches

5.5 Research Choice/Method of Enquiry

Research choice usually reflects the objectives which the researcher intends to pursue in a study (Ghauri and Grønhaug, 2005). According to Blaikie (2000), in many studies on social enquiry, research choice has been broadly classified under two categories namely, qualitative and quantitative. Conversations on these two approaches have been used to define (i)

methods of data collection, (ii) types of data collected (iii) research in which certain methods are applied (iv) paradigms, theoretical perspectives and strategies of enquiry (Guba and Lincoln, 1994; Blaikie, 2000; Brannen, 2005; Creswell, 2013). While some studies are regarded as qualitative based on certain choices of data collection techniques, analysis or research strategy (Morgan and Smirch, 1980; Berg *et al.*, 2004; Neuman and Neuman, 2006), others are classified as quantitative (Martin and Bridgmon, 2012; Creswell, 2013). Yet, more recent literatures have embraced a combination of different methods, also known as mixed methodology (Morse, 1991; Bryman, 1992; Blaikie, 2000; Olsen, 2004; Creswell, 2013). This study therefore explores both qualitative and quantitative strategies to provide a basis for its research choice (mixed methodology).

5.5.1 Qualitative Research

Qualitative research involves subjective analysis and exploration of social phenomena, within their natural enviroment (Morgan and Smirch, 1980; Berg *et al.,* 2004; Neuman and Neuman, 2006). Qualitative research dwells on theory generation and discursive descriptions that examines social actors (Blaikie, 2000; Crotty, 1998). As such, efforts are centred on understanding the patterns or meaning that individuals or group attribute to social phenomena (Creswell, 2014). Researchers in this field employ interpretive approaches such as unstructured or semi-structured techniques, participants' observations, focus group discussions among others (Blaikie, 2000; Creswell, 2007; Denzin and Lincoln, 2008).

5.5.2 Quantitative Research

Quantitative research on the other hand is an approach for objective testing of theoretical assumptions (Newman, 1998, Creswell, 2014). Quantitative research lays emphasis on facts that directly or indirectly emerge from observed regularity in social phenomena (Crotty, 1998). This type of research are mostly well-detailed, uses more of randomized experiments

and structured data collection methods i.e. sample surveys, multivariate statistical analyses, frequency etc. (Bryman, 1992; Blaikie, 2000). The assumption underlying quantitative research is that of value-free relationship between the researcher and the research participant (Guba and Lincoln, 1994).Quantitative research is more common in the field of natural sciences and usually emerges from positivist's theoretical background.

5.5.3 Mixed Method Research and its Justification in the study

In order to examine accountability in public sector guarantee for PFI/PPPs, this study adopted exploratory sequential mixed methodology approach. With this strategy, initial exploration of the constructs from accountability through qualitative research approach was followed with a quantitative approach to research. According to Creswell and Zhang (2009), sequential mixed method is suitable where a phenomenon is yet to be conceptualised, adequately explored in the literature or is being examined in a context whose research questions are unknown. Webb et al. (1966) referred to mixed method approach to research as "multiple operationism", which allows the combination of various methodologies in single study (Blaikie, 2000). According to Denzin and Lincoln (2008), integrating quantitative and qualitative methods and data in a single study is essential towards increasing richness and rigor in social inquiry. As a result, mixed method augments the non-overlapping weaknesses of either methods (qualitative and quantitative), with strengths of the other (Johnson and Onwuegbuzie, 2004; Creswell, 2014).

Nevertheless, this study is not unmindful of a number of opposing arguments against mixed methodology approach to a research (Creswell and Tashakkori, 2007; Philip, 1998; O'Cathain et al., 2007, Tashakkori and Creswell, 2008). According to Philip (1998), many of these arguments have centred on the feasibility of a mix of methods in a single study. Blaikie

(1991) argued that triangulation in mixed method research is hindered by the notion of incommensurability of different ontological and epistemological assumptions that underpins different methods. O'Cathain *et al.* (2007) also doubted the practicality of gaining any unique insight through a mixture of methods in research. In addition, mixed methodology faces the challenge of validity of research findings due to weakness associated with integration of different methods (Johnson and Onwuegbuzie, 2006). Despite the opposing views, mixed method approach continues to gather tremendous following and proponents (Morse, 2003; Brannen, 2005; Creswell and Tashakkori, 2007; Saunders *et al.*, 2011; Creswell, 2013), and it's thus adopted for this study.

The adoption of mixed methodology approach in this study therefore aims to address the objectives identified for it which include:

- To identify accountability mechanisms that are suitable for evaluating government guarantees to PFI/PPP projects.
- To explore the perception of UK public and private sector experts on each accountability mechanism identified and their suitability in the context of PFI/PPPs government guarantee scheme.
- To identify the top ranked accountability mechanisms that can be used for evaluating in government guarantees for PFI/PPPs.
- To develop a structural model for evaluating accountability in government guarantees in PFI/PPP projects.

Based on the above stated objectives, it is evident that the first and second objectives of the study adopt interpretive approaches (literature review case study interviews, and documentation). However, the third and fourth objectives employed randomized statistical

analysis in order to arrive at a more generalizable conclusion. Based on these objectives, mixed methodology approach is therefore suitable for the study.

5.6 Research Strategy

5.6.1 Case Study Strategy and justification for its adoption in the study

The research strategy for this study is "Case Study". Case study has a long history in clinical medicine, social anthropology and currently in political science, sociology, management etc. (Blaikie, 2000). According to Yin (2014. p.2), case study research is defined as:

> *"a research approach which tends to investigate contemporary phenomenon (the "case") in its real world context, especially when the boundaries between phenomenon and context may not be clearly evident".*

From the perspective of Creswell (2007), case study methodology involves examining a research problem through one or numerous cases in a confined system. Researchers have argued that case study strategy allows investigation of the complexity and particular nature of a phenomenon (Blaxter *et al.*, 1996; Blaikie, 2000). As such, investigations in case studies often take different forms such as explanatory, exploratory or descriptive approach, depending on the research questions of the study (Yin, 2014).

In this study, exploratory case study strategy was adopted to explore public accountability in PFI/PPP government guarantee scheme. In this sense, perspectives of UK public sector employees and private sector participants were explored to identify suitable accountability mechanisms for evaluating PPP government guarantee schemes.

5.6.2 Identifying the case

According to Yin (2012), identifying the "case" to study is often the first step towards designing case study research. Blaikie (2000) describes a case as a social object or unit whose unique character and context must be carefully studied within a bounded system.

Such unit may be an entity, a thing, a person, a family, a group, a set of relationships, processes etc. (Blaikie, 2000; Stake, 2013). In this study, "the cases" being studied are three public-private collaborative projects (PFI/PPP) backed by UK government guarantee scheme. Such types of projects are special with unique characteristics and contexts. In addition, the selection of projects from the United Kingdom was informed by the prolific nature of the country's PFI procurement policy, the volume of her PFI project portfolio and her adoption of infrastructure guarantee scheme in 2011 at the wake of the 2007/08 global recession.

5.6.3 Multiple or Single Case Study

Many criticisms of a single case study design abound in numerous literature (Stake, 1995; Flyvbjerg, 2006; Campbell and Stanley, 1966). For instance, Vaus (1991) criticised the lack of comparison with another case, whilst Campbell and Stanley (1966) doubted the possibility of drawing a scientific inference from a single isolated case. However, other studies like Flyvbjerg (2006), Noor (2008), and Yin (2012) have debunked these traditional claims and argued that generalization is possible in case studies, since multiple cases and sources of evidences could generate research findings that can be replicated in similar contexts.

Coming from the above arguments (Yin, 2012; Creswell, 2012), this study opted for multiple-case study approach. Hence, three case studies of PPP projects currently being guaranteed by the UK government were investigated. This strategy, the study believed will allow multiple perspectives to be explored, thereby enriching the research findings (Baxter and Jack, 2008).

5.7 Sampling Strategy

Sampling involves selection of units or cases from a much larger population in order to observe the smaller group, with the intention of making precise generalization about the larger population (Bryman, 2004; Neuman, 2007; Thompson, 2012). Through sampling, representativeness among constituent parts of a population can be ensured (Neuman, 2003; Neuman, 2007; Merriam, 1988; Flyvbjerg, 2006).

In this study, qualitative and quantitative sampling strategies play huge role in addressing the research questions. According to Doherty (1994), quantitative sampling methods are usually randomised and based on probability or chance. On the other hand, qualitative sampling methods are non-probabilistic in nature (Neuman, 2003). The differences in these two sampling approaches centre on the size of the sample population as it affects margin of error and confidence level (Neuman, 2007). From quantitative perspective, the larger the sample size, the smaller the sampling error and the higher the confidence level, hence generalizability of findings (Marshall, 1996; Cooper *et al.*, 2006). On the other hand, qualitative research focuses on the depth of knowledge and context of a social phenomenon (Blaikie, 2000).

5.7.1 Qualitative Sampling Strategy

At the qualitative stage of this study, two sampling strategies were employed. The first is **Maximum Variation Sampling Method** which was used for selecting the three case studies of publicly guaranteed PFI/PPP projects in UK. According to Suri (2011), maximum variation sampling, which is also referred to as maximum diversity sampling is a type of purposeful sampling (Neergaard *et al.*, 2009). This sampling method is very useful when examining small sample population and when a random or quota sampling methods would be impossible (Patton, 2005). Maximum variation sampling focuses on selecting samples from a

population that are entirely different from one another in order to reflect their heterogeneity (Perry 1998; Draucker et al., 2007). Through this method, multiple perspectives are explored, which allowed the capture of essential and variable features of a phenomenon (Koerber and McMichael, 2008). Studies such as Memarian *et al.* (2007); Louis *et al.*, (2005); Brewer and Selden (1998) and Haverland and Yanow (2012), have used maximum variation sampling to explore different research problems within accountability literature and public sector administration.

In line with the above, this study chose three extremely diverse UK government guaranteed PPP projects namely, (1) A Six-lane Toll bridge in Northwest England, (2) a Power Station Project in South West England and (3) a Rail Line Expansion between South East and South West of England.

The selected projects were chosen based on the following reasons:

- **Case Study Selection-**

    - Although each of the three (3) PPP projects selected were guaranteed by the UK government under the "UK Guarantee Scheme for Infrastructure (2011-2015)". However, the three projects are of different types in terms of structure, characteristics, purpose, and project value.
    - Each case study projects are also distinct by their geographical locations.
    - The project sample population is not large as the UK government has only guaranteed few infrastructure PPP projects, whilst about a number of other projects has been pre-qualified for guarantee under the UK government guarantee scheme.

The second stage of the qualitative study involved twenty three (23) semi-structured interviews with public and private sector employees. As such, selecting information rich participants for the interviews adopted a **"Purposive Sampling Method"**. Purposive Sampling, also known as "Judgemental Sampling" is a technique through which a researcher participants based on careful consideration of certain criteria in mind (Neuman, 2007). In the context of this research, purposive sampling technique was adopted based on the following identified reasons:

- **Semi-structured Interviews participants**

  - Interview participants considered are public and private sector stakeholders with experience or involvement in UK government infrastructure guarantee scheme either as a team member of a guarantee beneficiary-institution or firm or involved stakeholder at lower capacity in beneficiary-firms or government institutions.
  - Also considered for the interviews were guarantee beneficiary team members or staff with experience in PFI/PPP procurements.
  - Interviewers selected were also based on ease of access to project information by research participants.

Examples of studies on accountability and PFI/PPPs that have employed this sampling approach include Dicke (2002), Wallenburg et al. (2010), Li et al. (2005), Meng and McKevitt (2011).

5.7.2 Quantitative Sampling Approach

Confirming wider applicability or generalizability of the qualitative findings from this study required survey to large sample of population via questionnaires. At the moment, the UK

public sector workforce is currently estimated at 5.354 million as March, 2016 (ONS, 2016). In addition, based on list of operational PFI projects contained in the HM Treasury database, the total number of contracting, Special Purpose Vehicles (SPVs) and financial firms currently stands at 305. However, due to the absence of any reliable and open database for UK public sector employees and the unique nature of government guaranteed PFI/PPPs, a randomized sampling method was not possible. As such, the study adopted **"Snowball Sampling Method".** Snowball Sampling is also known as network, chain referral or reputational sampling (Blaikie, 2000). According to Blaikie (2000), snowball sampling involves identifying your sample population by building on network of contacts to access other likely participants (Neuman, 2007). As such, the researcher built on referrals from various existing contacts within UK Public service and PFI/PPP Construction Industry to recruit respondents and build large sample questionnaire respondents over time.

5.8 Methods of Data Collection

Two principal methods of data collection were employed in this study namely, qualitative and quantitative data collection methods. These methods are discussed below:

5.8.1 Qualitative Data Collection

The first phase of the study involves a two-way qualitative data collection strategy comprising literature review and case study investigation. Through extensive literature review, the study explored constructs in accountability theory towards identifying accountability mechanisms relevant for evaluating government guarantee in PFI/PPPs. However, confirming the applicability of the identified accountability mechanisms and associated measures within real life contexts was also deemed necessary to the study. As such, multiple case studies of three (3) PFI/PPP government guaranteed projects in the UK were explored through documentary analysis and semi-structured interviews. The interviews

conducted involved twenty-three (23) UK public and private sector employees with varying experiences and involvement with UK infrastructure guarantee schemes and projects.

5.8.2 Quantitative Data Collection Technique

The second phase of the study involved quantitative data collection through questionnaire survey distributed to 118 UK public and private sector employees. The sampled public and private employees have diverse years of experiences with government guarantee schemes and PFI/PPPs. The principal objective behind the survey was to confirm wider applicability of the accountability mechanisms identified through the qualitative study.

5.9 Validity

Validity is described as measuring of the extent to which a measurement or concept is well-established and conforms accurately to social reality (Carmines and Zeller, 1979). Research validity measures the correctness of a research design and the method adopted for arriving at a scientific conclusion (Neuman, 2007). Within the context of this study, the research design shows a careful sequence of procedures for both the qualitative and quantitative sections of the study. In more detailed manner, the validity of this is further explored below:

5.9.1 Internal Validity/ Credibility

Qualitative study*:* The research problem in this study was explored using case study interviews and documentary evidences which were combined with theoretical data from literature review. As such, multiple sources of data and collection methods helped facilitate better insights in to the phenomenon (Sommer and Sommer, 2002). This perspective align with studies such as Neuman (2007), Lincoln and Guba (1994), Creswell (2007), who argued that relying on multiple sources of data and methods enrich the validity of qualitative research via triangulation. In addition, twenty (23) semi-structured interviews were conducted with public and private sector employees experienced with government guarantee

scheme and PFI/PPP projects. This showed sufficient sample size for a qualitative study based on the recommendation of Moutaskas (1994) who suggested a minimum of 5 and maximum of 25 participants was suitable for qualitative interviews. The selected case studies were also identified using based on maximum case variation sampling, which ensured heterogeneity of sample, representativeness and multiple insights (Dicke, 2002; Wallenburg et al., 2010).

Quantitative Study: Here, structured questionnaire using data from the qualitative study were developed. Albeit, snowball sampling was used to gradually recruite questionnaire respondents, the eventual relatively large sample population attained for the study was very significant for statistical analysis and generalisation. 95% confidence level with 5% margin of error was adopted for the study. Questionnaires were also piloted with selected participants within the academia. Reliability test was also carried out on the questionnaire data to ensure internal consistency of the measurement scale and reliability of measures.

5.9.2 External Validity/Transferability

External validity often referred to as "Generalizability" in quantitative research or "Transferability" in qualitative studies, examines whether results generated from a scientific research, when replicated or repeated under similar conditions will lead to the same results (Bracht and Glass, 1968; Calder *et al.*, 1982; Neuman, 2007). Within the context of this study, external validity of findings is enhanced with the adoption of triangulation of methods and data sources. This is in line with Lincoln and Guba (1994) who argued that triangulation enriches qualitative research and enhances transferability. In addition, the adoption of multiple case studies at the qualitative stage of the study has been suggested to enhance transferability of findings (Vaus, 1991). Also, since this study also employed questionnaires whose internal consistency was confirmed, generalizability is maximized, whilst significantly diminishing bias in findings (Blaikie, 2000).

5.10 Ethics

This study raises no ethical concerns as it involves exploring perceptions of public and private sector experts who do not fall within the group of vulnerable citizens as identified by the University's Ethics Committee Guidance Document. Whilst data collection strategy within the study also included examining documentary evidences relating to UK government guarantee projects, in no way did the study sought sensitive documents. In addition, the study ensured anonymity of research participants' identities, whilst also complying with informed consent by obtaining respondents express permission before filling questionnaires.

5.11 Negotiation of Access:

Negotiation of access to sources of data is a very difficult issue in a PhD thesis. In this regard, with full cognizance of the nature of the research participants (public and private sector stakeholders) and the specialised nature of the research topic, purposive and snow ball sampling approaches were used to gain access to interview participants and questionnaire respondents for the qualitative and quantitative studies. In line with the above, the researcher employed gate keepers (insiders) within various public and private sector institutions, PFI/PPP contractors and project companies. Overall, the study consolidated on networks of referrals to recruit research participants.

Chapter Six: Qualitative Study and Development of Hypothesized Model

6.0 Chapter Overview

This chapter looks at the qualitative data collection strategy for the study and the development of a hypothesized model. Section 6.1 discusses literature review and multiple-case study strategy (semi-structured interviews and document analysis) used to identify and explore accountability mechanisms and associated indicators for evaluating publicly guaranteed PFI/PPPs. Section 6.2 presents the sampling strategy for both case study and interview participant identification and selection. Section 6.3 presents the three case studies investigated in the study. Section 6.4 describes the data collection methods namely, semi-structured interviews and documentation used as sources of evidence for the study. The final section 6.5 presents the overall findings from the qualitative study: 16 identified accountability mechanisms and 85 associated indicators for evaluating public accountability in PFI/PPP government guarantee scheme. Finally, a hypothesized model for accountability in publicly guaranteed PPPs is then developed from the qualitative data, after discarding 7 unconfirmed associated indicators.

6.1 Qualitative Study

The first phase of the qualitative study involved a two-way strategy comprising theoretical review of extant literature and case study exploration. While the literature review provided a robust background for the study and ensured the identification of useful theoretical data. The case studies provided real life context for investigating accountability mechanisms in PFI/PPP government guarantee scheme.

6.1.1 Literature Review

The literature review stage explored current state of knowledge on PFI/PPPs, government guarantee scheme and accountability theory. In addition, based on the objective of the study, there was need to identify suitable accountability mechanisms for examining PFI/PPP government guarantee scheme. Hence, through extensive literature review, the study investigated different theoretical constructs in accountability theory such as process-based accountability, outcome-based, ethics-based and democratic accountability. The review led to the identification of sixteen (16) accountability mechanisms/constructs suitable for evaluating PFI/PPP government guarantee scheme (see Table 6.1 below). Going further, the 16 accountability mechanisms (value for money, risk management, collaborative partnership, rule of law etc.) were deeply analysed using the literature to identify measures influencing the 16 constructs. The review resulted in the unravelling of 85 associated measures influencing accountability in PFI/PPP Government guarantee scheme. Based on these discoveries, the 16 accountability mechanisms and associated measures (85 factors) were put up for further confirmation using document analysis and case study (semi-structured) interviews. The semi-structured interviews involved public and private sector subject matter experts with experience in PFI/PPP procurement and infrastructure guarantee scheme in the UK.

Table 6.1: Accountability Mechanisms identified for Evaluating Government Guarantee Schemes for PFI/PPPs

	Outcome-Based mechanisms	**Literature Sources**		**Ethics-based Mechanisms**	**Literature Sources**
1.	Risk Management	Lowry et al. (1998), Drennan *et al*. (2014).	1.	Whistle-blower-policy	Brewer& Selden, (1998),Bovens et al. (2015)
2.	Environmental Sustainability	Deegan & Rankin (1996)	2.	Anti-corruption	Meagher (2005), Rebeiz(2011)
3.	Collaborative Partnership	Forrer et al. (2010)			
4.	Budgetary reporting	Hodge & Greve (2007); Grout			
5.	Value for Money	Hodge & Greve (2007); Nisar (2007), Demirag and Khadaroo			
	Democratic Mechanisms	**Literature Sources**		**Process-related Mechanisms**	**Literature Sources**
1.	Social and Political Impact	Forrer et al. (2010), Mahalingam (2009)	1.	Competitive Bidding	Kaboolian, (1998), Bing et al. (2005), Parker& Hartley(2003)
2.	Stakeholder Engagement	Brandsma & Schillemans (2012)	2.	Benchmarking	Goddard (2005)
3.	Rule of Law	Afonso *et al*. (2005)	3.	Monitoring	Nisar (2007), Boussabaine
4.	Parliamentary Scrutiny	Luke (2010); Morallos & Amekudzi, (2008)	4.	Performance Audits	Bovens et al. (2010)
			5.	Public Sector Comparator	Bovens et al. (2015)

6.1.2 Multiple Case Study

Coming from the literature review and in order to confirm the relevance and applicability of the identified sixteen (16) accountability mechanisms and associated (85) measures within real life context, the study examined three (3) case studies of government guaranteed PFI/PPP projects in the UK. The adopted multiple-case study strategy was aimed at expanding sources of evidences to generate qualitative findings which could be replicated in similar contexts (Blaikie, 2000; Creswell, 2007; Yin, 2014). However, considering the unique nature of the study, selecting suitable case studies was of utmost significance.

6.2 Sampling Technique for Case Studies

Using **"Maximum Variation Sampling"** approach, this study selected three (3) UK government guaranteed Infrastructure PFI/PPP projects as case studies. The selected projects include (1) A Six-lane Toll bridge in Northwest England, (2) a Power Station Project in South West of England and (3) a Rail Line Expansion in the South East and South West of England respectively. All the three infrastructure projects currently benefit from the UK Guarantee Scheme for Infrastructure (UKGSI) cover and are being delivered through Public Private Collaboration with varying percentages (100%, 60% etc) of private sector finance.

The selected projects possess different attributes and characteristics, and therefore justified the adopted sampling methodology. According to Gentles *et al*. (2015) maximum variation sampling method allows a study to gain multiple insights into social phenomenon by selecting entirely diverse cases from a relatively small sample. In this study, all the infrastructure projects currently under the UK guarantee scheme vary entirely from one another in terms of type, size, sector and project value. As such, selecting projects of similar types or sizes would have been clearly impossible. More importantly, considering that the selected projects would have gone through similar government guarantee appraisals,

accountability mechanisms were likely to be mostly similar. Also, the issue of accountability is considered a generic but important issue that cuts across all government transactions irrespective of their variants (Ferris, 1993; Dunleavy et al., 2006). As such, maximum variation sampling approach allowed the capture of essential and variable attributes of each selected project, while enriching the research due to multiple perspectives and heterogeneity (Koerber and McMichael, 2008).

6.3 Three Case Studies of PPP Government Guaranteed Projects

This section presents the case study projects investigated in the study. The cases were briefly described with focus on important features and nature of the projects. Vital information that could easily give out the identity of the project and its sponsors were deliberately omitted from the descriptions in line with anonymity agreement with the project parties. Table 6.2 below presents details of the three case study PPP projects.

Table 6.2: Three (3) Selected Case Studies of Public Private Partnership (PPP) Projects Guaranteed by UK Government

Project Characteristics	
Case Study A	Six-lane Toll bridge
Project Location	Northwest England, United Kingdom
Project value	£600million
Procurement	Public Private Partnerships (DBFO)
Industry/Sector	Transport
Duration	30 years Concession
Funding arrangement	70% Private Sector Funded
Value of Government Guarantee	£257million
Project Details	
This project is a 1.5km long toll bridge that connects two towns and forms the centre of a newly improved standard link road of 9.5km long that connects the national motorway network. The project which commenced construction in 2014 is billed to be completed in the autumn of 2017. This bridge	

has a total length of 2.3km and width of 60m, height of 80 to 125m and has load weight limit of up to 53,000+tonnes. Wider output specification of the project includes developing and connecting other public transports, cycles and pedestrians including a 20year regeneration programme. The road which was designed to have a speed limit of 60mph with three lanes on both sides of the road, is expected to create an estimated 4.640jobs courtesy inward investment, regeneration activities and direct jobs. The project is also expected to realise an estimate annual income of £61.9million in gross value added from the newly created employments. The toll road project is considered among nationally significant projects under the UK's National Infrastructure Policy of 2011and as such was deemed eligible for government support via guarantee.

Case Study B	Power Station Project
Project Location	South West England
Project value	£19.6 to £20.3billion
Procurement	Public Private Collaboration (DBFO)
Industry/Sector	Energy
Duration	60years
Funding arrangement	100% Private Sector Funding
Value of Government Guarantee	£2billion

Project Details

This project involves the delivery of a 1630MWe per unit power station that includes two pressurised energy reactors which are enough to power an estimated 6 million UK households. The project which is funded entirely through the private sector route is expected to be completed by 2027 considering the developer's own estimation of possible 15months time overrun. The massive power project commenced preliminary construction works in 2014 and is being cited on a near 69 acres site. About 1800 workers are currently working on the project, a number which is expected to rise to 5600 over the course of the 10 construction period. The project is currently under a 35year fixed tariff agreement (subsidy) between the energy provider and the UK government and is expected to satisfy 6-7% of UK's energy demands. This project is expected to create more 25,000 jobs over the construction period and is expected to provide huge opportunities for local, national and international businesses. The power projects makes more efficient use of fuel than previous designs therefore ensuring reduction in spent

fuel. Generated steam powers just one large turbine which is directly connected to a generator that is capable of generating a total site capacity of around 3260MW of electric power. The electric power is transferred via overhead cables to the National Grid Transmission Network. Associated projected developments needed to support the delivery of the power project include cooling water tunnels, transmission infrastructures, and interim energy waste storage facilities among others.

Case Study C	Rail Line Extension
Project Location	South East of England
Project value	£1.2billion
Procurement	Public Private Collaboration (DBF)
Industry/Sector	Transport
Duration	Construction duration is 4years
Funding arrangement	100% Private funding
Value of Government Guarantee	£750million

Project Details

This projects involves a massive rail track expansion from the South East to South West part of England. This rail extension include the construction of two underground stations. The project which commenced construction in 2015 is expected to be completed by 2020 and involves underground tunnelling of about 3.2km in length. The project will require the excavation of about 600,000 of earth and development of a 300-meter long conveyor belt to transport spoil. The project is designed to create more than 25,000 direct employment and the development of over 20,000 homes within the project communities. The project, which was designated as a nationally significant project yet benefits from no direct government funding as it's earmarked as to be financed entirely through private sector funds through a Design, Build and Finance (DBF) approach. This project is expected to generate wider economic benefits to the tune of £7.9billion and up to £4.5billion is additional tax revenue.

6.4 Sampling Approach for Qualitative Data Collection

After identifying suitable case studies for exploring the real life context of the research problem, the study then adopted semi-structured interviews and documentation as qualitative data collection methods to elicit findings from the selected cases. Both semi-structured interviews and documentation were designed to help confirm the relevance and applicability of theoretically identified accountability mechanisms and their associated measures. Using a **purposive sampling method**, the study identified information-rich participants that were relevant towards achieving the research objectives. The selected participants in these cases were public and private sector stakeholders that fulfilled two or more predetermined criteria set for the study. The criteria for selecting participants for the qualitative phase are listed below:

Selection Criteria for Private Sector Participants:

- The first criterion was to interview participants from among project parties involved on projects selected as case studies for this study. This include team members of the project companies or Special Purpose Vehicles (SPVs).
- In addition, the relative experience or extent of the participants' involvement in the selected case study project, especially the bidding process for UK guarantee scheme. Such involvement in the project and guarantee scheme application could be in diverse capacities ranging from:

a. Senior staff with influence or decision making powers on the project and the firm's bid for infrastructure guarantee cover,
b. Staff team members familiar with the organisation's application for UK guarantee scheme for project,

- Interview participant may also include experienced staff member with direct or indirect involvement with the project and/or the institution's guarantee scheme application.
- Relative experience of interview participants with Public-Private projects were also essential.

- The willingness of staff members to allow access to less-sensitive documentation relating to the guarantee scheme applications and the beneficiary infrastructure project.

Selection Criteria for Public Sector employees:

- Public sector employee with direct involvement or experience in the appraisal or decision making stages of infrastructure government guarantee applications for the selected case study projects. This involvement could be at various levels ranging from director or deputy director, senior executive, or executive level staff with varying degree of involvement at certain stages of the guarantee appraisal.
- Public sector employees with experience in PFI/PPP procurements.
- Other public sector employees with involvement in PFI/PPP procurements but without experience of government guarantee application and vice versa.

6.5 Qualitative Data Collection methods

6.5.1 Interviews

According to Moutaskas (1994), when conducting interviews, a minimum of five and maximum of 25 participants may be suitable for investigating a phenomenon. In line with this perspective, the study interviewed twenty-three (23) participants who fit the selection criteria set out for the study (see Table 6.3 for Characteristics of the Interview Participants). These participants ranged from public to private sector interviewees that and fulfilled a minimum of three of the selection criteria for each group.

Table 6.3: Characteristics of Interview Participants

Govt. Guaranteed Case Study Projects	**Case Study A**	**Case Study B**	**Case Study C**
Participants' Position			
Public Sector Participants			
Director	**-**	**2**	**1**
Senior Executives	**2**	**1**	**2**
Junior Level Managers	**2**	**1**	**1**
Private Sector Participants			

Project Team Member	**1**	**-**	**-**
Project Manager	**1**	**2**	**1**
SPV Executive	**2**	**1**	**3**
Number of Interviewees	**8**	**7**	**8**

The average work experience of all the interview participants is 37.9 years, while their average experience in the UK government guarantee schemes for infrastructure and PFI/PPP projects is 3.7 years and 17.5 years respectively. The interviews were conducted between August 2014 and April 2015. Suffice to say that, though the interviews were semi-structured and relatively guided with few prepared questions, respondents were still encouraged to freely share their views on issues relating to how accountability was ensured during the processes of bidding for UK guarantees schemes. This therefore allowed the study to accommodate views considered important by the participants in line with Irvine *et al.*, (2013). More importantly however, the interview participants were asked to confirm, which of the 16 identified accountability mechanism were relevant and applicable within the PPP guarantee application they have been involved. This was made possible through consistent prompting, including following up on specific issues relating to accountability arrangements for the projects. Overall, all the 23 interviews lasted a total of 757mins and were tape-recorded using a smart voice recorder.

6.5.2 Documentation

The second stage of the qualitative data collection involved document analysis. Usually considered more difficult than direct interview method, gaining access to relevant documents can be a herculean task. As such, the study relied on existing relationships built within the case study project organisations to obtain a number of relevant documents relating to the guaranteed projects. In the case of public sector employees, the researcher was advised to access publicly available documents on the projects, as no staff offered any useful

documentation. However, through private sector participants, a number of project-related documents were accessed including memos, internal and external correspondence of the organisations, minutes of project meetings, some project appraisal documents and pre-qualification documents etc. These data was offered after obtaining express agreement anonymity of projects and participants.

Accordingly, before extracting any data from the obtained documents, the study deemed it necessary to evaluate their quality. In this regard, Scott's (1990, pp.6) four criteria for determining document quality was employed for the exercise. These criteria include: (1) Authenticity, (2) Credibility, (3) Representativeness, and (4) Meaning. The study concluded that, being company documents, all the documents can be considered authentic, credible and meaningful. This perspective is in line with suggestions by Bryman (2004) who argued that documents emanating from private sources such as companies/institutions are often authentic and meaningful. However, it was difficult to conclude whether the documents were representative enough, given the typically huge documentation that such infrastructure PPP projects are known for. After examining the quality and relevance of the documents, the study proceeded to take extensive and important notes from the various documents, as may be relevant to the study.

6.6 Qualitative Data Analysis (Interviews and Documents)

In order to analyse the qualitative data collated from the semi-structured interviews, the study adopted a thematic analytical approach. According to Bryman (2004), thematic analysis involves identifying underlying themes or patterns in a qualitative dataset, document or materials. Being a content-driven technique, thematic analysis enables exhaustive comparison of all segments of qualitative data to identify relationships and structures among recurring themes (Aronson, 1995; Braun et al. 2014). Oftentimes, thematic analysis allows a researcher to collate the frequency of

specific themes or codes within a data and as well permit analysis of their meaning within specific contexts (Clarke and Braun, 2014). With this approach, both manifest content of a qualitative data and the latent meaning are used for understanding the underlying themes (Vaismoradi, et al., 2016). Coming from the above perspectives, this study employed Nvivo 10 Software (qualitative analysis tool), to perform thematic analysis on the data by first transcribing all the interviews to textual data. The interview transcripts were then printed out and proofread for errors and possible omissions.

6.6.1 Coding Scheme and Classification

After considering all the responses of interview participants on the applicability or otherwise of the sixteen (16) accountability mechanisms identified from the literature, the study proceeded to code the remaining interview data. With the aid of Nvivo 10 software, initial coding of the data was carried out by considering the descriptive terminologies used by interviewees during the interview sessions. This helps to improve the dependability of the analysis as suggested by Kerr and Beech (2015). The thematic analysis was then carried out using a structured coding scheme to unravel the various issues relating to accountability, processes or procedures that were essential toward government guarantee scheme and PFI/PPP projects. The coding scheme focuses on three main areas namely, sources, context and theme category. While the source identifies the interviewee, who discussed the transcript segment, the context summarises the important issues discussed within the quotation segment. Table 6.4 below shows the example of the quotation classification based on the developed coding scheme.

Table 6.4: Sample of classification based on the coding scheme

No.	Quotation	Source	Theme Context	Theme category
1.	*"Obviously your **risk analysis has to be very robust**. You have to work with experts on the job to develop a comprehensive view of possible risks and these have to be well quantified and mitigated also. Sure, risk analysis is a given, you can't obtain government support without showing you can manage risks within your project. We had a lot of applications returned to sponsors due to their inability to satisfy the selection team that most possible risks have been planned for."*	Interviewee 19	Project risks	Risk Analysis & Management

2.	*"If you talk about the guarantee application process, I think the procedures they have are quite strong. Obviously,* ***many levels of audits have to be passed. And mind you its a continuous exercise.*** *We had to go through the government's audits to get to where we are now. And on our own, there is constantly audit exercises on our project. We obviously use a Gated lifecycle approach in managing our projects so….. We look at the project performance indicators on a constant basis and this is very crucial….. ".*	Interviewee 12	Audits are essential for Governance.	Audit Processes
3.	*"****Nothing is achievable when you don't work with all parties*** *across board. This organization values team work and is built to work in teams not only on this project but on so many of our other projects. I assume that* ***the Treasury Department also places some premium on effective interaction****, we had a lot of interactions with the department on quite a number of issues that needed clarification from them. And I believe it's very important if the scheme is to serve everyone's interest."*	Interviewee 11	Collaboration across all projects stages.	Collaboration on Project
4.	*"I would say it's one of the most important aspect of getting considered under the scheme. A lot of justifications are required for supporting your project with a government guarantee****. I believe we did a lot in terms of showing how much value the project brings. Of course were very transparent with this, we went through the Comparator stage.*** *It came out well and we demonstrated why we needed the guarantee through a lot of indicators that I may not be able to touch on at the moment.*	Interviewee 2	Demonstrating project value and why the scheme should support the project.	Value for Money evaluation

6.6.2 Data Triangulation with Documentary Evidences

Having identified the important themes relating to accountability processes and mechanisms within the interview data, it was necessary, as part of the objective of the study to triangulate the underpinning knowledge extracted from the data. Creswell and Miller (2000) refers to triangulation as a validation procedure that allows a researcher to seek convergence among multiple sources of data by eliminating areas of overlap. Through triangulation, new corroborating evidences can be collected from diverse

independent sources in order to help determine the consistency of already existing coding scheme (Richards, 2014; Taylor *et al.*, 2015).

In the context of this study, evidences from official documents relating to each case study (government guaranteed) PPP projects were used as corroborating evidences to confirm the consistency of the themes within the interview data. As such, the study developed a new coding scheme for analysing the projects' documents in a similar manner to that used for the interview data. The study thereafter sort through the documented data so as to establish areas of convergence (similarity in themes and codes) with findings from the interviews. This analytical process involved extensive period of checking, confirming and disconfirming in line with studies such as Creswell and Miller (2000) and Miles and Huberman (1994). Consequently, by combining data from the interviews with findings from the document analysis, the study was able to establish strong convergence on fourteen (14) institutional processes or procedures relating to accountability mechanisms that were earlier extracted from the literature and confirmed during interviews.

However, not yet satisfied with the triangulations done on the interview and documentary data, the study proceeded to confirm the relevance of the data extracted from the literature. Readily prepared set of sketchy questionnaires were given to each interview participant which contained the 16 identified accountability mechanisms and their associated factors. Participants were then asked to indicate which of the accountability mechanisms and factors were relevant given their experience of government guarantee applications and PFIs. Based on interviewees' confirmations, all the 16 mechanisms identified from the literature were considered relevant within their government guarantee and PPP project experience and therefore retained (See Table 6.6 below). However, out of the eighty-five (85) associated accountability measures contributing towards the 16 mechanisms, seven (7) were rejected by the interview participants. The rejected 7 factors were subsequently removed from the list of 85 accountability measures (See Table 6.5 below for lists of associated measures rejected).

Table 6.5: Seven (7) Rejected Accountability Measures from List of 85 Measures

Label	Accountability Measures	Accountability Dimension
	Whistle-blower Policy	
WB4	*Financial incentives for encouraging whistle blowing among public employees.*	Ethics-based
	Environmental Sustainability	
ES9	*Security of project host community*	Outcome-based
ES10	*Contribution towards replenishing non-renewable mineral and energy resources*	
	Collaborative Partnership	
CP7	*Multidisciplinary Team to be responsible for ensuring collaboration among project stakeholders.*	Outcome-based
CP8	*Integrating information Systems with all project parties*	
	Competition	
C6	*Timely dissemination of information to bidders.*	Process-based
	Bench-Marking	
BM3	*Adequate resource committed to benchmarking exercises*	Process-based

This therefore left the study with a list of 78 remaining accountability measures influencing publicly guaranteed PFI/PPPs under 16 different accountability constructs (See Table 6.6 below for the Accountability Mechanisms and related measures confirmed from the qualitative study). Upon deleting the 7 rejected accountability measures as seen a Table 6.5 above, the remaining mechanisms (16 mechanisms) and associated measures (78 measures) were used to develop a hypothesized model (See Fig 6.1 below). This hypothesized model was then tested for validity using Structural Equation Model in the 2nd phase of the study. In addition to developing a hypothesized model, the qualitative data were used to develop questionnaire survey. These were targeted towards wider audiences among public and private sector participants in PFI/PPP and Guarantee Scheme to confirm the validity or otherwise of formulated hypotheses and associated indicators.

Table 6.6: Accountability Mechanisms and Factors Confirmed through Qualitative Study

Label	Accountability Mechanisms and Associated Indicators	Case Study A		Case Study B		Case Study C	
	Outcome-Based Accountability Mechanisms and Associated Indicators	*Interviews*	*Documents*	*Interviews*	*Documents*	*Interviews*	*Documents*
VFM	***Value for Money***						
VFM1	*Least procurement cost*		✓	✓	✓	✓	✓
VFM2	*Service quality/output specification*	✓	✓	✓	✓	✓	✓
VFM3	*Equitable risk allocation among project parties*	✓		✓	✓	✓	
VFM4	*Minimal whole life costing of project*	✓	✓	✓	✓	✓	✓
VFM5	*Effective management of project over the long term period*	✓		✓		✓	✓
VFM6	*Competitive bidding process*	✓	✓	✓	✓		✓
VFM7	*Innovative solutions*	✓	✓		✓	✓	✓
RM	***Risk Management***						
RM1	*Improved public sector risk management competences/capabilities.*		✓	✓	✓	✓	
RM2	*Integrating risk management systems into public sector evaluative frameworks*	✓	✓		✓	✓	
RM3	*Regular risk identification and reporting*	✓	✓	✓	✓	✓	✓
RM4	*Proactive evaluation of past risk events*	✓		✓	✓		✓
RM5	*Strong stance on compliance with regulatory frameworks*	✓	✓	✓	✓	✓	✓
CP	***Collaborative Partnership***						
CP1	*Open and honest communication among project parties*	✓	✓	✓	✓	✓	✓
CP2	*Consortium senior officials' commitment towards successful collaboration*	✓		✓	✓	✓	✓
CP3	*Existence of clearly defined relationship and communication sharing strategy*		✓		✓	✓	✓
CP4	*Commitment of the project delivery team*	✓	✓	✓	✓		✓
CP5	*Fair risk allocation among public-private parties*	✓	✓	✓	✓	✓	✓
CP6	*Early warning signals for detecting and solving conflicts or crisis.*		✓	✓		✓	✓
CP7	*Multidisciplinary team to be responsible for handling collaboration with project parties.*	✓	✓	✓	✓	✓	✓
CP8	*Integrating information systems with all projects parties*	✓	✓		✓	✓	✓
BR	***Budgetary Reporting***						
BR1	*Reporting government guarantees and other contingent liabilities in the national budget*	✓		✓	✓	✓	✓
BR2	*Oversight and control*	✓	✓	✓		✓	✓
ES	***Environmental Sustainability***						
ES1	*Project's contribution to social participation and inter-racial cohesion*	✓	✓	✓	✓	✓	✓

ES2	*Project's contribution to increased utilisation of local materials*	✓	✓	✓	✓	✓	
ES3	*Adoption of energy efficient solutions*	✓	✓	✓	✓	✓	✓
ES4	*Project's contribution to reduction in material wastage*		✓	✓		✓	✓
ES5	*Compliance with regulatory standards on sustainable project delivery*	✓		✓	✓	✓	✓
ES6	*Prevention of massive changes to landscape*	✓	✓	✓	✓		✓
ES7	*Project's impact of surrounding plant and animals*		✓	✓	✓	✓	✓
ES8	*Contribution to economic and social prosperity of surrounding communities*	✓		✓	✓	✓	✓
ES9	*Security of project host community*	✓	✓	✓	✓	✓	
ES10	Contribution towards replenishing non-renewable mineral and energy resources	✓		✓	✓	✓	✓
Ethics- based Accountability Mechanisms and Associated Indicators							
WB	***Whistle-Blowing***						
WB1	*Effective institutional arrangement to inculcate culture of openness among public sector staff*	✓		✓	✓	✓	✓
WB2	*Adequate protection for whistle blowers against institutional witch-hunt*	✓	✓	✓	✓	✓	
WB3	*Implementing procedurally correct actions to address reported wrongdoings*	✓	✓	✓	✓	✓	✓
WB4	*Financial incentives for encouraging whistle blowing among public employees*		✓	✓	✓	✓	✓
AC	***Anti-Corruption***						
AC1	*Strong stance against corruption in government guarantee schemes*	✓	✓		✓	✓	✓
AC2	*Clear, adequate and timely information about happenings, processes and rules*	✓	✓	✓	✓	✓	✓
AC3	*Effective internal and external oversight and control*		✓	✓	✓	✓	✓
AC4	*Effective sanctions against corrupt practices*	✓	✓		✓	✓	✓
AC5	*Robust due diligence appraisals through extensive information gathering*	✓	✓	✓	✓	✓	
Process-related Accountability Mechanisms and Associated Indicators							
C	***Competition***						
C1	*Increasing the number of potential bidders or applicants*	✓	✓	✓		✓	✓
C2	*Availability of in-house commercial skills within the public sector.*	✓	✓	✓	✓	✓	✓
C3	*Open and comprehensive bidding parameters and requirements*	✓	✓		✓	✓	✓
C4	*Transparent bidding and tendering process*	✓	✓	✓	✓	✓	
C5	*Adequate incentives to encourage the supply of innovation from the private sector*		✓	✓	✓	✓	✓
C6	*Timely dissemination of information to bidders*	✓	✓	✓	✓	✓	✓
BM	***Bench-Marking***						
BM1	*Comprehensive articulation of historically good practices and processes*	✓	✓	✓	✓	✓	✓

BM2	*Constant improvements on benchmarking techniques.*		✓	✓	✓	✓	✓
BM3	*Adequate resource committed to benchmarking exercises*	✓	✓	✓	✓	✓	
M	***Monitoring***						
M1	*Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee*		✓	✓	✓	✓	
M2	*More qualitative public awareness on fiscal risks arising from contingent liabilities*		✓	✓	✓	✓	✓
M3	*External monitoring through audit institutions and other interest groups.*	✓	✓		✓	✓	✓
M4	*Effective use of sanctions against wrong practices*	✓	✓	✓		✓	✓
PA	***Performance Auditing***						
PA1	*Project life cycle cost reduction*		✓	✓	✓	✓	✓
PA2	*Adequate risk transfer among project parties*	✓	✓	✓	✓	✓	
PA3	*Acceptable project quality*	✓	✓	✓	✓	✓	✓
PA4	*Quality service delivery*	✓	✓		✓	✓	✓
PA5	*On-time project completion,*	✓	✓	✓	✓	✓	
PA6	*Economic empowerment of local community*		✓	✓	✓	✓	✓
PSC	***Public Sector Comparator***						
PSC1	*Compulsory PSC evaluation both at project and guarantee scheme levels.*	✓	✓	✓	✓	✓	✓
PSC2	*Integrating PSC evaluation into government guarantee-decision making process.*		✓	✓	✓	✓	✓
Democratic Accountability Mechanisms and Associated Indicators							
SPI	***Socio-Political Impact***						
SPI1	*Project's impact on job creation and unemployment*	✓	✓	✓	✓	✓	✓
SPI2	*Project's impact on travel time and journey quality*	✓	✓	✓	✓	✓	✓
SPI3	*Affordable user charges*	✓	✓	✓	✓	✓	✓
SPI4	*Access to services*		✓	✓	✓		✓
SPI5	*Better stakeholder engagement*	✓	✓		✓	✓	✓
SPI6	*Adequate security*		✓	✓	✓	✓	
SPI7	*Project's impact on biodiversity*	✓	✓			✓	✓
SPI8	*Sufficient risk transfer away from public sector*	✓	✓	✓	✓	✓	
SPI9	*Adequate response to public needs through timely project delivery*	✓	✓	✓		✓	✓
SPI10	*Minimal life cycle cost*	✓	✓	✓	✓	✓	✓
SPI11	*Better collaboration between public and private sector*		✓	✓	✓	✓	✓

SE	***Stakeholder Engagement***						
SE1	*effective communication and dialogue*	✓	✓	✓	✓	✓	✓
SE2	*Clear and effective communication channels*		✓	✓	✓	✓	✓
SE3	*Staff commitment to laid down stakeholder engagement strategy*	✓	✓	✓		✓	✓
SE4	*Transparent decision-making process*	✓	✓	✓	✓	✓	✓
SE5	*Clear understanding of all stakeholders' area of interests*	✓		✓	✓	✓	✓
RL	***Rule of Law***						
RL1	*Enforceability of contracts and agreements in projects*	✓	✓	✓	✓	✓	✓
RL2	*Adequate institutional arrangements for supporting contract enforcement*		✓	✓	✓	✓	✓
RL3	*Legal scrutiny and evaluation of policy, projects and performance.*	✓	✓	✓	✓	✓	✓
RL4	*Clarity in legal/contractual rights and responsibility among project parties.*	✓	✓		✓	✓	✓
PS	***Parliamentary Scrutiny***						
PS1	*Effective use of committee hearings to evaluate the management of government guarantee scheme*	✓	✓	✓	✓	✓	✓
PS2	*Interactions with external experts and interest groups to examine wider impact of government guarantee scheme*	✓			✓	✓	✓
PS3	*Encouragement of policy debates on government guarantee scheme*	✓	✓	✓	✓	✓	

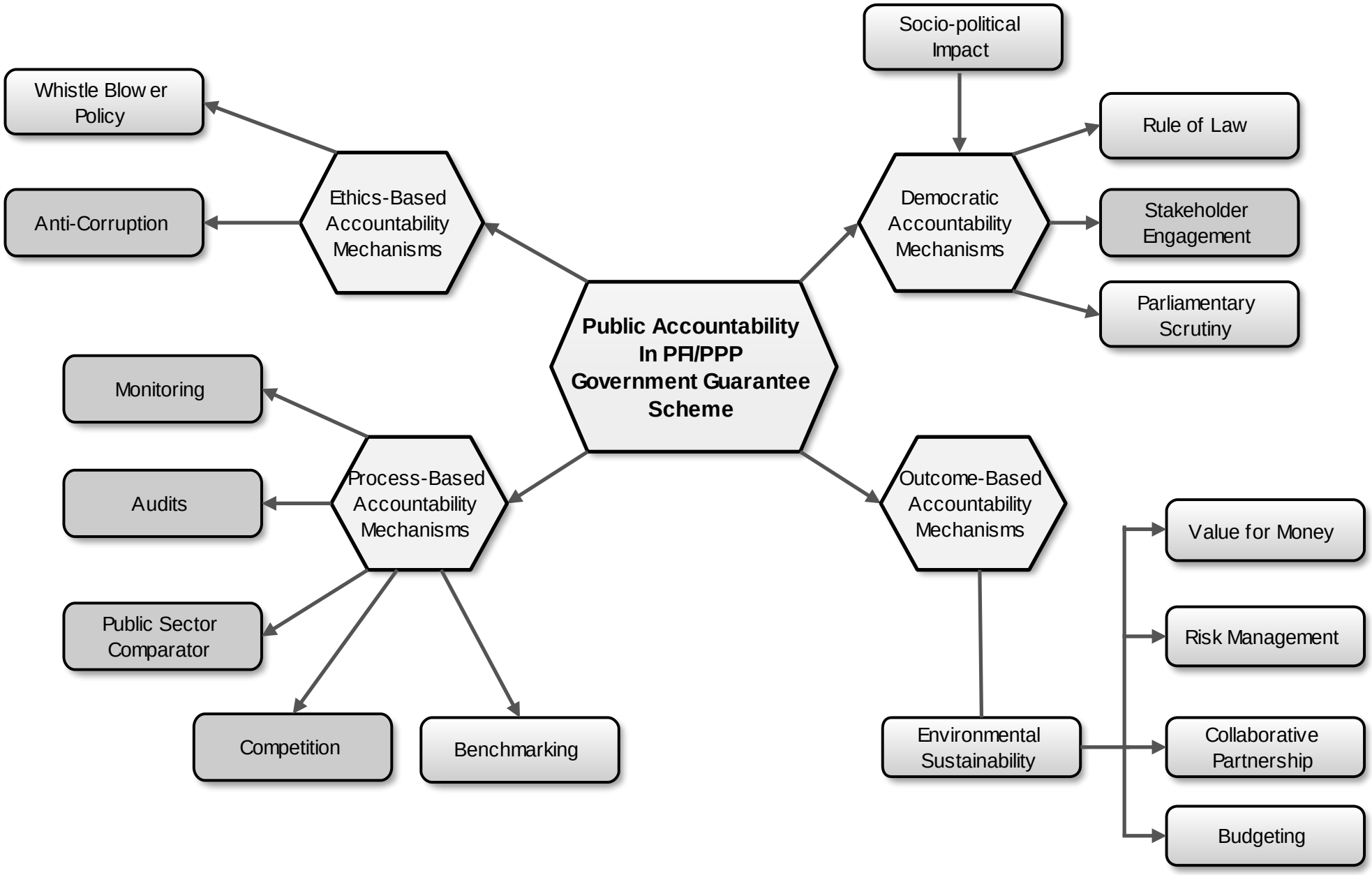

Figure 6.1: Hypothetised Model for Public Accountability in PFI/PPP Government Guarantee Scheme

Chapter Summary

This chapter focused on exploring the qualitative approach to the study. In order to identify accountability mechanisms and associated indicators relevant for examining PPP government guaranteed projects, the study used literature review. The suitability of the accountability mechanisms and measures for exploring the phenomenon was then confirmed using multiple case study (semi-structured) interviews and documentary information from guaranteed public-private projects in the UK. A hypothetical Model was eventually developed from triangulated data, based on identified accountability mechanisms. The model would go on to be used for structural equation modelling in the following chapter.

Chapter Seven: Quantitative Study

7.0 Chapter Overview:

As highlighted in the methodology chapter and some parts of this study, this research involves qualitative and quantitative phases. Having presented findings from the qualitative phase in the previous chapter, this chapter therefore presents the quantitative data collection procedures and the associated findings. Sample population, sampling strategy, questionnaire development and piloting, final survey distribution and statistical analysis methods were justified and well explained in this chapter. As part of the statistical analysis, wider applicability of identified factors influencing public accountability in PFI/PPP government guarantee scheme are examined. In addition, perspectives of public and private sector stakeholders on accountability in government guarantee and PFI/PPPs are compared. The subjective importance of identified measures are also examined across the four broad categories of accountability constructs. Overall, findings from the quantitative phase are presented and the chapter ends with a summary.

7.1 Population and Sampling Techniques

In line with the research objectives, it was essential to confirm the wider applicability and generalizability of the study's findings through a large sample survey. The major reason for this was to achieve two important goals for the research: (1) to confirm the validity of the 16 theoretical hypotheses generated from the qualitative study, and (2) to explore experts' views regarding factors (identified from the literature) contributing to accountability in publicly guaranteed PFI/PPPs in the UK. Considering the special nature of the research, identifying information-rich and suitable participants was evident. In this regard, a **purposive sampling technique** was initially adopted for the research. This allowed the study to identify survey respondents based on pre-determined, important, and specific criteria (Creswell, 2013). In this case, these criteria included:

- Selecting public sector employees with experience in PFI/PPP cum construction industry projects.
- Selecting private sector experts with experience in PFI/PPP and construction industry projects.
- Selecting public sector employees with experience and involvement in Infrastructure guarantee schemes.
- Selecting private sector experts with experience and involvement in Infrastructure guarantee schemes

Based on the above criteria, questionnaire survey was therefore targeted at suitable public and private sector stakeholders with varying experiences in UK's PFI/PPPs and infrastructure government guarantee scheme. Although the UK public sector workforce is currently estimated at 5.354 million as at March, 2016 according to the UK's office of National Statistics (ONS). However, the nature of the study required only employees with direct or indirect experience with this procurement domain be sampled. Apparently, there is currently

no open database for accessing UK's public-sector employees. In addition, whilst over 200 private sector consortiums had participated in the UK infrastructure guarantee scheme between July, 2011 and January, 2015 (NAO, 2015); there is also no public database for identifying these participant firms. The only useful database at this time is the HM Treasury's PFI projects database which has a total of 305 contracting, Special Purpose Vehicles (SPVs) and financial firms involved in PPP. This therefore provided a useful starting point for reaching out to private sector participants.

In view of the aforementioned constraints above, the study selected another sampling method to further its objective. Hence, a **snowball sampling method** was finally adopted to execute the survey. Firstly, initial contacts were established with some existing contacts within the public and private sectors respectively (through already known gate keepers). More participants were then later recruited by building on networks of referrals from existing and new contacts. According to Atkinson and Flint (2001), snowball sampling is quite useful and efficient where research participants are difficult to reach by other sampling techniques. At the end of the gradual and painstaking exercise, a pool of 118 public and private sector participants with varied experiences in PFI/PPPs and Infrastructure guarantee scheme were recruited and surveyed. Examples of studies on accountability and PFI/PPPs that have employed purposive or snowball sampling methods include Dicke (2002), Wallenburg *et al.* (2010), Li et al. (2005), Meng and McKevitt (2011), among others.

7.2 Questionnaire Design and Formulation

This study developed questionnaires from the qualitative data identified through literature review, semi-structured interviews and documentary evidences. As stated earlier, the central aim of the survey was to facilitate authentic representation of the views of larger stakeholders

and ensure generalizability of the qualitative findings. Originally, sixteen accountability mechanisms were identified for evaluating government guarantee scheme for PPPs. These accountability mechanisms were used to form sixteen hypothetical questions. In addition, 78 factors regarded as measures contributing to each of the sixteen different accountability mechanisms were identified. Through the sixteen hypothetical questions, the study generated sixteen dependent constructs to be measured in the questionnaire survey. The 78 factors therefore constituted independent variables predicting the dependent variables. These data was then integrated into an important section of a self-completion questionnaire.

7.2.1 Section of the Questionnaire

In designing questionnaire for this study, 7 major sections were created. The first section introduced the research to the respondents and highlighted the research aim and objectives. How the questionnaire survey contributed to the study was also mentioned. The next section focused on the demographic data of respondents. This captured information such as industry or sector of the respondent, the job role, years of experience on the job, including the years of experience in relation to PFI/PPPs and infrastructure guarantee scheme. The next four sections were classified under the four broad accountability constructs identified from the study. These comprised (1) outcome-based accountability mechanisms, (2) ethics-based accountability mechanisms, (3) process-based accountability mechanisms and (4) democratic accountability mechanisms. Under each category, the associated accountability mechanisms were situated along with their measures. In all, a total of 78 questions (factors) were used to unravel participants' views on factors influencing public accountability in government guarantee scheme for PFI/PPPs (see Appendix for the questionnaire developed for this study).

7.2.2 Scale Measurement

For this study, a likert measurement scale was adopted. The invention of likert scale has been attributed to Rensis Likert (1931), who designed and used the technique for measuring attitude. According to Croasmun and Ostrom (2011), Likert scale is a very reliable and useful tool for assessing self-efficacy. As a psychometric measurement tool (Wadgave and Khairnar, 2016), likert scale allows the indirect measurement of different facets of multidimensional and latent values (Johns, 2010). Most likert scale often require individuals to respond to series of questions (multiple item questions) on a continuum scale of whether they "Strongly agree" or "Strongly disagree" (Croasmun and Ostrom, 2011). As suggested by Willits *et al*. (2016), likert scales offer a balance of both positive and negative responses in order to minimise response bias and errors. Although, the rating scales range in category from three, to four, six and seven (Fugas *et al.,* 2012), the most common is the 5-point scale (Joshi *et al*., 2015). Hence, in this study, a five-point likert scale was adopted, where 1 = "Strongly Disagree", 2 = "Disagree", 3 = "Undecided", 4 = "Agree" and 5 = "Strongly Agree". Respondents were then asked to indicate the extent to which they agree or disagree with each identified factor and mechanisms influencing accountability in PPP government guarantee schemes. This presented a basis for arriving at the average rank of all the participants' ratings across the variables, thereby generating the overall importance of each variable.

7.2.3 Pilot Study and Its Evaluation Technique

Since pre-coding allows easy processing of questionnaire data and helps prevent time loss to analysis and filling (Bless *et al.,* 2006; Bryman, 2015), the questionnaire in this study was pre-coded. Similarly, the questionnaire was pilot-tested for variation, meaning, content and construct validity (Bernard and Bernard, 2012; Armstrong and Taylor, 2014). According to Singleton *et al.* (1993), pre-testing questionnaire instruments allow researchers to, among

other purposes examine how respondents construe and understand questions, and whether sufficient alternative responses have been provided. Accordingly, a number of studies have suggested various sizes of participants suitable for a pilot study (Van Belle, 2002; Isaac and Michael, 1995; Mooney and Duval1, 1993). While Van Belle, (2002) suggested 10 respondents, Isaac and Michael (1995) recommended the size of between 10 and 30 respondents. Mooney and Duval1 (1993) in a similar study also argued that a total of 10 respondents may be suitable for effectively pretesting a research instrument. Based on the above perspectives, this study identified 10 respondents for piloting the designed questionnaire. The ten (10) respondents were selected using the researchers' existing networks in the UK academics, public and private sector. Thus, the pilot study comprised five (5) academics from the departments of accounting and construction management at the University of West of England, Bristol. Three (3) public sector employees and two (2) project finance experts were all selected to pilot the instrument. All the ten participants have an average of 7.3 years of experience in advisory or consulting capacities on various infrastructure social projects in the UK, Turkey, Greece and South Africa. The pilot study respondents were able to evaluate the clarity of the questions, suitability of the measurement scale and logic of the measurement variables in relation to the construct being measured. Various valuable feedbacks which included shortening of sentences and rewording of questions were given. The feedbacks were immediately implemented and used to develop the final questionnaire. After the pilot study, the total number of questions on the questionnaire stood at ninety four (94) across the four sections on accountability mechanisms and their measures.

7.3 Data Collection

Upon improving the research instrument using feedbacks from the pilot study, the questionnaire survey was distributed to 118 respondents via face-to-face, postal and email

channels. It is important to state here that the snowball sampling method adopted in the study necessitated that a number of the respondents be met face-to-face to fill the questionnaire. Studies have shown that face-to-face survey is much preferred due to its flexible, representative, personal interaction and quick-response opportunities (Fricker *et al.*, 2005; Faas and Schoen, 2006; Agnoli *et al.*, 2011; Szolnoki and Hoffmann, 2013). The face-to-face distribution allowed respondents to fill and return questionnaires on the spot. Hence, series of trips were embarked upon and various government, industry and trade led symposia, roundtable talks etc. including one-to-one meetings were attended in order to reach out to 118 respondents. However, understanding the constraints faced by some respondents filling the questionnaire on the spot, a postal method of distribution was also deemed necessary. Some respondents were handed return-envelopes, while others had the questionnaire posted directly to their correspondent addresses along with paid return envelopes.

In addition, the questionnaire survey was intensified with aggressive online distribution through emails to several other referred respondents. The online distribution ensure wider audiences were reached and provided a cheaper cost of distribution (Tiene, 2000; Paechter and Maier, 2010; Bryman, 2015). The online questionnaire was created using Google forms and its internet link was copied and included in a well-worded email to the respondents. Each questionnaire was accompanied by a letter of introduction detailing the objective of the study. Several reminder emails and few additional follow-up trips were made to some of the respondents to stimulate responses. This stage of the study lasted over a period of one year three months (15months) starting from June, 2015- September, 2016. At the end of the data collection exercise a total of 118 respondents have been reached for the study.

7.4 Statistical Analysis Techniques

The statistical analysis in this study was informed by the need to identify underlying patterns across the responses given by respondents and ensure collected data are suitable for structural equation modelling (SEM). At this phase, various statistical analysis were performed for data cleaning, description and validation using the AMOS IBM SPSS software. Through Cronbach's Alpha test, reliability of both the measurement instrument and the various factors were deeply examined. Missing data analysis was conducted to test for multicollinearity among factors. In addition, descriptive statistical analysis were also conducted on the data to unravel the significance ranking of each observed variable in the questionnaire. Mean ranking method was used to descriptively identify the top ranked variables in the questionnaire. Going forward, in order to examine whether there is a pattern in the data distribution across the two independent groups (public and private sector stakeholders) surveyed in the study, a non-parametric test was performed on the data (Man Whitney U test of Significant Differences). This test measured the extent to which observations in one independent sample differs from the other.

7.5 Response Rate

Out of the one hundred and eighteen (118) questionnaires distributed, 94 questionnaires were returned, amounting to a response rate of 79.60%. Three (3) of the questionnaires were incomplete and therefore rejected. This left us with a total of ninety one (91) usable responses, which constitutes 77.11% of distributed questionnaires. The percentage of returned questionnaire (77.11%) falls within the acceptable threshold of 65% return rate and is thus suitable for structural equation modelling (Bowen and Guo, 2011). Although structural equation model (SEM) is a large sample technique and a sample of between 200 and 250 data were normally recommended (Islam and Faniran, 2005). However, as efforts to

recruit more survey respondents proved abortive, the study proceeded in line with previous studies on SEM where less than 200 samples have been used (Islam and Faniran, 2005; Eriksson and Pesamaa, 2007; Jin et al., 2007; Doloi's, 2009b). For instance, studies like Doloi *et al*., (2011) once used 97 sample for evaluating the impact of contractor's performance on project success, while Chen *et al.*, (2011) used 124 respondents to explore the interrelationship among critical success factors for construction projects using SEM, among others similar studies.

From Table 7.1 below, the survey response rates were, 53.85% and 46.15% respectively across public and private sector participants in the study. The public sector participants comprised civil servants of different ranks from deputy directors, senior executives, higher executives, and executive officers on the one hand; whilst the private sector participants included subject matter experts such as project managers, PFI construction contractors, financial consultants and project financiers. It is important to state here that, out of the 91 questionnaire respondents, 17 have no prior experience in infrastructure guarantee schemes but boast significant experience in PFI procurements. The remaining 74 respondents have experiences in both PFI and the UK's Infrastructure Guarantee Scheme.

Table 7.1: Sample Responses from Questionnaire Survey

Variables	Attributes of Participants	Frequency
Total No of Respondents		***91***
Job role/Titles	***Public sector Employees***	
	Deputy Director	*4*
	Senior Executive Officer	*15*
	Higher executive Officer	*19*
	Executive Officer	*11*
	Private Sector Participants	
	Project Manager	*7*
	Project Financier	*16*
	PFI Construction Contractor	*10*
	Financial Consultant	*9*

Length of Experience in PFI/PPPs Procurement		
	1-5	*21*
	6-10	*58*
	11 - 15	*12*
Length of Experience in Infrastructure Government Guarantee		
	1-5	*74*
	6-10	*0*
	11-15	*0*

7.6 Preliminary Data Analysis and Screening

In preparing the data for additional statistical analysis, the study conducted some preliminary data screening and cleansing. This comprised identification of unengaged respondents and outliers, missing value analysis and checking for multi-collinearity. A quick calculation of the standard deviation for each respondents revealed no unengaged respondents. Going forward, in line with recommendation by Riani *et al.* (2009), the study checked for the existence of outliers in the data using Mahalanobis distance (D) statistic. All output returned with a P^{value} value higher than 0.05, thereby suggesting the absence of any influential outlier in the sample. Evidence of multi-collinearity and outliers were also not found in the data.

7.6.1 Missing Value Analysis

A common occurrence in questionnaire data analysis is incomplete data. Incomplete data often arise due to a respondent failing to answer a questionnaire question, either deliberately or by omission (Bryman, 2004). When sample data is incomplete, it often has huge implications for accurate statistical computation, and as such, missing value analysis is usually needed to address this concern (Little and Rubin, 2014). This statistical analysis conducts three important functions by firstly, identifying and describing patterns of missing values, estimating the mean values along with other descriptive values, and substituting missing values with estimated values (Husson and Josse, 2013; Singh *et al*., 2015).

There are three common types of missing value scenarios. This comprise missing at Random (MAR), missing completely at random (MCAR) and missing not at random (MNAR). Missing at Random (MAR) is considered systematic in nature and refers to a situation in which the tendency for a data to be missing is connected to the observed variable rather than the missing data (Newman, 2014). In this case, the data declared missing is better explained by other variables in the data set than the missing values. On the other hand, missing completely at random (MCAR) is described as a case in which the probability of having a value missing for a specific variable has neither connection with the observed variables nor the missing variables in the data set (Little and Rubin, 2014). Under this scenario, the missingness on the variable is considered unsystematic in nature and gives a statistical advantage since the analysis remains unbiased even where the missing value is replaced with the average for the variable. In addition, missing not at random (MNAR) describes a missing value on a variable that is related to the value of the same variable despite having held other variables constant (Cheema, 2014). In this context, the value is not random and therefore could not be predicted by another observed variable in the data. In most cases, MNAR can be complicated and it's often been tackled either by deleting the data along with the missing value or by simply modelling (Kaiser, 2014).

Generally speaking, most researchers will treat missing values by performing some improvised measures of substituting the missing values or completely jettison the survey with missing variable through listwise approach. However, after performing necessary analysis, the study recorded no case of missing value.

7.6.2 Reliability Analysis

After performing preliminary analysis and data screening, the study proceeded to conduct reliability test on the data set. According to Faravelli (1989) and Field (2009), when analysing a survey data conducted

with Likert-scaled questionnaires, a reliability analysis is essential to ascertain the internal consistency of variables being analysed. The essence of reliability test in this study was to confirm whether the identified seventy eight (78) factors influencing accountability in government guarantee scheme for PPPs truly measures the constructs. The formula for reliability analysis can be mathematically represented thus,

$$\alpha = \frac{N^2\overline{COV}}{\sum_{i=1}^{N} S_i^2 + \sum_{i=1}^{N} COV_i} \qquad \ldots . (1)$$

Reliability analysis also helped discover whether the scales used in measuring the various accountability measures can consistently and truly reflect the construct it was intended to measure (Huang *et al.,* 2006). As argued by Field (2005), in a reliable data, the rule of thumb in Cronbach's Alpha (α) coefficient is often between 0 and 1. However, George and Mallery (2003) argued that a coefficient value of 7 is much acceptable, while a value of between 7 and 8 indicate strong internal consistency of the data set. In addition to determining the overall Cronbach's alpha for different accountability mechanisms such as value for Money, Risk management, Whistle Blowing, Rule of Law, Social and Political impact among others, this study examined another measure of internal consistency called "Cronbach's Alpha if Item Deleted". Cronbach's alpha if item deleted were estimated for all the measures been evaluated. According to Field (2005), any factor or measure that is not contributing to reliability of the data will have a higher reliability coefficient compared to the overall reliability coefficient of the evaluated construct. This suggests that such factor with higher value, if deleted, would increase the overall reliability of the entire data set (Santos, 1999). Using these rules as yardsticks, results of the Cronbach's alpha for the 16 accountability mechanisms and their associated measures are presented in Tables 7.2 – Table 7.5. Similarly, based on the results shown in the tables below, the overall Cronbach's alpha coefficients for the 16 accountability constructs were 0.833, 0.758, 0.791, 0.701, 0.781, 0.780, 0.769, 0.773, 0.740, 0.738, 0.801, 0.711, 0.826, 0.826, 0.743 and 0.720 respectively.

7.7 Descriptive Statistics

Descriptive statistical analysis involves description of the basic attributes of the data in a research study (Dewberry, 2004; Dowdy *et al.,* 2011). Descriptive statistics allow the use of numerical, tabular and graphical techniques for summarising, analysing and presenting data (Argyrous, 2011). Meaning can be extracted from data using descriptive measures such as standard deviation, means, and frequency distribution among others. According to Holcomb (2016), the advantage of descriptive statistics lies in the ability to reduce mass of data into few statistical measures, graphs or tables, which give clearer view of the findings. In this study, questionnaire data was descriptively analysed to derive the mean values and standard deviations for each of the factors influencing accountability in PFI/PPP government guarantee scheme. As such, mean values were used to identify the top ranked factors, given its suitability for analysing large sample dataset (Vogt and Barta, 2013).

As opined by Sahoo and Riedel (1998) and Hormann and Floater (2006), mean value is the most commonly adopted measure of central tendency. For statisticians, the mean comes to mind when examining the relative importance of variables in a dataset. In order to identify the important factors influencing accountability in PFI/PPP government guarantee scheme, the factors were ranked using their mean values. Results of the descriptive analysis are presented in Tables 7.2, 7.3, 7.4 and 7.5, showing the mean, standard deviation, ranking within the group and overall ranking of the factors in relation to each accountability mechanisms.

7.7.1. Descriptive Statistics for Outcome-based Accountability Mechanisms

As earlier stated in this study, five accountability mechanisms considered as Outcome-based, were operationalized along with their indicators. These mechanisms included value for

money, risk management, collaborative partnership, environmental sustainability and budgetary reporting. In order to determine the key factors contributing towards each of these accountability mechanism, descriptive analysis of the data was conducted. With the aid of IBM SPSS version 22, the study derived the mean and standard deviations for each factor. All the twenty eight (28) factors associated with these mechanisms were ranked, based on their contribution towards strengthening accountability in PFI/PPP government guarantee scheme). Going by the mean ranking, the overall top five factors influencing outcome-based accountability mechanisms are:

1. Service quality/output specification.
2. Least procurement cost.
3. Consortium senior officials' commitment towards successful collaboration.
4. Contribution to economic and social prosperity of surrounding communities.
5. Improved public sector risk management competences/capabilities.

As presented in Table 7.2, the mean values and standard deviation of all factors under the five outcome-based accountability mechanisms were itemised in columns three and four. In addition, columns five and six of the same table present the group mean ranking for each factor, also across the five outcome-based mechanisms of accountability. In order to examine the internal consistency of the factors, Cronbach's alpha reliability test was performed for all the factors across the five accountability mechanisms. Results from the analysis showed all the factors displayed good internal consistency, as the overall Cronbach's alpha coefficients ranged between 0.701 and 0.833. Going further, the study also examined whether all the factors across board truly contribute to the constructs/mechanisms that they claim to measure. In this regard, another measure *"Cronbach's Alpha If Item Deleted"* was used to examine all the factors for internal consistency. Based on the recommendation by Field (2005), any factor

showing higher Cronbach's alpha coefficient than the overall Cronbach's alpha does not contribute to the construct and such factor if deleted will improve the internal consistency of the remaining data. In line with this suggestion, all the factors were found to contribute to their constructs with the exception of three factors. The three factors included ***RM5****= Strong stance on compliance with regulatory frameworks*, ***CP5****= Fair risk allocation among public-private parties*, and ***ES6****= Prevention of massive changes to landscape*. The three factors showed higher Cronbach's alpha coefficients (0.759, 0.798 and 0.788) than the overall Cronbach's alphas within their groups. Based on this findings, the three factors were removed from the data. Upon deleting the three factors, the overall Cronbach's alpha coefficients in the three affected groups significantly increased to 0.758, 0.791 and 0.781 respectively. See Table 7.2 below for results.

7.7.2 Descriptive Statistics for Ethics-based Accountability Mechanisms

In order to unravel the key ethics-based factors (Whistle Blowing and Anti-Corruption) influencing accountability in PFI/PPP government guarantee scheme, descriptive analysis was also conducted. In this regard, the study generated mean and standard deviations of the eight (8) contributory factors. These factors were ranked across the two ethics-based accountability mechanisms and examined how they impact on PFI/PPP government guarantee scheme. Based on mean ranking method, the five top-ranked factors across the two accountability mechanisms (Whistle Blowing and Anti-Corruption), are:

1. Strong stance against corruption in government guarantee schemes.
2. Effective institutional arrangement to the inculcate culture of openness among staff.
3. Effective sanctions against corrupt practices.
4. Adequate protection for whistle blowers against institutional witch-hunt.
5. Implementing procedurally correct actions to address reported wrongdoings.

As shown in Table 7.3, the mean and standard deviation values for the factors under the ethics-based mechanisms are presented in columns three and four. Additionally, columns five and six presents the in-group ranking and overall ranking of the factors respectively. The study proceeded to determine whether all the ethical factors are true measures of the constructs (whistle blowing and anti-corruption) they claim to measure. This was determined using Cronbach's alpha reliability coefficients. All the factors were considered reliable as their overall in-group Cronbach's alpha coefficients ranged between 0.780 and 0.769 in line with recommended levels. The internal consistency of the contributory factors were also confirmed through *"Cronbach's Alpha If Item Deleted"*. Since the Cronbach's alpha coefficients of all the factors were lower than their overall in-group Cronbach's alpha coefficients (see Table 7.3 below), all the factors were deemed critical towards measuring their associated constructs (whistle blowing and anti-corruption) and were therefore retained.

7.7.3 Descriptive Statistics for Process-based Accountability Mechanisms

Processed-based accountability mechanisms such as competition, benchmarking, performance auditing etc. were also operationalized and their measures descriptively analysed in this study. Descriptive analysis of the key factors produced the mean and standard deviation values of all the factors. All the factors were ranked across the five process-driven accountability mechanisms, in relation to their contribution towards accountability in PFI government guarantee scheme. In line with the mean ranking method, the overall top five contributory factors were identified and listed below:

1. Constant improvements on benchmarking techniques.
2. External monitoring through audit institutions and other interest groups.
3. Integrating PSC evaluation into government guarantee-decision making process.
4. Increasing the number of potential bidders or applicants.
5. Transparent bidding and tendering process.

As reflected in Table 7.4 below, the mean and standard deviation values of all the factors across the five process-based mechanisms are itemised in column three and four. In addition, while the in-group ranking of each factor's mean can be seen in column five, the overall mean ranking of the entire factors are presented in the sixth column of the table. In order to examine the internal consistency of the contributory factors, the study derived the Cronbach's alpha coefficient for all the factors within each group (remember there are 5 constructs under this section and therefore 5 groups). Based on the reliability test, all the factors were considered reliable with the overall Cronbach's alpha coefficients within each group ranging between 0.710 and 0.810. "*Cronbach's Alpha if Item Deleted",* which is also a construct validity test was used to check if all the 19-factors across the five constructs were true measures. Upon conducting the analysis, all the measures had Cronbach's alpha coefficient that is lower than the overall Cronbach's alpha coefficients within each of their group, except one factor. The affected factor, ***M4 (Monitoring)=*** *Effective use of sanctions against wrong practices*, had higher Cronbach's alpha of 0.740 compared to the in-group coefficient of 0.738. This factor was therefore deleted from the data in line with recommendation by field (2005) that factors having higher Cronbach's alpha contribute less to the construct and could be deleted. Deleting this factor ultimately boasted the in-group (monitoring) overall Cronbach's alpha from 0.730 to 0.738 accordingly (See Table 7.4 below).

7.7.4 Descriptive Statistics for Democratic Accountability Mechanisms

Similar to the analysis performed in the above subsections, descriptive statistical analysis was also conducted to unravel the key factors influencing accountability in PFI/PPP infrastructure guarantee scheme. The analysis was used to derive the mean and standard deviation values for each of the contributory factors. The mean values were then used to rank all the twenty three (23) factors across the four democratic accountability mechanisms (Social and Political

Impact, Rule of Law, parliamentary scrutiny etc.). Based on the approach, the five top-ranked factors under democratic accountability mechanisms are:

1. Enforceability of contracts and agreements in projects
2. Effective communication and dialogue
3. Clear and effective communication channels
4. Encouragement of policy debates on government guarantee scheme issues
5. Project's impact on job creation and unemployment.

Table 7.5 below shows the mean and standard deviation values for each factor in columns three and four. Also, the in-group and overall mean ranking for each factor is presented in columns five and six of the same table respectively. To measure the reliability of the factors, reliability coefficients were derived using the Cronbach's alpha reliability test. All the factors were considered reliable as in-group overall reliability coefficients showed 0.826, 0.826, 0.743 and 0.720 respectively (within recommended levels). However, as part of the internal consistency measurement for the study, *"Cronbach's Alpha if Item deleted"* was also considered. With this in mind, it was important to delete any factor within any group that is not contributing to each accountability mechanism, and therefore has higher Cronbach's alpha coefficient than the overall coefficients for their groups. All the factors were considered true measures except two factors namely, ***SP4=*** *Access to services and* ***SP10=*** *Minimal life cycle cost* (both relating to "social and political impact" mechanism and showed higher reliability coefficient). According to the recommendation by Field (2005), these factors if deleted will improve the overall reliability of the data. In line with this perspective, the two factors were deleted from the dataset which increased the Cronbach's alpha coefficient within their group from 0.799 to 0.826 accordingly. Overall, from the total of 78 factors influencing accountability in PFI/PPP government guarantee scheme, 6 factors were deleted to improve

the reliability of the data set. This ensured that only 72factors made it through to the structural equation modelling stage.

7.8 Mann Whitney U Analysis (Test for differences in the perceptions of Stakeholders)

Having established a statistically reliable list of factors contributing towards accountability in PFI/PPP infrastructure guarantee scheme, the study proceeded to carry out Man Whitney U test of differences in perception. Mann Whitney U test, which is sometimes referred to as Mann Whitney Wilcoxon Test or the Wilcoxon Rank Sum Test is a non-parametric technique that helps examine the hypothesis that two samples may be extracted from the same population (Field, 2005). As already established from the survey demographics, the two broad groups of respondents to the questionnaire survey are public sector employees and private sector participants. Therefore, in line with the focus of the study, it was important to confirm whether all the 72 reliable factors were perceived differently or similarly by respondents in these two groups. The principal differentiator considered in this analysis was the job sector of the questionnaire respondents (public sector or private sector). Considering that normal distribution of questionnaire data is not assumed in this study, Mann Whitney U test was therefore appropriate for the analysis. More so, the data contained only two samples of independent observation – Public employees and private sector participants. In this regard, the null hypothesis was that no differences exist between the mean ranks of all the accountability factors from the perception of both groups of respondents. On the other hand, the alternative hypothesis was, there is differences in perceptions among respondents on the accountability, at 95% confidence interval. This therefore suggest a significance level of less than 0.05.

7.8.1 Results of Mann Whitney U Test for Outcome-based Accountability Mechanisms and Associated Measures

Mann Whitney U test for significant difference was performed on factors relating to outcome-based accountability to determine whether job sector had any influence on respondents' ranking of the factors. In this regard, respondents' job sector were used as grouping variables, while the test variables comprise the outcome-based accountability measures. As reflected in Table 7.2 below, the Mann Whitney U coefficients indicate that, out of the 28 outcome-based factors across the five accountability mechanisms, only 1 factors were perceived differently by the (public and private sector) participants (See results in Table 7.2 below). The affected factor had P^{value} ranged between P<0.032 much less than the significance level (P<0.05). The result represented 98.01% respondents' agreement on the entire factors. The remaining twenty seven (27) factors had their P^{Value} higher than the significance level of P<0.05. The implication of this result is that combining the responses from the entire respondents will have no impact on the overall reliability of the research findings. Hence, the null hypothesis is therefore retained. Going further, the affected factor that showed difference in perception among respondents are ***ES1=****Project's contribution to social participation and inter-racial cohesion (P<0.032).* Additionally, a further probe into the factor revealed that, ES1 were rated highly by the public sector whilst private sector rated it low. In line with the above results, the tenth column of Table 7.2 indicate that the null hypothesis be retained for the entire outcome-based measures.

7.8.2 Results of Mann Whitney U Test for Ethics-based Accountability Mechanisms and Associated Measures.

The second round of Mann Whitney U test was to confirm or disprove the null hypothesis that there is no significant difference between public and private sectors' perceptions on ethics-based accountability measures in the study. As such, similar to earlier analysis above,

the study checked whether job sector had impact in the way participants ranked the ethics-based measures of accountability. As represented in Table 7.3 below, the Mann Whitney U coefficients suggest all the factors were perceived similarly by respondents across public and private sectors at 95% confidence level. In this regard, all the ethic-based accountability measures showed greater P^{Value} at P>0.05. The result therefore confirmed the null hypothesis that there is no significant differences in public and private sector's perceptions on all the ethic-based measures. In line with this result, the tenth column of Table 7.3 indicate that the null hypothesis should be retained for the entire ethics-based measures.

7.8.3 Results of Mann Whitney U Test for Process-based Accountability Mechanisms and Associated Measures.

Mann Whitney U test for difference in perception was also carried out on process-based accountability measures to determine whether any similarity or differences in respondents' ratings based on their job sectors (Public and Private sectors) exist. In line with this objective, respondents' job sector were adopted as group variables, whilst process-based accountability measures were used as test variables. Results of Mann Whitney U analysis suggest that out of all the 19 process-based factors analysed, two (2) factors were perceived differently across the two category of respondents (public and private sector participants).

Table 7.2: Results of Statistical Analysis on Outcome-based Accountability Mechanisms and Associated Measures

Label	Outcome-based Accountability Mechanisms	Mean	Std. Deviation	Ranking Within group	Overall Ranking	Overall Cronbach's α	Cronbach's Alpha if Item Deleted	Mann Whitney U	
								Z	Sig
VFM	***Value for Money***								
VFM1	*Least procurement cost*	*4.5*	*.648*	*2*	*2*	*0.833*	*.772*	*-0.513*	*0.633*
VFM2	*Service quality/output specification*	*4.53*	*.501*	*1*	*1*		*.720*	*-0.199*	*0.851*
VFM3	*Equitable risk allocation among project parties*	*4.46*	*.585*	*3*	*6*		*.759*	*-0.662*	*0.513*
VFM4	*Minimal whole life costing of project*	*3.31*	*1.031*	*7*	*26*		*.792*	*-0.733*	*0.467*
VFM5	*Effective management of project over the long term period*	*3.93*	*.557*	*6*	*24*		*.731*	*-0.926*	*0.353*
VFM6	*Competitive bidding process*	*4.43*	*.621*	*4*	*9*		*.713*	*-0.395*	*0.728*
VFM7	*Innovative solutions*	*4.15*	*.887*	*5*	*19*		*.708*	*-1.321*	*0.102*
RM	***Risk Management***								
RM1	*Improved public sector risk management competences/capabilities.*	*4.47*	*.648*	*1*	*5*	*.758*	*.710*	*-0.635*	*0.547*
RM2	*Integrating risk management systems into public sector evaluative frameworks*	*4.45*	*.585*	*2*	*7*		*.713*	*-0.333*	*0.742*
RM3	*Regular risk identification and reporting*	*4.17*	*.887*	*4*	*17*		*.729*	*-0.808*	*0.415*
RM4	*Proactive evaluation of past risk events*	*4.44*	*.621*	*3*	*8*		*.704*	*-0.854*	*0.397*
RM5	*Strong stance on compliance with regulatory frameworks*	*3.09*	*.536*	*5*	*27*		***.759****	*-1.104*	*0.268*
CP	***Collaborative Partnership***								
CP1	*Open and honest communication among project parties*	*4.19*	*.621*	*2*	*16*	*.791*	*.772*	*-0.511*	*0.615*
CP2	*Consortium senior officials' commitment towards successful collaboration*	*4.49*	*.648*	*1*	*3*		*.712*	*-0.312*	*0.321*
CP3	*Existence of clearly defined relationship and communication sharing strategy*	*4.12*	*.887*	*4*	*20*		*.755*	*-1.329*	*0.184*
CP4	*Commitment of the project delivery team*	*4.16*	*.585*	*3*	*18*		*.702*	*-1.133*	*0.256*
CP5	*Fair risk allocation among public-private parties*	*3.34*	*.552*	*6*	*25*		***.798****	*-0.441*	*0.315*
CP6	*Early warning signals for detecting and solving conflicts or crisis.*	*4.11*	*.785*	*5*	*21*		*.724*	*-1.475*	*0.141*

BR	***Budgetary Reporting***								
BR1	*Reporting government guarantees and other contingent liabilities in the national budget*	*4.07*	*.648*	*1*	*22*	*.701*	*.694*	*-1.063*	*0.28*
BR2	*Oversight and control*	*4.01*	*.621*	*2*	*23*		*.638*	*-1.284*	*0.199*
ES	***Environmental Sustainability***								
ES1	*Project's contribution to social participation and inter-racial cohesion*	*4.31*	*.648*	*6*	*14*	*.781*	*.719*	*-0.689*	***0.032***
ES2	*Project's contribution to increased utilisation of local materials*	*4.42*	*.621*	*2*	*10*		*.716*	*-0.591*	*0.552*
ES3	*Adoption of energy efficient solutions*	*4.4*	*.887*	*4*	*12*		*.757*	*-0.764*	*0.465*
ES4	*Project's contribution to reduction in material wastage*	*4.41*	*.622*	*3*	*11*		*.714*	*-0.12*	*0.912*
ES5	*Compliance with regulatory standards on sustainable project delivery*	*4.32*	*.648*	*5*	*13*		*.729*	*-0.721*	*0.471*
ES6	*Prevention of massive changes to landscape*	*2.27*	*.513*	*8*	*28*		***.788****	*-0.181*	*0.867*
ES7	*Project's impact of surrounding plant and animals*	*4.29*	*.740*	*7*	*15*		*.731*	*-0.02*	*0.997*
ES8	*Contribution to economic and social prosperity of surrounding communities*	*4.48*	*.648*	*1*	*4*		*.729*	*-0.038*	*0.998*

Table 7.3: Results of Statistical Analysis on Ethics-based Accountability Mechanisms and Associated Measures

Label	*Ethics-based Accountability Mechanisms*	*Mean*	*Std. Deviation*	*Ranking Within group*	*Overall Ranking*	*Overall Cronbach's α*	*Cronbach's Alpha if Item Deleted*	*Mann Whitney U*	
								Z	*Sig*
WB	***Whistle-Blowing***								
WB1	*Effective institutional arrangement to the inculcate culture of openness among staff*	*4.47*	*.648*	*1*	*2*	*.780*	.766	*-0.854*	0.397
WB2	*Adequate protection for whistle blowers against institutional witch-hunt*	*4.41*	*1.031*	*2*	*4*		.741	*-1.104*	0.268
WB3	*Implementing procedurally correct actions to address reported wrongdoings*	*4.15*	*.887*	*3*	*5*		.772	*-0.369*	0.729
AC	***Anti-Corruption***								
AC1	*Strong stance against corruption in government guarantee schemes*	*4.49*	*.648*	*1*	*1*	*.769*	*.719*	*-0.245*	*0.81*
AC2	*Clear, adequate and timely information about happenings, processes and rules*	*3.29*	*1.031*	*5*	*8*		*.610*	*-1.063*	*0.28*
AC3	*Effective internal and external oversight and control*	*4.14*	*.887*	*3*	*6*		*.634*	*-1.284*	*0.199*
AC4	*Effective sanctions against corrupt practices*	*4.46*	*.585*	*2*	*3*		*.766*	*-0.689*	*0.493*
AC5	*Robust due diligence appraisals through extensive information gathering*	*3.72*	*.767*	*4*	*7*		*.757*	*-0.591*	*0.552*

Table 7.4: Results of Statistical Analysis on Process-based Accountability Mechanisms and Associated Measures

Label	Process-Based Accountability Mechanisms	Mean	Std. Deviation	Ranking Within group	Overall Ranking	Overall Cronbach's α	Cronbach's Alpha if Item Deleted	Mann Whitney U	
								Z	Sig[b]
C	**Competition**								
C1	*Increasing the number of potential bidders or applicants*	*4.47*	*.648*	*1*	*4*		.741	-0.721	*0.471*
C2	*Availability of in-house commercial skills within the public sector.*	*3.81*	*.831*	*4*	*18*		.741	-0.181	*0.867*
C3	*Open and comprehensive bidding parameters and requirements*	*4.15*	*.887*	*3*	*12*	*.773*	.716	-0.02	*0.997*
C4	*Transparent bidding and tendering process*	*4.46*	*.585*	*2*	*5*		.766	-0.038	*0.998*
C5	*Adequate incentives to encourage the supply of innovation from the private sector*	*3.72*	*.767*	*5*	*19*		.767	-0.873	***0.021***
BM	**Bench-Marking**								
BM1	*Comprehensive articulation of historically good practices and processes*	3.93	.557	2	15	*.740*	.717	*-1.063*	*0.437*
BM2	*Constant improvements on benchmarking techniques.*	4.53	.501	1	1		.728	*-1.284*	*0.143*
M	**Monitoring**								
M1	*Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee*	*4.34*	*.534*	*2*	*8*		*.715*	*-0.662*	***0.013***
M2	*More qualitative public awareness on fiscal risks arising from contingent liabilities*	*4.16*	*.516*	*3*	*11*	*.738*	*.701*	*-0.733*	*0.467*
M3	*External monitoring through audit institutions and other interest groups.*	*4.49*	*.309*	*1*	*2*		*.725*	*-0.926*	*0.353*
M4	*Effective use of sanctions against wrong practices*	*4.04*	*.374*	*4*	*13*		***.740****	*-0.395*	*0.728*
PA	**Performance Auditing**								
PA1	*Project life cycle cost reduction*	*4.43*	*.643*	*2*	*7*		.791	*-0.651*	*0.516*
PA2	*Adequate risk transfer among project parties*	*4.44*	*.688*	*1*	*6*		.746	*-0.511*	*0.315*
PA3	*Acceptable project quality*	*4.32*	*.732*	*3*	*9*	*.801*	.782	*-0.312*	*0.752*
PA4	*Quality service delivery*	*4.27*	*.627*	*4*	*10*		.798	*-1.329*	*0.184*
PA5	*On-time project completion,*	*3.94*	*.793*	*5*	*14*		.730	*-1.133*	*0.256*
PA6	*Economic empowerment of local community*	*3.91*	*.693*	*6*	*16*		.789	*-0.441*	*0.665*

PSC	***Public Sector Comparator***								
PSC1	*Compulsory PSC evaluation both at project and guarantee scheme levels.*	*3.83*	*.583*	*2*	*17*		*.701*	*-0.662*	*0.508*
PSC2	*Integrating PSC evaluation into government guarantee-decision making process.*	*4.48*	*.644*	*1*	*3*		*.698*	*-0.733*	*0.463*

Table 7.5: Results of Statistical Analysis on Democratic Accountability Mechanisms and Associated Measures

Label	Democratic Accountability Mechanisms	Mean	Std. Deviation	Ranking Within group	Overall Ranking	Overall Cronbach's α	Cronbach's Alpha if Item Deleted	Mann Whitney U	
								Z	Sig[b]
SPI	**Socio-Political Impact**								
SPI1	*Project's impact on job creation and unemployment*	4.38	.652	1	5	.826	.820	-0.245	0.806
SPI2	*Project's impact on travel time and journey quality*	4.16	.630	4	12		.821	-1.063	0.288
SPI3	*Affordable user charges*	3.09	.836	10	22		.811	-1.284	0.419
SPI4	*Access to services*	3.04	.540	11	23		**.827***	-0.689	0.491
SPI5	*Better stakeholder engagement*	4.24	.528	3	10		.818	-0.591	0.555
SPI6	*Adequate security*	3.97	.744	6	15		.810	-0.764	0.327
SPI7	*Project's impact on biodiversity*	3.9	.733	7	16		.819	-0.12	0.904
SPI8	*Sufficient risk transfer away from public sector*	4.02	.789	5	13		.822	-0.721	0.471
SPI9	*Adequate response to public needs through timely project delivery*	3.82	.811	8	18		.825	-0.181	0.856
SPI10	*Minimal life cycle cost*	3.34	.532	9	21		**.835***	-0.02	0.984
SPI11	*Better collaboration between public and private sector*	4.28	.618	2	8		.813	-0.038	0.97
SE	**Stakeholder Engagement**								
SE1	*Effective communication and dialogue*	4.44	.806	1	2	.826	.807	-1.133	0.256
SE2	*Clear and effective communication channels*	4.43	.657	2	3		.812	-0.441	0.665
SE3	*Staff commitment to laid down stakeholder engagement strategy*	4.37	.622	3	6		.804	-1.475	0.141
SE4	*Transparent decision-making process*	4.32	.648	4	7		.816	-1.215	0.221
SE5	*Clear understanding of all stakeholders' area of interests*	4.27	.713	5	9		.819	-1.601	0.12
RL	**Rule of Law**								
RL1	*Enforceability of contracts and agreements in projects*	4.93	.957	1	1	.743	.716	-0.689	0.491
RL2	*Adequate institutional arrangements for supporting contract enforcement*	3.99	.610	2	14		.730	-0.591	0.555
RL3	*Legal scrutiny and evaluation of policy, projects and performance.*	3.83	.904	3	17		.713	-0.764	0.445
RL4	*Clarity in legal/contractual rights and responsibility among project parties.*	3.81	.602	4	19		.712	-0.12	0.904

PS	***Parliamentary Scrutiny***								
PS1	*Effective use of committee hearings to evaluate the management of government guarantee scheme*	*4.17*	*.744*	*2*	*11*	*.720*	.711	*-0.662*	*0.108*
PS2	*Interactions with external experts and interest groups to examine wider impact of government guarantee scheme*	*3.35*	*.733*	*3*	*20*		.647	*-0.733*	*0.463*
PS3	*Encouragement of policy debates on government guarantee scheme*	*4.39*	*.806*	*1*	*4*		.716	*-0.926*	*0.354*

This is because the two factors had their P^{Value} far lower than the significance level of 0.05 as hypothesized in the study. The P^{Value} of the two factors showed significance at P<0.021, and P<0.013 respectively. This confirm differences in opinion among respondents on the three factors. However, the result also confirm 97.2% of the respondents are in agreement with all the process-based factors in confirmation with the null hypothesis. The two factors which higher significance level than hypothesized are: ***C5=*** *Adequate incentives to encourage the supply of innovation from the private sector (P<0.021) and,* ***M1=****Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee (P<0.013).* Other remaining factors showed higher P^{Value} than hypothesized (P<0.05). The implication of this result is that if all the responses are combined, it will have no impact on the overall reliability of the findings. Going further, subsequent analysis into the group mean of both public and private sector respondents showed that, while factors ***C5*** *was* rated highly by the private sector, the public sector rated it as less important. On the other hand, the private sector rated ***M1*** as a less important factor, but the public sector considered the factor to be important. In line with this result, the tenth column of Table 7.4 indicate that the null hypothesis should be retained for the entire process-based accountability measures.

7.8.4 Results of Man Whitney U Test for Democratic Accountability Mechanisms and Associated Measures.

Finally, Man Whitney U test of significance differences in perception was also conducted for democratic accountability measures. As earlier done for other constructs, it was essential to find out whether any differences in perception between public and private sector respondents exist as may affect their ranking of each democratic accountability measures. The differentiator here remains the job sector of the respondents, which are public and private sectors respectively. The sector was therefore used as the grouping variables, while the democratic accountability measures were introduced as the test variables. Based on the

analysis, all the twenty three (23) democratic accountability measures were perceived as important between the private and public sector participants. All the factors had their P Value higher than the hypothesized $P<0.05$. In line with this result, the tenth column of Table 7.5 indicate that the null hypothesis be retained for the entire measures. In summary, the result from the statistical analysis suggest that the survey respondents were largely in agreement based on their perceptions of all the accountability factors regardless of their demographics.

7.9 Validity and Reliability

Validating research findings and ensuring reliability, credibility and generalizability are conducted differently, based on whether quantitative or qualitative approach is employed (Creswell, 2013). Whilst the term 'trustworthiness' may be considered in qualitative research (Marshall and Rossman, 2014), the quantitative version may be put as 'credibility' (Sousa, 2014). Studies such as Creswell (2007) and (2013), Guba and Lincoln (2015) have, over time come up with their own qualitative yardsticks for measuring internal and external rigour in research. As such, the evolution of several terminologies such transferability, confirmability, dependability, reliability and validity have been brought into emergence. However, despite the array of terms, the critical essence of validity is the introduction of rigour that minimises bias in research. Research validity examines the veracity of claims, reduction in error, and the logic behind process (Morgan, 2007; Cohen et al., 2013; Jussim *et al.*, 2015). According to Greene (2014), research credibility also involves ensuring validity of methodology and interpretation. Whilst methodological validity looks at the suitability of the research design and procedures adopted in a study, interpretive validity examines the plausibility of interpretations generated via an adopted methodology (Greene, 2014; Noble and Smith, 2015). However, a possible way to address these complexities lies on careful selection of research design, methodology and methods (Maxwell, 1992 and Kothari, 2004).

In quantitative research, validity focuses on precision and accuracy of the research instrument including the research process (Norris, 1997). In this study, validity and reliability have been addressed with the adoption of series of procedures for implementing the research. The use of pilot study helped strengthen the face and content validity of the questionnaire. The study engaged 10 participants to evaluate the research instrument before implementing the final survey. The pilot study thus helped ensure consistency in participants' responses to closely connected questions in the questionnaire. This ultimately mitigated threats of validity and operationalization. The internal consistency of the measurement scales used in the questionnaires also contributed to validity. The study selected 5-point likert rating scales to measure every construct examined in the research and ensured the selected scales were suitable to operationalize the constructs. Through piloting, the study was also able to ensure each independent variables identified were true measures of their constructs.

In addition, once the data collection stage was over, the study adopted series of statistical analysis for data cleansing, screening and reliability. Analysis such as reliability, missing value analysis, multicollinearity screening etc. were used to identify unreliable factors, missing and incomplete responses from the questionnaire data. By deleting unreliable factors and incomplete responses, improvement in the overall reliability of the data set was hugely enhanced.

Chapter Summary

This chapter explored the quantitative phase of the study by focusing on confirming the wider relevance of findings identified at the qualitative stage. Through the literature, semi-structured interviews and document analysis, findings were identified and then used to

develop questionnaire survey. The questionnaire was pilot-tested and later distributed for data collection. Although, respondents were principally recruited through Snowball sampling approach by relying on existing network of contacts of the researchers in the UK's public and private sectors, other supplementary source included the HM Treasury's PFI projects database containing a list of 305 contracting, Special Purpose Vehicles (SPVs) and financial firms. The questionnaire respondents were UK public sector employees and private sector participants (PFI/Construction Sector) with experience in UK PFI and infrastructure guarantee. A total of 118 respondents were sampled with a return rate of 79.60% and 77.11% usable questionnaire responses (91 responses) were got. Statistical analysis adopted included Missing value analysis, reliability analysis, mean ranking, standard deviation and Man Whitney U test of significant differences in perception among respondents. The study identified the top-ranked factors contributing towards accountability in PFI/PPP infrastructure guarantee scheme across the 16 measured constructs/dependent variables.

Chapter Eight: Structural Equation Modelling of Public Accountability in UK's PFI/PPP Government Guarantee Scheme

8.0 Chapter Overview:

This chapter builds on findings from the qualitative study and initial statistical analysis to establish the structural path for examining accountability in publicly guaranteed PPPs. On this basis, AMOS IBM SPSS version 22 is used to build a Structural Equation Model. The chapter also evaluates the important and intertwined relationship among the sixteen accountability constructs (latent variables) identified in previous qualitative chapters. In developing the structural model, the important issue of model fit evaluation is looked upon. Thus, the study examines different indices for determining the fitness of a model. The theoretically recommended thresholds are also established. The study also examines whether the measures contributing towards each latent variable were true measures of the particular constructs they claim to measure. In this regard, construct validity – convergent, discriminant and face validity statistics are examined such as Average Variance Extracted (AVE), Maximum Shared Squared Variance (MSV). Confirmatory Factor Analysis (CFA) is also used to understand the factor structure of the latent variables in the model and establish the key measures. Maximum Likelihood technique is considered in this regard. Given the multidimensional nature of the construct, second-order CFA is also considered in the study. Series of model re-specification and refinement analysis are carried out and thus establish the overall structural model which is later used to create a conceptual framework for evaluating accountability in PFI/PPP Government Guarantee Scheme.

8.1 Essence of Structural Equation Model

Structural equation modelling (SEM) as a statistical tool was largely developed by sociologists and Psychologists (Yang and Ou, 2008). SEM as a multivariate method can also be viewed as an extension of regression modelling (Hair *et al.,* 2006), which measures series of interdependent relationships among variables (Hoyle, 1995). SEM provides a way of modelling constructs by clearly integrating errors of measurement caused by substitute variables, therefore providing useful insights into measures contributing towards the construct (Molenaar *et al.,* 2000). The main logic behind SEM is based on the general notion that some variables of major interest are not observable, - latent variables (Kline, 2015). SEM thus estimates the interrelationship between the latent variables and the observed (independent variables), by creating a structural path towards understanding the construct. By providing a visual representation of the interconnected relationships among variables, SEM enables users' in-depth understanding of the causal relationship and performance algorithm (Kim et al., 2009; Hair *et al*., 2016). Due to its popularity and varying benefits, SEM has been widely implemented in many project management studies. Studies like Doloi et al. (2011) once used SEM for evaluating impact of contractor's performance on project success. Chen *et al*. (2011) also adopted SEM for examining interrelationships among critical success factors for construction projects. In another recent study, Xiong *et al*. (2015) also conducted a critical review of the application of SEM in construction project management research, among many other related studies.

Under SEM, the observed variables are used to measure the latent variable. This measurement technique consist of two major components namely, (1) measurement model and (2) the structural model. Whilst the measurement model integrates confirmatory factor analysis (CFA) by focusing on how well the observed variables measures the latent/construct

variable (Kim *et al.*, 2009). The structural model comprise multiple regression analysis, path analysis and models the relationship among the construct variables (Chen et al., 2011). In terms of evaluating the reliability of observed variables, the measurement model comes in handy, as its fits the observed variables to the model and confirm their validity or otherwise (Kline, 2015).

In order to unravel the critical measures contributing towards accountability in UK's PFI/PPP infrastructure guarantee scheme, this study adopted structural equation modelling. An important advantage of using SEM in this research is that through CFA, the structural path of the measured construct is revealed and the relationship between observed and latent variables are established. Where more than one latent variables are measured as components of a bigger construct, SEM helps unravel the magnitude and importance of each latent variable (Melchers and Beck, 2017).

8.2 Model Fitness

An important issue when using Structural Equation Model (SEM) is to evaluate the fit statistic of the model (Iacobucci, 2010). Model fit examines the degree to which a hypothesized model reflects the theory structure underlying the dataset (Ryu, 2014). According to Khalili-Damghani, K., & Tavana, (2014), a potential SEM model should be selected in line with the recommended "Goodness of Fit" (GOF) indices, and where such model fulfils GOF and theoretical expectations, it is ultimately selected. Different GOF indices have been applied in various studies. However, the most widely reported and applied indices can be classified into three broad categories namely, Incremental Fit Indices, Absolute Fit Indices and Parsimony Fit Indices (Hooper *et al.*, 2008; Cheung and Rensvold, 2002). These indices are a product of continuous research and refinement of the SEM tool by different researchers over the years (Bagozzi and Yi, 1988; Bentler, 1990; Hu and Bentler,

1999). As suggested by Henseler and Sarstedt (2013), using different indices across the three indices categories enhance the richness of analysis, since each indices reflects distinctive aspect of the model. Whilst O'Rourke and Hatcher (2013) recommended indices like Model Chi Square (X^2), Adjusted Goodness-of-fit statistic (AGFI), Comparative Fit Indices (CFI) and Root Mean Square Error of Approximation (RMSEA). Henseler *et al.* (2015), suggested the use of Standardized Root mean Square Residual (SRMR), Chi-Square (X^2), and Global Fit Index (GFI), among others. The three broad categories of GOF indices are broadly explained below.

8.2.1 Incremental Fit Indices

Also referred to as comparative or relative fit indices (Bentler, 1990), incremental fit indices are a collection of indices that require no use of Chi Square in its original form but still compares the hypothesized model with the chi-square value (Hu and Bentler, 1999). Incremental fit indices were established to estimate the increment of fit of a hypothetic model in relation to a baseline model (Ding *et al.*, 1995). The central hypothesis behind incremental fit indices is that all variables in the data set are uncorrelated (Schreiber *et al.*, 2006). The two major indices under incremental fit are normed-fit index (NFI) and Comparative Fit Index (CFI). Normed-fit index evaluates the model by relating the X^2 value of the model to the X^2 of the independence model. Since the values of NFI statistic often range between 0 and 1, Bentler and Bonnet (1980) suggested a greater value between 0.90 and 1 will represent a good fit. However, despite the effectiveness of the NFI, a major shortcoming is its sensitivity to sample size, as the index tends to underperform with smaller sample size of less than 200. As such, studies like Kline (2005) and Tabachnick and Fidell (2007) have suggested the NFI should not be exclusively relied on to determine model fit. Other indices such as Tucker-Lewis Index (NNFI) have been proposed to cope with smaller samples for model fit

evaluation. However, with Tucker-Lewis Index, its value can go beyond 1.0 and may sometimes be difficult to interpret. Hence, studies have recommended cut-off threshold of either 0.80 or ≥0.95. Comparative Fit Index (CFI) is a refined form of the Normed-Fit Index (NFI) and looks at sample size that shows good performance even under small sample scenario. By comparing the samples' covariance matrix with the independent model, CFI hypothesizes all latent variables as uncorrelated (Gerbing and Anderson, 1993). CFI is currently one of the most reported fit indices in SEM and with the statistic value ranging between 0.0 and 1, where the closest value to 1 indicates good fit. Recommended cut-off values have been put at ≥0.95 (Hu and Bentler, 1999). This study thus examined incremental fit of the model using CFI, NFI and NNFI.

8.2.2 Absolute Fit Indices

Absolute Fit Index (AFI) looks at the extent to which a hypothesized model reflects the sample data (Chen *et al.*, 2011) and examines which potential model provides the best fit. By comparing the goodness of fit (GOF) to a value that is analogous to a total sum of square, the AFI statistic is comparable toR^2 (Hu and Bentler, 1998). Absolute Fit statistic performs better where there is a good fit between the hypothetic model and the observed data (Sugawara and MacCallum, 1993). A high covariance matrix value suggest higher predicting power of the model, such that, a covariance of 0.80 indicate 80% of covariance is explained by the model. Examples of absolute fit indices include Model Chi square test, RMSEA, Goodness-of-fit Index (GFI), Adjusted goodness of fit index (AGFI), the Root mean square residual (RMR), and Standardised root mean square residual (SRMR).

Model Chi Square (X^2) examines the degree of error between the data sample and the model's covariance matrices (Stephens, 1974). The question of *"how close are the observed*

values to those which would be expected under the fitted model" is usually answered using the chi square test (Nicholls, 1989, pp. 53). This test statistic confirms if the sample data emerged from a particular distribution by evaluating the model against the data to assess for discrepancies (Snedecor and Cochran 1989). Normally, a good model fit would give a less-significant result at 95% confidence interval, hence the chi square is often described as a "badness of fit' statistic (Kline, 2005). However, whilst chi square remains a celebrated goodness-of-fit statistic, one of its shortcomings is the assumption of multivariate normality, which may result in models being rejected under extreme abnormalities (Satorra and Bentler, 2001). In addition, its sensitivity to sample size also indicates chi square almost continuously rejects models under large sample data (Broffitt and Randles, 1977), while its predictive power also diminishes when using small data and thus unable to judge between good models (Vigneron and Johnson, 2017). To address these limitations, an alternative indices that reduces the impact of size of sample data on model fit such as normed chi-square (x^2/df) may be used (Toma et al., 2016). The recommended cut-off value of normed chi-square ranges from 2.0 to 5.0 (Toma *et al*., 2016).

Another essential fit indices is the RMSEA (Root Mean Square Error of Approximation). RMSEA examines the extent to which the model, with certain well-chosen parameter estimates, fits the covariance matrix of the sample populations (Hu and Bentler, 1998; Chen *et al.,* 2011). Under RMSEA, the objective is to obtain an approximate or very close fit, but not a precise fit, between the population and the model. The recommended cut-off value for RMSEA is currently between 0.05 and 0.10, and 0.08 is considered a more acceptable upper level cut-off point (Stenling and Tafvelin, 2014). Goodness-of-fit Index (GFI) is also another strong indices for examining model fit and estimates the percentage of variance in the hypothesized model that is explained by the predicted population variance (MacCallum and

Hong, 1996). GFI explains the extent to which the model reflects the observed covariance matrix (Miles and Shevlin, 1998). The value of GFI statistic ranges between 0 and 1, with larger sample data improving its value (MacCallum and Hong, 1996). The recommended cut-off point for GFI is ≥0.95 (Fan et al., 1999). Another useful model fit indices is the Adjusted Goodness-of-fit Index (AGFI). AGFI is an extension of the GFI (as the name indicates), and adjusts the goodness of fit index in-line with the degree of freedom (Gerbing and Anderson, 1993). Additionally, the value of the AGFI statistic increases as sample size increases (Snedecor and Cochran 1989) and its values ranges between 0 and 1, with an upper cut-off value of 0.09 indicating better fit of the model (Kenny and McCoach, 2003). In view of the above explanation, this study therefore examined normed-chi square, RMSEA, GFI and AGFI as indices for determining absolute fit in its structural analysis.

8.2.3 Parsimony Fit Indices

Parsimony of fit indices are adjustments on earlier mentioned fit indices (Hu and Bentler, 1999). The focus of the adjustment is to select simpler models over complex models, and apparently penalise less- parsimonious models (Stenling and Tafvelin, 2014). With parsimony indices, the more complex the estimation process, the lower the fit index (Marsh and Hau, 1996). Mulaik *et al.* (1989) developed two major parsimony indices comprising Parsimony Goodness-of-fit Index (PGFI) and Parsimonious Normed Fit Index (PNFI). Whilst the PGFI makes adjustment for degrees of freedom and is based on the GFI (Mulaik *et al.*, 1989), the PNFI estimation is based on the NFI but also considers adjustment for degrees of freedom (Williams and Holahan, 1994). Higher cut-off value for parsimony indices is recommended at 0.90 and above (Hu and Bentler, 1999), with Mulaik *et al.* (1989) preferring the combination of parsimony with other goodness-of-fit indices. In line with the above analysis, the study's hypothesized model was examined for PGFI and PNFI indices. The summary of all fit indices employed in this study is presented in Table 8.1 below.

Table 8.1: Cut-Off thresholds for Structural Model Fit Indices

Goodness of fit measures	**Recommended level of GOF Measures[a]**
X^2/degree of freedom	<5 (preferably 1 to 2)
RMSEA	<0.10 (preferably <0.08)
Goodness of Fit Index (GFI)	0(no fit) – 1 (perfect fit)
Adjusted Goodness of Fit Index (AGFI)	0(no fit) – 1 (perfect fit)
Comparative Fit Index (CFI)	0(no fit) – 1 (perfect fit)
Normed Fit Index (NFI)	0(no fit) – 1 (perfect fit)
Tucker-Lewis Index (TLI)	0(no fit) – 1 (perfect fit)
Parsimonious Goodness of Fit Index (PGFI)	0(no fit) – 1 (perfect fit)
Parsimonious Normed of Fit Index (PNFI)	0(no fit) – 1 (perfect fit)

a: Cut-offs adapted from Hu and Bentler (1998); Chen et al. (2011); and Mulaik et al. (1989)

8.3 Construct Validity and Reliability

In order to examine the significant relationship in the hypothesized model (Byrne, 2001), construct validity and reliability tests were considered. Construct validity includes different sub-dimensions such as convergent validity, discriminant validity and content validity of the observed measures associated with the constructs (Garver and Mentzer, 1999; Hulland, 1999). These measures are essential validity tests that must be satisfied to ensure all the variables truly measure their associated latent variables. Convergent validity is often tested from a statistical standpoint. It examines the extent of correlation between two or more measures of the same latent construct (Garver and Mentzer, 1999). Convergent validity looks at whether measures of a particular latent variable statistically converge (Garver and Mentzer, 1999). During analysis, the convergent principle suggests that all related measures of a construct will correlate very strongly to one another, based on their correlation matrix (Öncel, 2014). Additionally, convergent validity measures comprise the Average Variance Extracted (AVE). AVE measures the amount of variance captured by a latent variable from its measures that is shared among other variables (Khosrow-Pour, 2008). It also estimates the variance captured by the latent variable, against the variance occasioned due to measurement

error. The recommended upper cut off threshold for AVE is 0.7 and above, indicating that 70% of the variance in the measures can be explained by the latent variables. In addition, a value of ≥0.5 is considered acceptable and therefore deemed a good value (Khosrow-Pour, 2008). The mathematical equation for Average Variance Extracted (AVE), based on the work of Fornell and Larker (1981) is calculated as:

$$AVE = \frac{\Sigma[\lambda_i^2]Var(X)}{\Sigma[\lambda_i^2]Var(X)+\Sigma[Var(\varepsilon_i)]} \quad \text{,……..(1}$$

Where λi is the loading of xi on X, Var signifies variance, ε_i denotes measurement error of xi, and Σ represents a sum. As a construct validity statistic, the AVE is considered to show more reliability when compared to other index such as Composite Reliability (Padilla and Divers, 2016).

Discriminant validity, as the name implies, describes the extent to which observed variables of different latent constructs diverge or are not correlated with one another (Lucas *et al.*, 1996). In discriminant validity, the correlation coefficients for discriminated measures should be very low and closer to zero when observed in a correlation matrix (Cable and DeRue, 2002). Discriminant validity is often measured using Maximum Shared Squared Variance (MSV) (Schumm *et al*., 1986). MSV examines the extent to which other factors external to a specific latent construct are able to explain the variance in the construct (Enders and Bandalos, 2001). In ascertaining the reliability of a model, the MSV coefficient must be lower to the AVE (Farrell, 2010), since it is expected that measures predicting a specific latent construct should correlate with the construct than other external measures (Netemeyer et al., 1996). In addition to other construct reliability tests earlier explained, face validity of the model was also considered. In this case, the all the indicators meant to measure the

constructs actually match the conceptual definition of the constructs (Chau, 1996). Face validity, also known as content validity relies on researcher judgement and insights (Qudrat-Ullah and Seong, 2010). In this study, the combination of literature review, semi-structured interviews, document analysis and questionnaire pilot study had helped to ensure face validity of the model variables. Overall, this study combines AVE and MSV construct validity tests (see in a Table 8.6) with Cronbach's alpha reliability test earlier performed for all the measures in the previous chapter (See Tables 7.2 to 7.5) to improve the model's validity.

8.4 Confirmatory Factor Analysis

In order to confirm the key measures underlying the sixteen accountability mechanisms, a confirmatory factor analysis was carried. The sample size for the analysis is N=91 and is in line with existing studies on structural equation model who have used minimal samples sizes such as Eriksson and Pesamaa, (2007); Jin *et al*. (2007); Doloi's (2009b), Doloi *et al*. (2011), and Chen et al. (2011). This, therefore emphasized the fitness of the dataset for structural equation modelling. The structural models were constructed using IBM AMOS 22 SPSS. Preliminary nodes were developed using the measures earlier identified and represented in Tables 8.1 above. At this stage of the analysis, only factors statistically considered reliable are retained for further analysis. As endorsed by various scholars on structural equation modelling (Hu and Bentler, 1999; Mulaik *et al.*, 1989; Garver and Mentzer, 1999; Kline, 2005), 'Maximum Likelihood method' was adopted in this research. Essentially, Maximum Likelihood method is useful as it produces the maximum parameter estimate of normally distributed dataset (Qudrat-Ullah and Seong, 2010). Covariance results of the hypothesized model are then evaluated to examine the model's suitability, by means of the earlier mentioned fit indices (See section 8.2 above).

On account of the evaluation of the hypothesized model, further refinement were needed to ensure sufficient reliability, validity and model fitness with the sample data. To implement the necessary improvements to the model, two model classification methods were employed. Based on the recommendation of Kline (2010), IBM AMOS 22 SPSS modification metrics were used to input covariance and causal relationships between observed variables and error terms respectively. These methods have been severally used for improving model fitness (Hu and Bentler, 1999).This refinement ensured all adjustments to the model are theoretically in tune and correctly explain the intertwined relationship among the accountability factors. Additionally, the path diagram was vetted to reveal measures showing little correlation with the latent construct and also important measures that are showing low correlation coefficient. In each case, series of refinements were performed on the model until the desired fit, reliability and validity levels were achieved.

Considering the multidimensional nature of the constructs in this study, it was necessary to consider Second-Order Confirmatory Factor Analysis (CFA). Hence, second order factor analysis was carried out for each of the sixteen (16) latent constructs (i.e. Value for money, risk management, Parliamentary scrutiny etc.) influencing accountability in PPP government guarantee scheme. According to Garver and Mentzer (1999), second order construct is a latent variable that is explained by three/four or five other latent variables. Beyond ensuring the preservation of the multifaceted constructs as envisaged in the research, second order factor analysis helps minimise multicollinearity, whilst also explaining how the first-order constructs loads on the hypothesized second-order construct (Qudrat-Ullah and Seong, 2010). On this basis, the second order construct in the study is "Accountability in PFI/PPP Government Guarantee Scheme". As expected, the sixteen (16) accountability mechanisms

became the first-order factors/construct which are directly measured by the observed variables.

8.4.1 Second Order CFA of Outcome-based Accountability Mechanisms

To confirm the factor structure of the first and second-order constructs, CFA was performed on the five (5) outcome-based accountability constructs influencing PPP government guarantee scheme. The five mechanisms under this section are Value for money, Environmental Sustainability, Risk Management, Budgetary Reporting, and Collaborative Partnership. Under this section, the five constructs were modelled as the first-order factors (latent factors), with each construct having predictors ranging from seven (7), seven (7), four (4), two (2) and five (5) respectively. Asides confirming the reliability of the predictors influencing these five constructs, there was also need to establish the extent to which the five latent constructs contribute towards accountability in PPP infrastructure guarantee scheme. That is, to examine how well each of the five constructs loads on the second-order construct. In view of this, the suggestion of Caplan (2010) was followed by adopting a two-step approach. This approach combines the two common models in SEM namely, measurement model and structural model. Whilst the measurement model evaluates how well the various predictors measures the first-order constructs (in this case the five accountability mechanisms), the structural model examines the interrelationship between the first-order and the second-order construct. In order to explore the influences of the five (5) outcome-based accountability variables (mechanisms) on PPP government guarantee scheme, the hypothetical relationship was modelled. As such, a hypothesized model was developed by integrating the five accountability latent variables with their associated indicators into an initial model based on theoretical expectations and earlier qualitative findings. Below is Fig 8.1 which presents the specification for the hypothesized model of relationship between the first-order, second-order constructs and their associated measures.

An initial evaluation of the model suggested the need for improvements, thereby necessitating several iterative processes. In view of this, measures with low standardized factor loadings and the ones with less-significant loadings were removed from the model in line with recommendations by Singhapakdi *et al.* (1996). This rule automatically affected two indicators. The indicators are ***ES1*** *and* ***ES7= (****under latent variable – 'Environmental Sustainability')* respectively. Upon deleting the measures, the fit indices of the model significantly improved to desirable levels. This result revealed the convergence of four constructs, out of the five latent variables under outcome-based accountability as they contribute more towards accountability in PFI/PPP government guarantee. The AVE coefficient of the four latent variables ranged between 0.55 and 0.71. The result is also above the cut-off threshold of 0.5 recommended by Khosrow-Pour, (2008), thereby confirming the four latent constructs passed the convergence test. The contribution of the four constructs towards accountability in PPP government guarantee scheme is considered significant in addition to very significant Goodness-of-fit (GOF) indices. Budgetary reporting which had two indicators was taken off the model given its poor contribution to the overall reliability of the model. Overall, the results confirmed the validity of four out of the five hypotheses generated, in line with theoretical expectation. The confirmed hypotheses are H1, H2, H3, & H5. The final model is presented in Fig 8.2, whilst Table 8.1 presented the variance extracted and construct reliability of all the latent variables

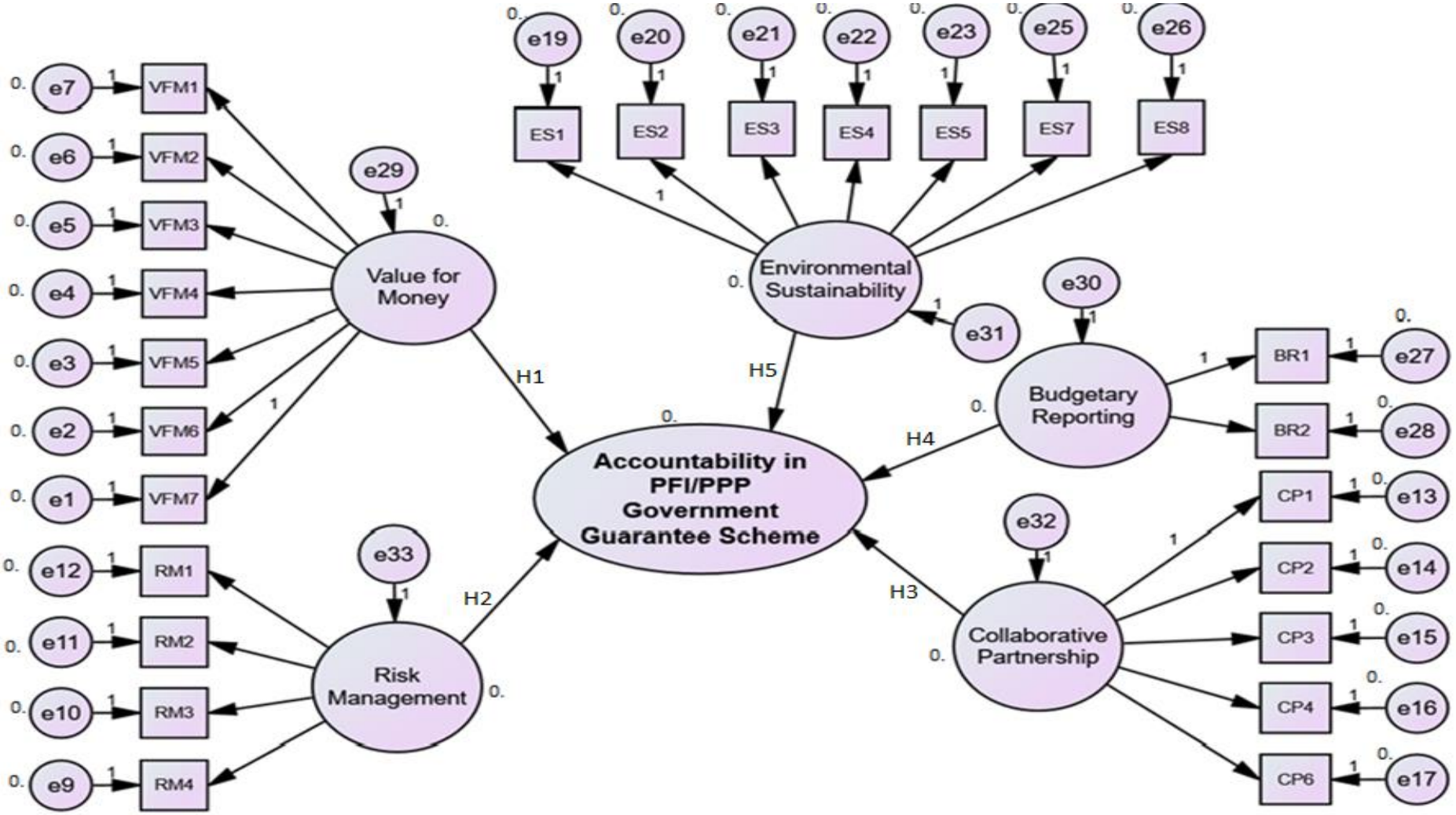

Figure 8.1: Hypothesized Model of Outcome-based Accountability Mechanisms for PFI/PPP Government Guarantee Scheme

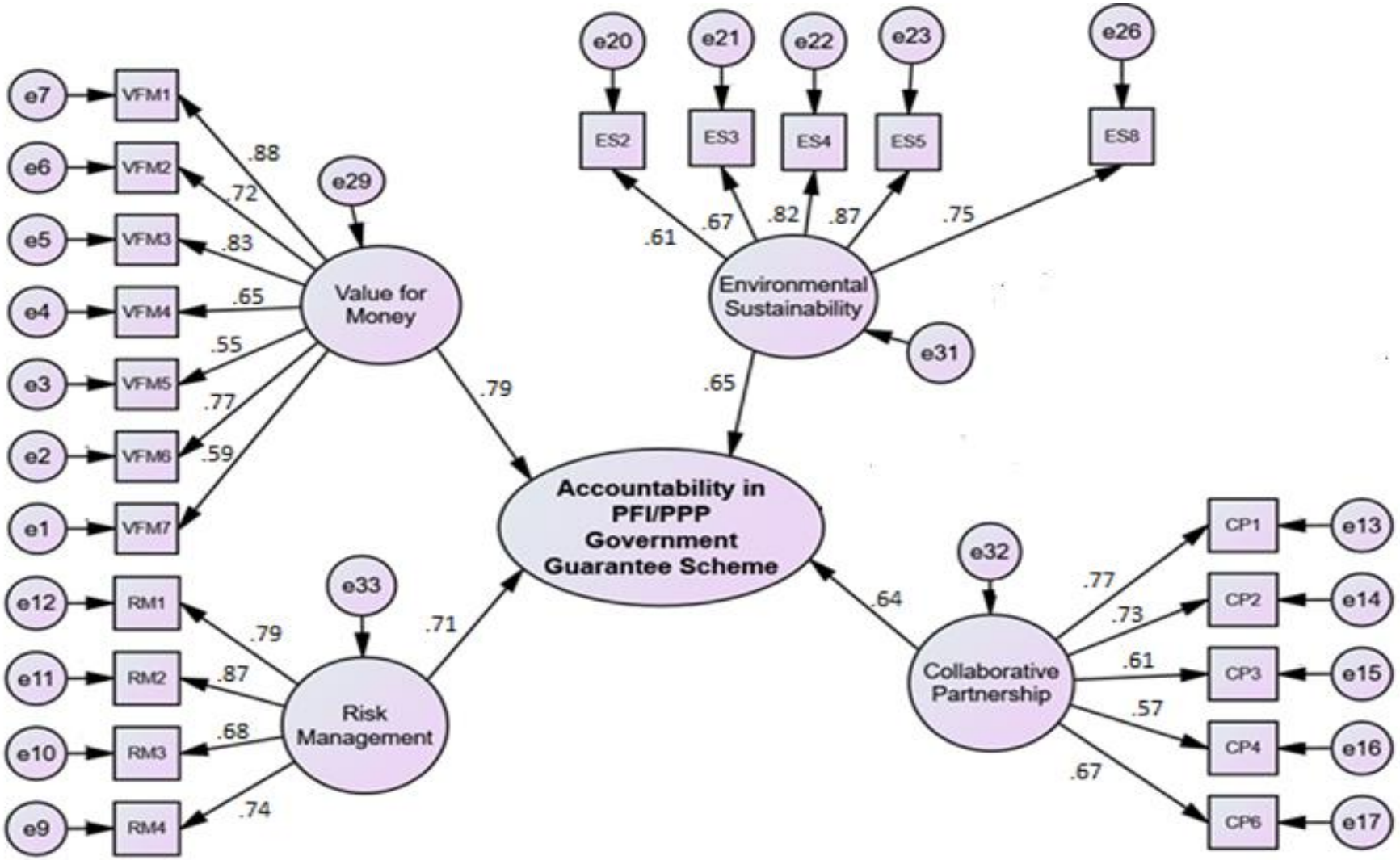

Figure 8.2: Final Model of Outcome-based Accountability Mechanisms for PFI/PPP Government Guarantee Scheme

Table 8.2: Maximum Likelihood Estimate and Value Fit Indices for Outcome-based Accountability Mechanisms & Indicators

First-Order Confirmatory Factor Analysis				**Second-Order Confirmatory Factor Analysis**			
Relationship	**Estimate**	***AVE***	***CR***	***Relationship***	**Estimate**	**AVE**	**CR**
VFM1 <--- Value for money	0.88	0.65	0.73	Value for Money<--- PFI/PPP Govt. Guarantee Scheme	0.79	0.74	0.87
VFM3 <--- Value for money	0.83			Risk management<--- PFI/PPP Govt. Guarantee Scheme	0.71		
VFM6 <--- Value for money	0.77			Environmental Sustainability<--- PFI/PPP Govt. Guarantee	0.65		
VFM2<--- Value for money	0.72			Collaborative Partnership<--- PFI/PPP Govt. Guarantee	0.64		
VFM4<--- Value for money	0.65						
VFM7 <--- Value for money	0.59			**MODEL FIT INDICES**			
VFM5<--- Value for money	0.55						
RM2 <--- Risk Management	0.87	0.71	0.81	***Indices***	***Hypothetic Model***	***Final Model***	
RM1<--- Risk Management	0.79			**X2⁄degree of freedom**	2.004	1.021	
RM4<--- Risk Management	0.74			**RMSEA**	0.088	0.088	
RM3 <--- Risk Management	0.68			**Goodness of Fit Index (GFI)**	0.721	0.954	
ES5<--- Environmental Sustainability	0.87	0.55	0.65	**Adjusted Goodness of Fit Index (AGFI)**	0.819	0.935	
ES4<--- Environmental Sustainability	0.82			**Comparative Fit Index (CFI)**	0.541	0.818	
ES8<--- Environmental Sustainability	0.75			**Normed Fit Index (NFI)**	0.573	0.789	
ES3<--- Environmental Sustainability	0.67			**Tucker-Lewis Index (TLI)**	0.720	0.821	
ES2<--- Environmental Sustainability	0.61			**Parsimonious Goodness of Fit Index (PGFI)**	1.791	0.917	
CP1<--- Collaborative Partnership	0.77	0.69	0.69	**Parsimonious Normed of Fit Index (PNFI)**	0.611	0.711	
CP2<--- Collaborative Partnership	0.73			**Cronbach's Alpha Reliability**	0.812		
CP6<--- Collaborative Partnership	0.67						
CP3<--- Collaborative Partnership	0.61						
CP4<--- Collaborative Partnership	0.57						

8.4.2 Second Order CFA of Ethics-based Accountability Mechanisms

The two ethics-based accountability mechanisms in the study were also subjected to second-order Confirmatory Factor Analysis (CFA) to confirm their factor structure (See Table 7.3 for Ethics-based Accountability Mechanisms and associated Measures). The ethical mechanisms being examined are Anti-corruption and Whistle Blower Policy. Each of the two constructs were modelled as first-Order latent variables, whilst the second-order construct remains 'accountability in PFI/PPP Government Guarantee Scheme'. Figure 8.3 presents the hypothesized model of ethics-based accountability constructs and their hypothesized impact on PPP government guarantee scheme.

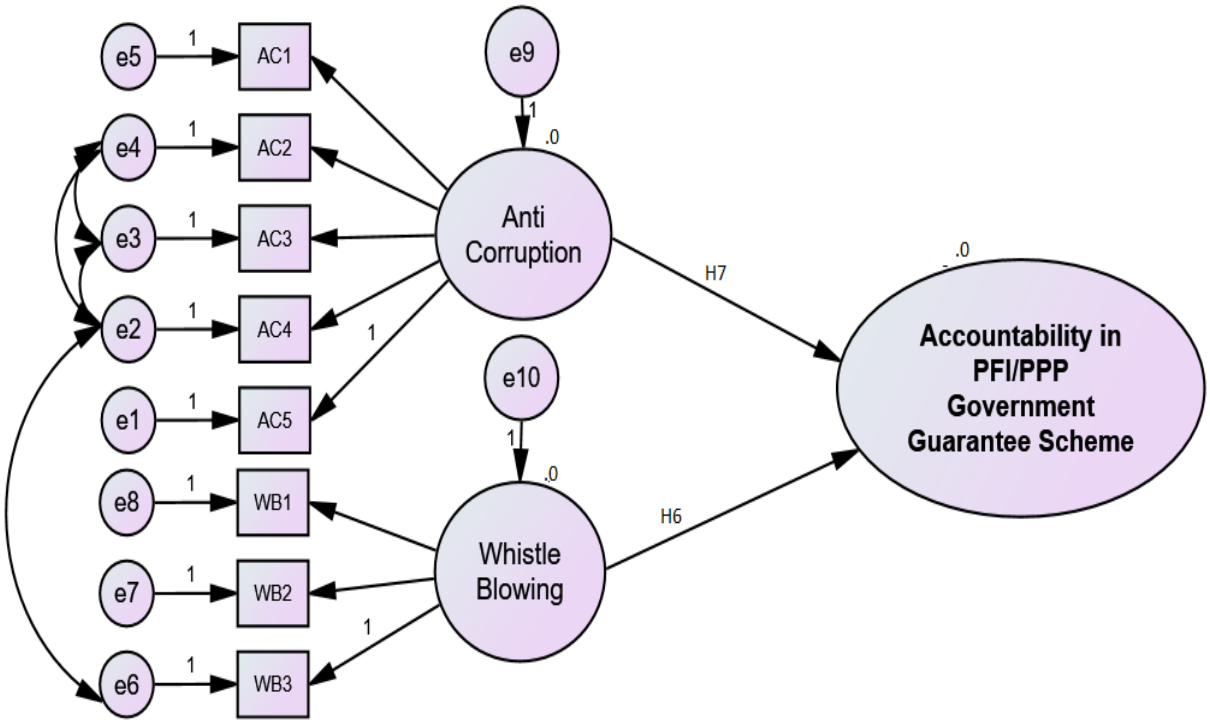

Figure 8.3: Hypothesized Model of Ethics-Based Accountability Mechanisms for PFI/PPP Government Guarantee Scheme

The hypothesized model was assessed for construct reliability, validity and model fit in order to examine the fitness of the model with the sample data. An initial evaluation of the model using the fit and reliability statistic indicated no need for further model refinement to improve the model. This is because, all the eight (8) indicators across the two ethics-based constructs showed high factor loading above the recommended levels (≥0.5). As such, all the measures were confirmed as true predictors of their associated latent constructs (Anti-Corruption and Whistle Blower Policy). Whilst the indicators were considered reliable, the two first-order constructs load significantly onto the associated second-order construct, with none of the coefficient less than 0.66. Convergence reliability and validity test was also passed by the two latent constructs, based on their strong Average Variance Extracted (AVE) and Composite Reliability (CR) values. In addition, the result confirmed hypotheses H6 & H7, in line with theoretical postulation. Fig 8.4: presents the final model, whilst Table 8.3 presents the standardized factor estimate, construct validity and reality indices and model fit indices.

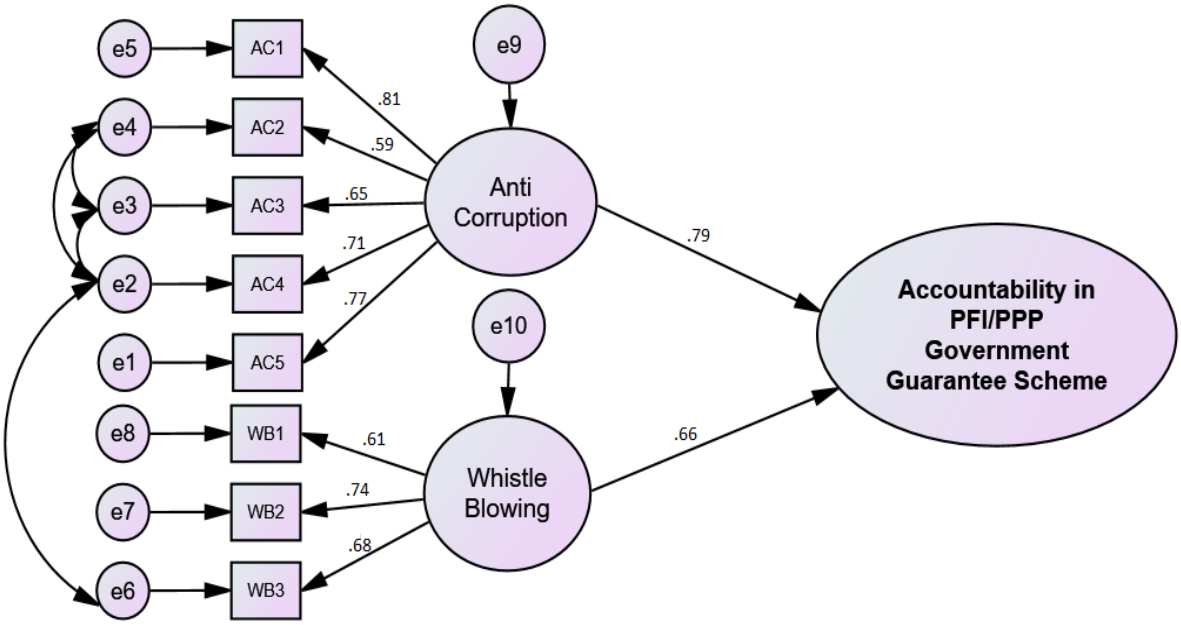

Figure 8.4: Final Model of Ethics-based Accountability Mechanisms for PFI/PPP Government Guarantee Scheme..

Table 8.3: Maximum Likelihood Estimate and Value Fit Indices for Ethics-based Accountability Mechanisms & Indicators

First-Order Confirmatory Factor Analysis			
Relationship	**Estimate**	***AVE***	***CR***
AC1 <--- Anti Corruption	0.81	0.69	0.81
AC5<--- Anti Corruption	0.77		
AC4<--- Anti Corruption	0.71		
AC3<--- Anti Corruption	0.65		
AC2<--- Anti Corruption	0.59		
WB2<---Whistle Blowing	0.74	0.56	0.61
WB3<---Whistle Blowing	0.68		
WB1<---Whistle Blowing	0.61		

Second-Order Confirmatory Factor Analysis			
Relationship	**Estimate**	**AVE**	**CR**
Anti-Corruption<--- PFI/PPP Govt. Guarantee Scheme	0.79	0.61	0.57
Whistle Blowing<--- PFI/PPP Govt. Guarantee Scheme	0.66		

MODEL FIT INDICES

Indices	***Hypothetic Model***	***Final Model***
X2/degree of freedom	3.004	1.021
RMSEA	0.088	0.078
Goodness of Fit Index (GFI)	0.821	0.854
Adjusted Goodness of Fit Index (AGFI)	0.719	0.735
Comparative Fit Index (CFI)	0.641	0.918
Normed Fit Index (NFI)	0.573	0.789
Tucker-Lewis Index (TLI)	0.620	0.621
Parsimonious Goodness of Fit Index (PGFI)	2.791	0.717
Parsimonious Normed of Fit Index (PNFI)	0.511	0.811
Cronbach's Alpha Reliability	0.713	

8.4.3 Second Order CFA of Process-based Accountability Mechanisms

Similar to the analysis performed for earlier constructs, second-order Confirmatory Factor Analysis (CFA) was also carried out for latent variables identified under process-based accountability along with their associated indicators. The CFA analysis was intended to confirm the factor structure of the five latent variables under this section regarding their contribution towards improving accountability in PFI/PPP government guarantee scheme. The five process-related accountability mechanisms identified in this study includes Competition, Benchmarking, Monitoring, Performance Auditing and Public Sector Comparator (See Table 7.4 for Process-based Accountability Mechanisms).

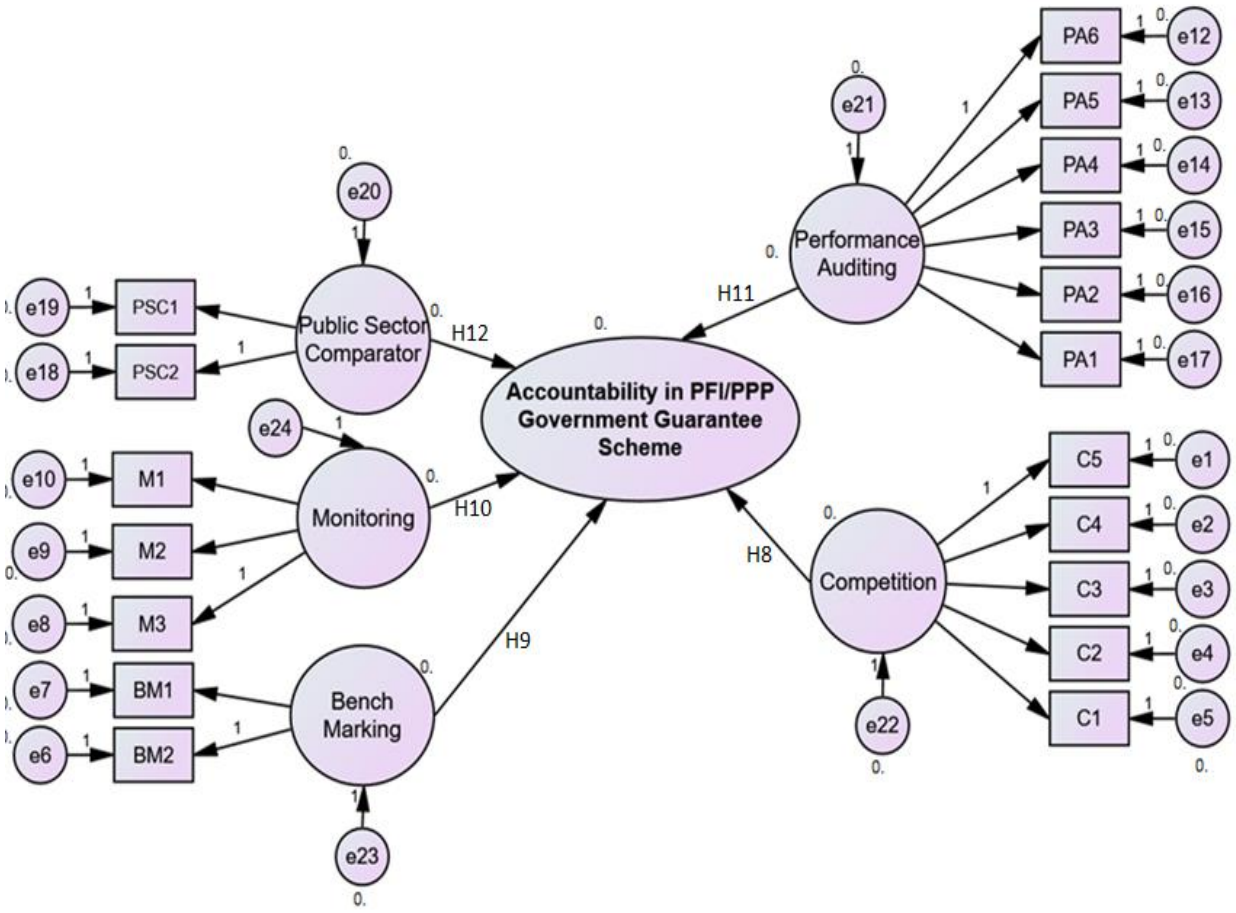

Figure 8.5: Hypothesized Model of Process-Based Accountability Mechanisms for PFI/PPP Government Guarantee Scheme.

Based on the CFA, the five latent variables mentioned above are considered the first-order factors which will predict the second order factor, *"Accountability in PFI/PPP Government Guarantee Scheme".* These first-Order factors are directly measured by a number of indicators that ranged from five, two, three, six and two respectively. In order to establish the hypothesized interrelationship among the first-order and second-order constructs, Fig 8.5 above presents the initial model.

However, in order to improve the fitness of the model, the model was examined for reliability and convergent validity by performing series of iterative processes. In view of this, indicators with low factor loadings as well as less significant relationship with the latent constructs were deleted from the model. One of the first-order constructs, 'Benchmarking' did not pass convergence validity and construct reliability tests. This construct also recorded a less significant factor loading on the second order construct less than 0.5 as recommended by Kline's (2010). In addition, the two indicators measuring the latent construct 'Benchmarking' also showed less than significant loadings. This is in addition to the poor significance result of another indicator under the first-order factor 'Performance Auditing'. Overall, the three indicators showing no significant contribution to their first-order factors include **BM1=** *Comprehensive articulation of historically good practices and processes*, **BM2=***Constant improvements on benchmarking techniques* and **PA6=***Economic empowerment of local community*. Due to the foregoing, the first order factor 'Benchmarking was deleted from the model along with the less significant indicators. Upon re-specifying the hypothesized model, the final model recorded significant factor loading at P>0.05 for the first and second-order constructs (See Fig 8.6 below for the final model of process-based accountability mechanisms). In terms of fitness, the model also performed strongly and represented in Table 8.4 below. Hence, the result confirm four out of the five theoretical hypothesis developed in Chapter 4 (confirmed hypotheses 8, 10, 11, &12).

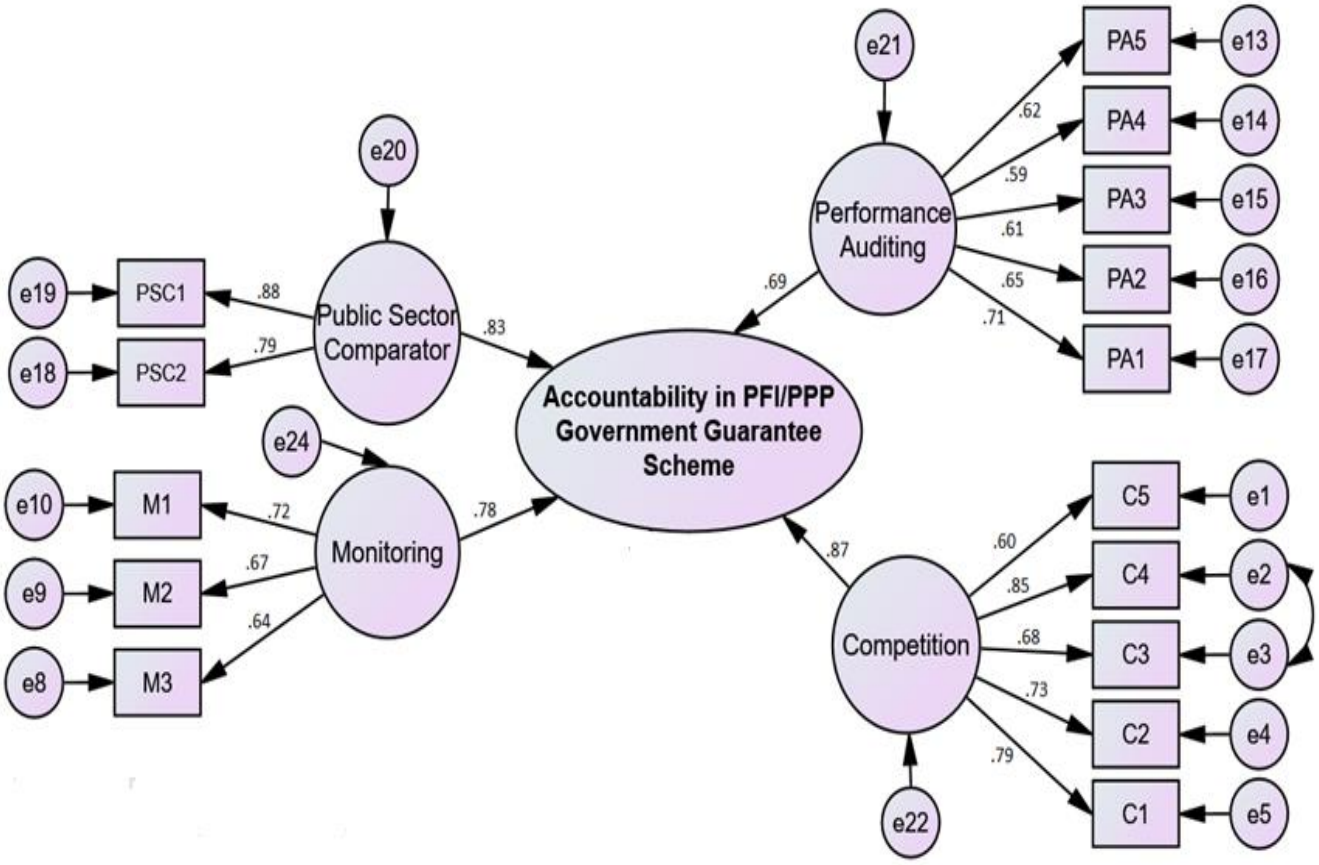

Figure 8.6: Final Model of Process-based Accountability Mechanisms for PFI/PPP Government Guarantee Scheme

Table 8.4: Maximum Likelihood Estimate and Value Fit Indices for Process-based Accountability Mechanisms & Indicators

First-Order Confirmatory Factor Analysis				**Second-Order Confirmatory Factor Analysis**			
Relationship	**Estimate**	***AVE***	***CR***	***Relationship***	**Estimate**	**AVE**	**CR**
C4 <--- Competition	0.85	0.76	0.61	Competition<--- PFI/PPP Govt. Guarantee Scheme	0.87	0.81	0.77
C1 <--- Competition	0.79			Public Sector Comparator<--- PFI/PPP Govt. Guarantee	0.83		
C2<--- Competition	0.73			Monitoring<--- PFI/PPP Govt. Guarantee Scheme	0.78		
C3<--- Competition	0.68			Performance Auditing<--- PFI/PPP Govt. Guarantee	0.69		
C5<--- Competition	0.60						
				MODEL FIT INDICES			
M1<--- Monitoring	0.72	0.65	0.76	***Indices***	***Hypothetic Model***	***Final Model***	
M2<--- Monitoring	0.67			**X2/degree of freedom**	2.004	1.021	
M3<--- Monitoring	0.64			**RMSEA**	0.088	0.098	
				Goodness of Fit Index (GFI)	0.821	0.854	
PA1<--- Performance Auditing	0.71	0.69	0.73	**Adjusted Goodness of Fit Index (AGFI)**	0.919	0.935	
PA2<--- Performance Auditing	0.65			**Comparative Fit Index (CFI)**	0.641	0.718	
PA5<--- Performance Auditing	0.62			**Normed Fit Index (NFI)**	0.573	0.989	
PA3<--- Performance Auditing	0.61			**Tucker-Lewis Index (TLI)**	0.520	0.921	
PA4<--- Performance Auditing	0.59			**Parsimonious Goodness of Fit Index (PGFI)**	2.091	0.917	
				Parsimonious Normed of Fit Index (PNFI)	0.511	0.801	
		0.91	0.68	**Cronbach's Alpha Reliability**	0.801		
PSC1<--- Public Sector Comparator	0.88						
PSC2<--- Public Sector Comparator	0.79						

8.4.4 Second Order CFA of Democratic Accountability Mechanisms

The last second-order Confirmatory Factor Analysis (CFA) performed in this study involved four latent variables under democratic accountability as identified in the study (See Table 7.5). Similar to earlier analysis, the factor structure of the four latent constructs under this section was examined, in terms of their contribution towards strengthening accountability in PPP government guarantee scheme. The four latent constructs include Social and Political Impact, Stakeholder Engagement, Rule of Law and Parliamentary Scrutiny. These constructs were modelled as first-order factors during the CFA, along with establishing their relationship with the second-order construct. Second-order factor in the study remains "Accountability in PFI/PPP Government Guarantee Scheme". In line with theoretical expectations, the hypothesized model was produced and presented in Fig 8.7 below.

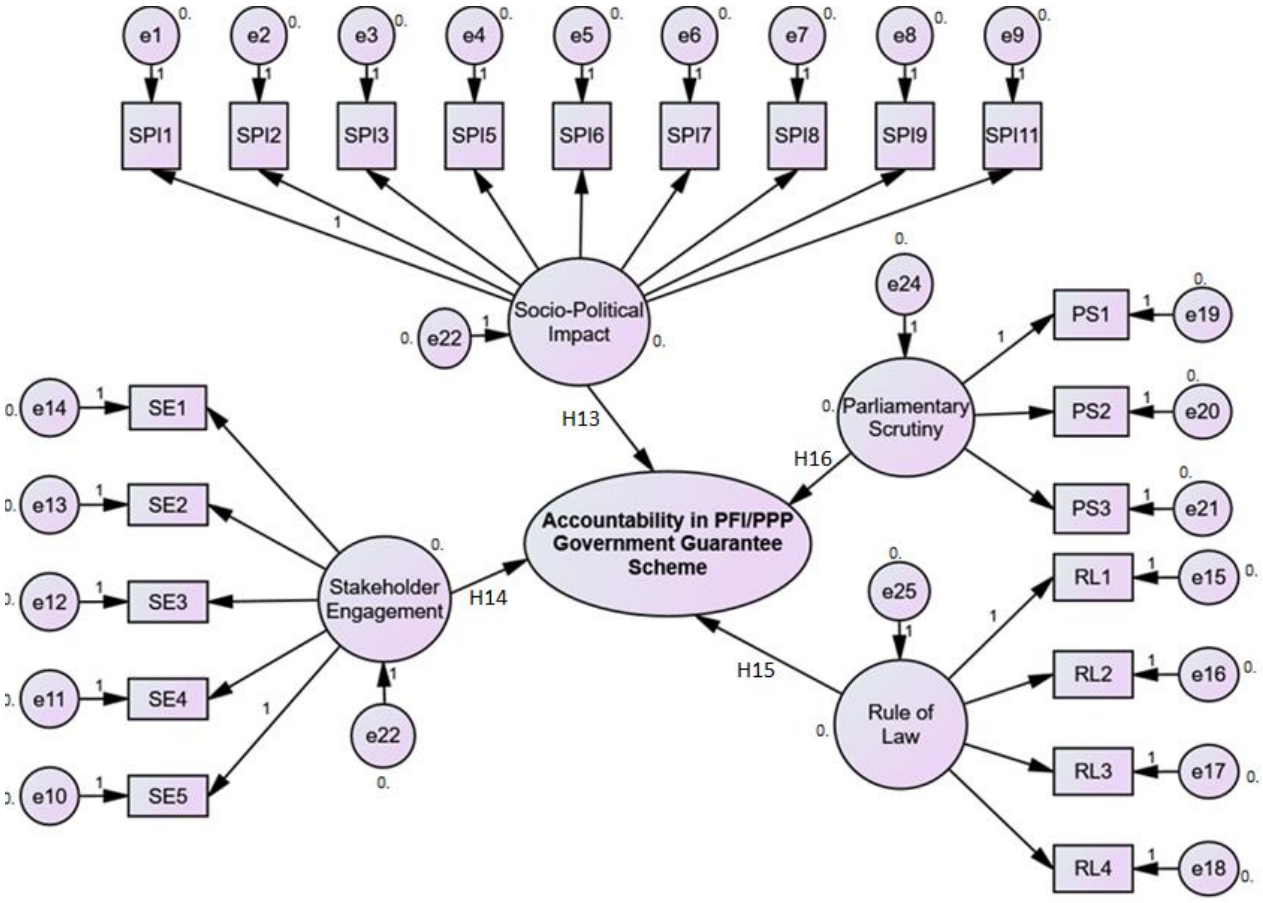

Figure 8.7: Hypothesized Model of Democratic Accountability Mechanisms for PFI/PPP Government Guarantee Scheme

Upon subjecting the hypothesized model to initial modification and re-specification tests, evidences of further improvement of the model was clearly shown. In view of this, the model was re-specified and refined in order to improve its fitness. Iterative analysis were conducted to examine the model for convergent validity and construct reliability, leading to the removal of less significant indicators. These indicators with low factor loading were believed to have no significant contribution towards the reliability of the model. On this basis, one latent variable whose indicators were affected is "Social and Political Impact (SPI)". With two of its indicators reflecting very low and insignificant factor loadings, the two indicators were deleted from the model. These indicator comprise **SPI5**= *Better stakeholder engagement* and **SPI6**= *Access to Services*. After deleting the indicators, the model improved significantly and all the all the four first-order factors loaded significantly to the second order construct, with their Average Variance Extracted (AVE) and Composite reliability coefficients showing 0.73 and 0.81 respectively above the recommended level (Kline, 20110). This therefore confirms the validity of hypothesis 13, 14, 15 and 16 in line with theoretical expectation. This result also indicates the models conveniently passed convergent and construct reliability tests as evidenced by statistical significance of their Goodness-of-fit (GOF) indices. All the remaining indicators contribute well to their various first-order constructs, as reflected in their estimates. Fig 8.8 below present Final model of democratic accountability constructs influencing accountability in PFI/PPP government Guarantee Scheme. Additionally, Table 8.9 presents the fit performance statistics of the model.

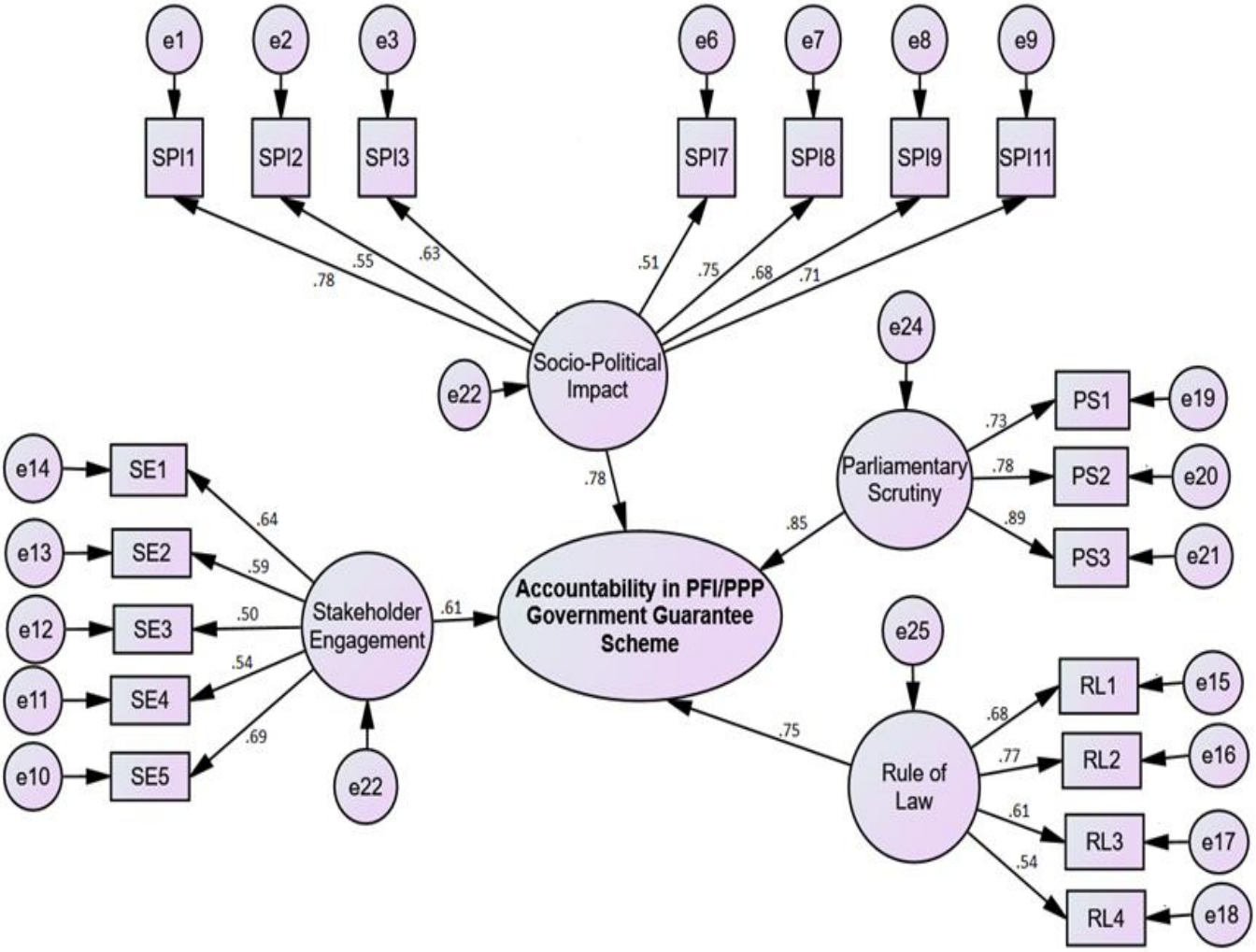

Figure 8.8: Final Model of Democratic Accountability Mechanisms for PFI/PPP Government

Table 8.5: Maximum Likelihood Estimate and Value Fit Indices for Democratic Accountability Mechanisms & Indicators

First-Order Confirmatory Factor Analysis			
Relationship	**Estimate**	***AVE***	***CR***
SPI1 <--- Socio-Political Impact		0.66	0.69
SPI8<--- Socio-Political Impact			
SPI11<--- Socio-Political Impact			
SPI9<--- Socio-Political Impact			
SPI3<--- Socio-Political Impact			
SPI2<--- Socio-Political Impact			
SE5<--- Stakeholder's Engagement		0.84	0.89
SE1<--- Stakeholder's Engagement			
SE2<--- Stakeholder's Engagement			
SE4<--- Stakeholder's Engagement			
SE3<--- Stakeholder's Engagement			
RL2<--- Rule of Law		0.57	0.63
RL1<--- Rule of Law			
RL3<--- Rule of Law			
RL4<--- Rule of Law			
PS3<--- Parliamentary Scrutiny		0.68	0.79
PS2<--- Parliamentary Scrutiny			
PS1<--- Parliamentary Scrutiny			

Second-Order Confirmatory Factor Analysis			
Relationship	**Estimate**	**AVE**	**CR**
Parliamentary Scrutiny<---PFI/PPP Govt. Guarantee	0.85	0.73	0.81
Socio-Political Impact<--- PFI/PPP Govt. Guarantee	0.78		
Rule of Law<--- PFI/PPP Govt. Guarantee Scheme	0.75		
Stakeholder's Engagement<--- PFI/PPP Govt. Guarantee	0.61		

MODEL FIT INDICES

Indices	***Hypothetic Model***	***Final Model***
X2/degree of freedom	1.004	1.011
RMSEA	0.088	0.078
Goodness of Fit Index (GFI)	0.921	0.954
Adjusted Goodness of Fit Index (AGFI)	0.519	0.912
Comparative Fit Index (CFI)	0.641	0.918
Normed Fit Index (NFI)	0.713	0.889
Tucker-Lewis Index (TLI)	0.511	0.621
Parsimonious Goodness of Fit Index (PGFI)	3.791	0.981
Parsimonious Normed of Fit Index (PNFI)	0.611	0.821
Cronbach's Alpha Reliability	0.794	

8.5 Modelling the Structural Relationship of Outcome-Based, Process-Based, Ethics-Based and Democratic Accountability Constructs.

Having established the fit indices of the model and the validity of the latent variables across the four accountability dimensions (outcome-based, process, ethics and democratic), a final structural model was developed by incorporating the models. The integration allowed confirmation of the model structure vis-a-vis the intertwined relationship among all the first-order constructs (accountability mechanisms). In addition, the integration of the model helped estimate the impact of each first-order construct on the second-order variable (accountability in PFI/PPP Government Guarantee Scheme). So as to develop the final model as a second-order structural model, data imputation using AMOS SPSS was employed to produce values for all the first-order variables across the four accountability dimensions in the study. This approach ensured the study avoided criticisms of lack of validity that is often associated with adopting third-order reflective or composite factors (Wetzels *et al.,* 2009).

The final structural model was assessed by looking at the value of the model fits indices, Average Variance Extracted (AVE) and Maximum Shared Square variance. In line with representations in Table 8.6 and 8.7, the final model reflected strong reliability, validity and model fit statistics that are higher than the recommended cut-off thresholds by Kline, (2005&2010) and Hu and Bentler (1998) among other scholars. As an example, all the constructs recorded AVE value that is above the recommended threshold of ≥0.50 (Walter et al., 2001; Hu and Bentler, 1998; Kline, 2010). In addition, with the model recording lower MSV value compared to the AVE, the result also suggested that all the indicators of each examined latent variables correlate more with their associated constructs than measures of other constructs (see Table 8.6 below). From a holistic point of view, the final structural

model suggested majority of the indicators contribute significantly (based on factor loadings) to their associated latent variables at P≤0.01. Consequently, this result reflects huge impact of all the measures on the overall second-order construct, which is, 'Accountability in PFI/PPP Government Guarantee Scheme'. The final Structural Model is represented in Fig 8.9 below.

Table 8.6: Standardised Coefficient Estimate and validity of the Comprehensive Model

Accountability Dimensions.	**Accountability Mechanisms Influencing PFI/PPP Government Guarantee Scheme.**	**Estimate**	**Overall Ranking of Estimates**	P_{-Value}	**AVE**	**MSV**
Outcome-Based Accountability	*Value for Money*	0.71	1	≤0.000	0.74	0.65
	Risk Management	0.68	4	≤0.000		
	Collaborative Partnership	0.50	13	≤0.001		
	Environmental Sustainability	0.57	10	≤0.011		
Ethics-Based Accountability	*Anti-Corruption*	0.57	9	≤0.001	0.61	0.57
	Whistle Blower Policy	0.51	13	≤0.01		
Process-based Accountability	*Competition*	0.70	2	≤0.001	0.81	0.77
	Monitoring	0.54	11	≤0.001		
	Performance Auditing	0.58	8	≤0.001		
	Public Sector Comparator	0.58	7	≤0.001		
Democratic Accountability	*Socio-Political Impact*	0.69	3	≤0.001	0.73	0.69
	Stakeholder Engagement	0.60	6	≤0.011		
	Rule of Law	0.50	14	≤0.001		
	Parliamentary Scrutiny	0.61	5	≤0.000		

Table 8.7: Final Results of Goodness of Fit (GOF) measures

Goodness-of-fit measures (GOF)	***Recommended Cut-offs of GOF Measures[a]***	***Final Model Fit***
X^2/degree of freedom	<5 (preferably 1 to 2)	1.021
RMSEA	<0.10 (preferably <0.08)	0.088
Goodness of Fit Index (GFI)	0(no fit) – 1 (perfect fit)	0.954
Adjusted Goodness of Fit Index (AGFI)	0(no fit) – 1 (perfect fit)	0.935
Comparative Fit Index (CFI)	0(no fit) – 1 (perfect fit)	0.818
Normed Fit Index (NFI)	0(no fit) – 1 (perfect fit)	0.789
Tucker-Lewis Index (TLI)	0(no fit) – 1 (perfect fit)	0.821
Parsimonious Goodness of Fit Index (PGFI)	0(no fit) – 1 (perfect fit)	0.917
Parsimonious Normed of Fit Index (PNFI)	0(no fit) – 1 (perfect fit)	0.711

The squared multiple correlations (R^2) which is estimated as the percentage of variance in each latent variable in the final structural model was also examined (See column three of Table 8.6 above). Going by the results, among the fourteen (14) individual constructs measuring accountability in Publicly Guaranteed PFI/PPPs, Value for Money (VFM), Competition (C), Social and Political Impact (SPI), Risk Management (RM), and Parliamentary Scrutiny (PS) explained 71%, 70%, 69%, 68% and 61% of variation in the model. Other latent variables contributing towards the second-order construct such as Stakeholder Engagement (SE), Public Sector Comparator (PSC), Performance Auditing (PA), Anti-Corruption (AC) and Monitoring (M) also explained 60%, 58%, 58%, 57% and 54% of the variance in the model respectively. Overall, the model reflected $R^2$of 0.67, which suggested all the latent variables explained 67% of variance in the model. Based on the final model results above in Tables 8.6 & 8.7, the overall structural model for the study is presented in Fig 8.9 below. This final structural model was then later used to present a ***"Conceptual Framework for Evaluating Accountability PFI/PPP Government Guarantee Scheme"*** as shown in 8.10 below.

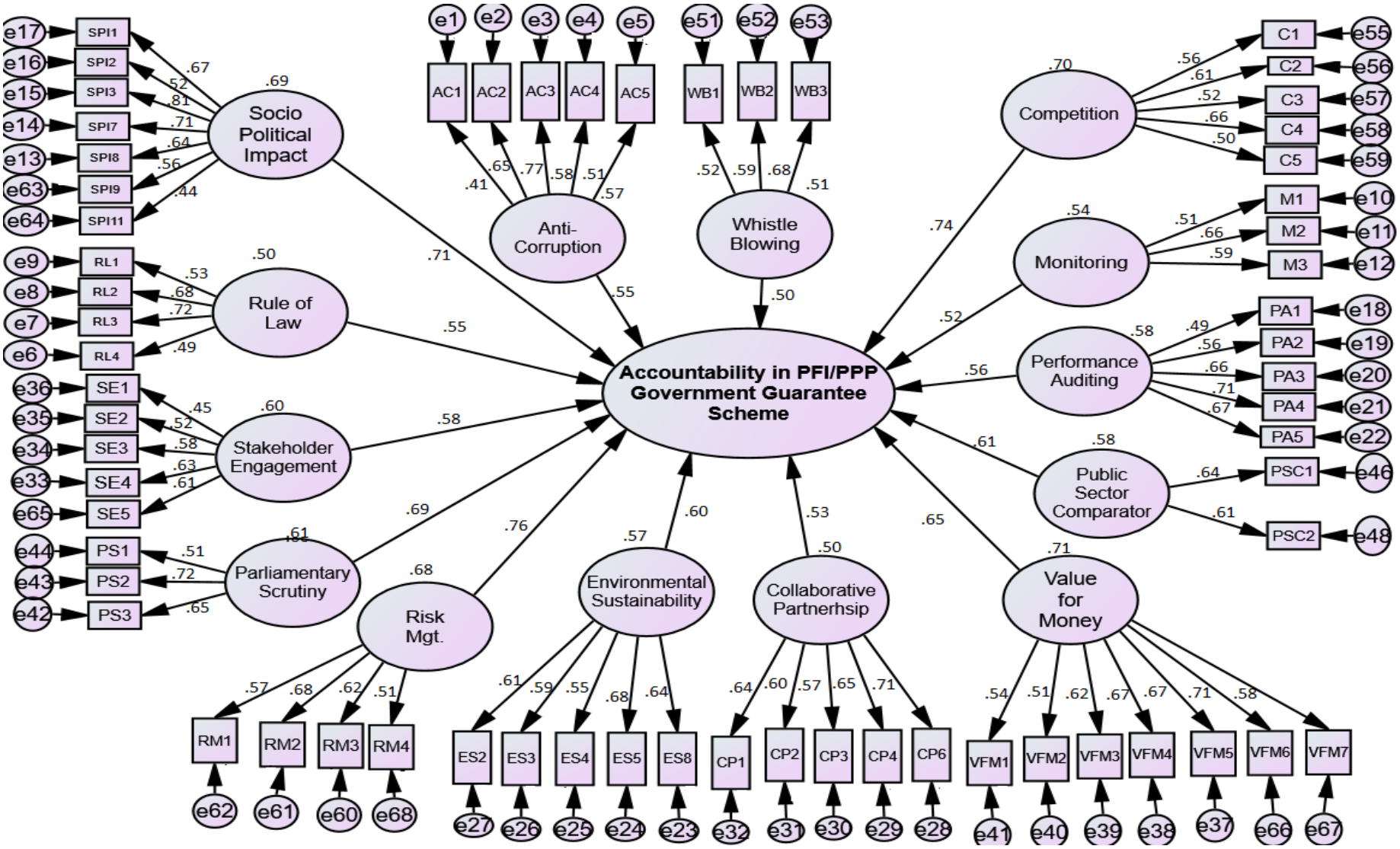

Figure 8.9: Overall Structural Model for Accountability in PFI/PPP Government Guarantee Scheme

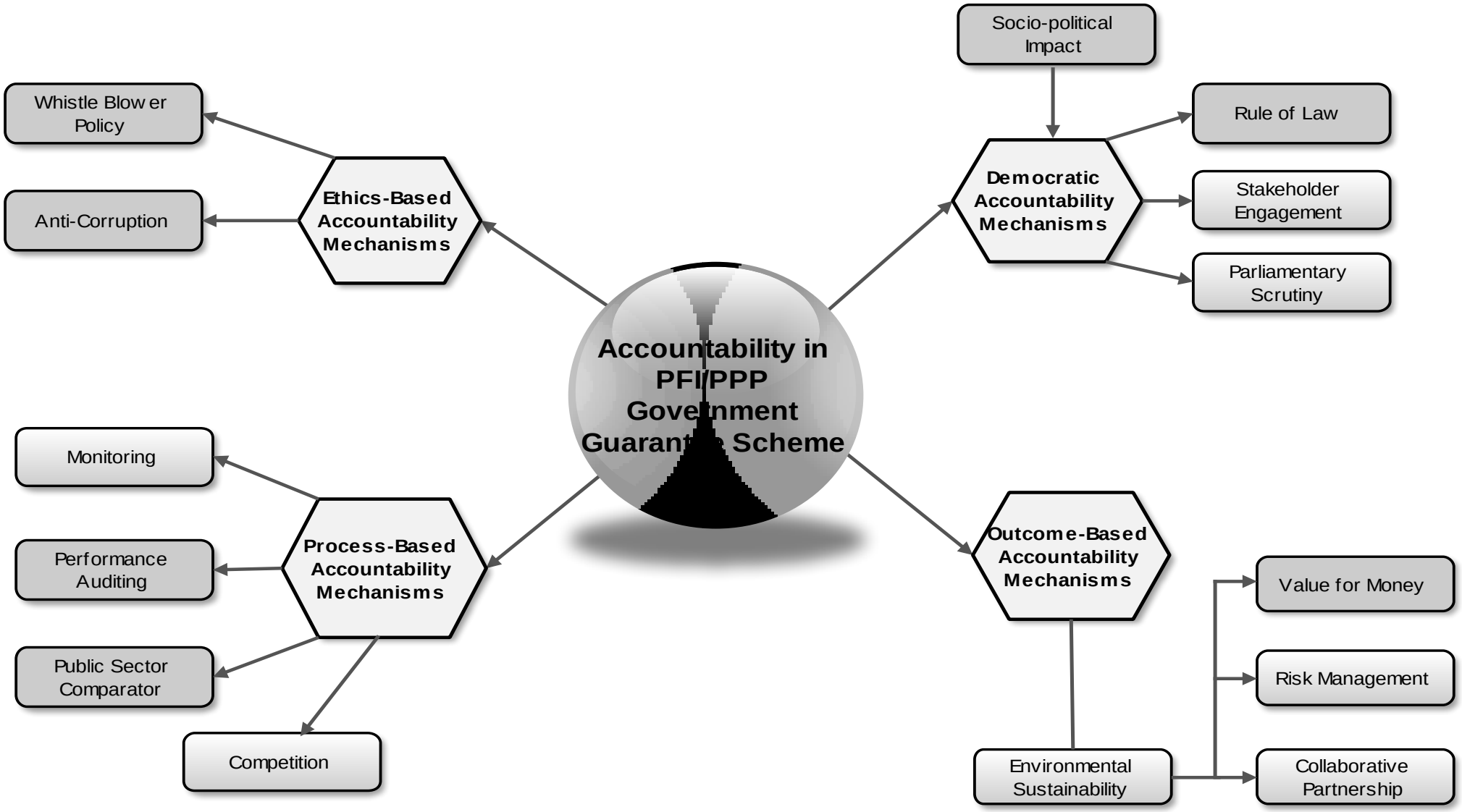

Figure 8.10: Conceptual Framework for Evaluating Accountability PFI/PPP Government Guarantee Scheme

Chapter Summary

This Chapter explored the structural path towards understanding factors influencing accountability in PFI/PPP government guarantee Scheme. Whilst the ultimate goal of the chapter was to develop a framework for accountability in PPP Infrastructure guarantee scheme, the chapter commenced by examining the essence of Structural Equation Model (SEM) in the study. The adopted tool for SEM simulation in this case is the AMOS IBM SPSS software version 22. For the development of the structural model, the initial phase of the study involved confirmation of the factor structure of the 16 latent variables identified at the qualitative phase. The latent variables comprise value for money, risk management, monitoring, and rule of law among others. However, the second phase of the analysis examined the impact of the latent variables on accountability in PFI/PPP government guarantee scheme. Using the qualitative and earlier quantitative analysis, the model was estimated through Maximum likelihood method in order to evaluate the 16 latent variables. Each latent construct also had different indicators ranging between 2 and 10 with the reliability of the measures also established via Cronbach's alpha and composite reliability analysis.

In order to ensure all the indicators of each construct truly measured what they were meant to measure, various indices for determining fitness of the model with sample data were examined. This analysis helped examine the reliability and validity of the model. Fitness of the structural models was evaluated using various other sub-elements statistics such as Average variance extracted (AVE) Composite Reliability (CR) and Maximum Shared Squared Variance (MSV). In addition, series of re-specification and refinement of the model was carried out which led to deleting two latent constructs and some indicators that exhibited low factor loadings and therefore had less significant contribution to the model. The two

accountability constructs deleted were “benchmarking and budgetary reporting”. Upon deleting the constructs and indicators the fitness of the model improved significantly. For each category of accountability mechanisms (outcome-based, ethics, process and democratic mechanisms), initial models and final models were produced through SEM analysis. However, a final structural model was produced which explored the % variance in the model based on the contribution from different latent variables. Squared multiple correlation (R^2) was employed in this regard to examine the % contribution of variance by each latent construct to the overall model. Based on the R^2 analysis, the study established that the % variance across the fourteen accountability constructs (mechanisms) was explained by the model and the model is therefore valid. The final structural model, was used to present a Conceptual framework for accountability in PFI/PPP Government Guarantee Scheme, as the final output of the study.

Chapter Nine: Findings and Discussions of Results

9.0 Chapter Overview

This chapter discusses findings from earlier chapters in detail. The chapter is categorised under five headings. The first chapter discusses the differences in perception of participants based on job sector, regarding accountability measures for PFI/PPP government Guarantee Scheme. Under this section, valuable insights are provided regarding the contested world views of the public and private stakeholders about the right accountability that best protect public and private interests. The remaining four sections explore findings from structural equation modelling on key accountability mechanisms and indicators for evaluating PPP Government Guarantee scheme. The discussion was carried out under the four broad accountability dimensions (outcome-based, ethics, process, and democratic accountability) examined in the study. Table 10.1 presents the summary of all the findings that are explored in this chapter.

9.1 Divergences in Perceptions based on Job Sector

Based on results of the Man Whitney U (Non-parametric) test carried out, the null hypothesis was validated and proved that no significant differences exist between the public and private sector's perception on all the accountability measures examined. However, out of the 78 accountability measures in the analysis, there were three affected factors which showed difference across the two samples within the population. These factors are listed below:

- **C5=** Adequate incentives to encourage the supply of innovation from the private sector,
- **ES1=**Project's contribution to social participation and inter-racial cohesion.
- **M1=**Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee.

A thorough check on the mean values of these three factors across the public and private sector respondents suggest an exciting perspective on innovation, public and social accountability cum responsibility within the UK's public and private sectors respectively. For instance, whilst the private sector respondents in this study sees **C5=***"incentives to encourage supply of private sector innovation"* as important for encouraging market competition, which in turn strengthens accountability in public procurement. The public sector respondents considered this factor as less important for public accountability. This rejection was based on the argument that the delivery of innovative solutions is already a key component of value for money (VFM) in PFI/PPP. By implication, the need to incentivise contractors to innovate does not arise. From public managers' perspective, given the existence of level playing and competitive procurement process, private sector's financial and technical innovation is a default value added in PFI/PPP. As such, what is witnessed in many instances, is that government uses her bargaining power as the biggest purchaser of projects (contributing financially towards 40% of the constructed facilities in the UK), to extract maximum public value and leverage on competitive bidding in the PPP process.

This result seemed to mirror the age long theoretical argument about facilitating innovation within the public and private sectors. Early scholars on innovation such as Schumpeter (1950), Rosenberg (1976) have debated the role of the private sector in innovation and invention. In a popular thesis, Schumpeter (1950) hypothesized that the main driver of innovation is market competition and argued that since the government does not engage in competitive markets, it is less innovative and therefore have to incentivise private innovation. However, opposing studies such as Albury (2005), Moore and Hartley (2008) and Bloch and Bugge (2013), have challenged this assumption as erroneous. According to Bloch and Bugge (2013), the public sector operates different mechanisms for driving innovation and competition. Hence, it views innovation as a cardinal aspect of public policy and has been at

the fore front of driving innovation even in the private sector using multifarious catalysts for the last two decades (Moore and Hartley, 2008). Such catalysts involves harnessing the creative skills and ideas of public sector workforce, politicians and other necessity-created solutions that changes the course of government's thinking and methodologies (Ansell and Torfing, 2014; Van Grembergen and De Haes, 2017).

These divergent views, typifies the current reality within public policy environments, with the public sector working to curtail rising public expenditures whilst trying to achieve value for money (Broadbent and Laughlin, 2003; Bing *et al.,* 2005). Government is also faced with the need to encourage private sector driven infrastructure developments on another front (De Marco *et al.,* 2016). However, for smooth delivery of private sector led infrastructure developments, emphasis on mutually beneficial and collaborative workings have been popular especially in the context of PPPs (Sørensen and Torfing, 2016; Torfing, 2016). According to Winch and Courtney (2007) and Torfing (2016), innovation in PPP involves risks and as such, requires a win-win incentive structures that help both parties achieve their objectives. Such collaborative approach not only encourages those taking the risks to deliver innovations but also offers enormous social and economic benefits to public sector. These benefits may be reflected in terms of cost savings to government, rise in economic growth and productivity, including affordable and accessible services and facilities to greater number of the people (Zhang *et al.,* 2016).

Another accountability measure which respondents disagreed on is **ES1=***"Project's contribution to social participation and inter-racial cohesion"*. Going by results of the non-parametric test, the overall average mean value of the factor suggested high ranking of the factor by public sector respondents. From public perspective, this factor is seen as an

important accountability measure and relevant for government guarantee-backed PPP projects. On the other hand, the private sector rated the factor as less important. Hence, this result raises arguments regarding social accountability and responsibility in public procurements. From government's perspective, project delivery is a means of fulfilling government's social contract with the people (Smyth and Edkins, 2007; Zou *et al.*, 2014). This means government pursues social and developmental goals that creates equitable opportunities and engenders social participation across the rank and files (Biesenthal and Wilden, 2014). Little wonder public infrastructure procurements appraisals in the last decade have focused much on projects' wider impact and greater benefit to citizens (Rwelamila *et al.*, 2014). Often being the one to contend with rising social inequalities in the society, amidst unprecedented global migration, governments have had to intensify her capacity to fulfil socio-economic responsibilities using public spending. With greater citizen education and engagement in public policy discourse (Strongman, 2015), the need to address social demands with public projects cannot be overemphasized.

Nevertheless, the private sectors' perspective on *"Project's contribution to social participation and inter-racial cohesion"* has nothing to do with callous disregard for projects' social impact. However, from the private sectors point of view, the enormous responsibility of encouraging interracial cohesion and social participation, lies with policy formulators. According to Young and Grant (2015), whilst project delivery incorporates benefits realisation and the fulfilment of projects' desired and expected outcomes, societal demands are dynamic and fast changing. Hence, the delivery of innovative and creative projects may only serve as palliatives, but addressing social cum interracial cohesion is a more complex policy goal whose realisation cannot to be bench-marked against a single public policy point or collection of projects (Thompson, 2015).

The third accountability measure disputed across the two broad spectrums of respondents in the study is *"**M1**=Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee".* An evaluation of the average mean value of the factor revealed the well-known dilemma and intricate nature of public accountability in PFI/PPP contracting. Whilst the public-sector respondents considers this factor as a requisite measure for strengthening public accountability in publicly guaranteed PPPs, the private sector regards this factor as less significant. Instructively, the private sector is usually wary of any attempt suggesting government's meddling in the corporate arena/privacy and thus sees such move as unfriendly to business environment.

From public perspective, this result highlights the complexities encountered when interacting or intervening in a competitive market environment. Whilst government acts as catalyst that enables free market interaction by providing enabling environment, relationships like PPP contracting and public sector guarantee often blur the lines of public accountability (Willems, 2014). Although, government grants guarantees to spur private sector investment, the danger that its bureaucratic nature makes it ill-equipped at carrying out robust information gathering of guarantee beneficiaries may jeopardize public interest (Agusman *et al.*, 2014). The intertwined nature of public-private partnerships also mean that government has political interest in projects being guaranteed, which may therefore affect the rigour in accountability scrutiny (Strongman, 2015). As such, a good way of strengthening public accountability when granting government guarantee to PPP projects is to ensure close monitoring of the project and corporate related dealings of consortium members. This helps to identify morally hazardous behaviour which may jeopardise public interest on the projects being delivered. Result of the hypotheses examined on accountability mechanisms for assessing PFI/PPP government guarantee scheme is shown in Table 9.1.

Table 9.1: Result of the Hypotheses Examined on Accountability Mechanisms for Assessing PFI/PPP Government Guarantee Scheme

Accountability Dimensions	Accountability Mechanisms	Theoretical Hypotheses Examined	Hypotheses Validity Result
Outcome-Based Accountability Dimension	Value for Money	***H1:*** *Determining the Value for money in guaranteed projects will contribute positively towards public accountability in PFI/PPP Government Guarantee Scheme.*	*Supported*
	Risk Management	***H2:*** *Effective public sector risk management will strengthen public accountability in PFI/PPP government guarantee scheme*	*Supported*
	Collaborative Partnership	***H3:*** *Better collaboration between government and private sector parties on publicly guaranteed projects will strengthen accountability in government guarantee scheme to PFI/PPPs.*	*Supported*
	Budgetary Reporting	***H4:*** *Reporting government's contingent liabilities in publicly guaranteed PFI/PPPs on national budgets will improve public accountability in government guarantee scheme for PPPs.*	*Rejected*
	Environmental Sustainability	***H5:*** *Ensuring sustainable project delivery will strengthen public accountability in Government Guarantee Scheme for PFI/PPP projects*	*Supported*
Ethics-based Accountability Dimension	Whistle Blowing	***H6:*** *Encouraging whistle blowing among employees involved in PFI/PPP government guarantee scheme will have positive impact on public accountability.*	*Supported*
	Anti-Corruption	***H7:*** *Prevention of corrupt practices and dishonest behaviours in the handling of PFI/PPP government guarantee scheme will have a positive impact on public accountability*	*Supported*
Process-based Accountability Dimension	Competition	***H8:*** *Competitive project selection process under government guarantee scheme for PFI/PPPs will have positive impact on public accountability*	*Supported*
	Benchmarking	***H9:*** *Benchmarking potential guaranteed PPP projects against historically good standards and processes under the government guarantee scheme will have positive impact on public accountability.*	*Rejected*
	Monitoring	***H10:*** *Effective monitoring of government guarantee scheme, actors and beneficiary PFI/PPP projects will have positive impact on public accountability*	*Supported*
	Performance Auditing	***H11:*** *Greater effective performance auditing of projects benefitting from government guarantee scheme will have positive impact on public accountability.*	*Supported*
	Public Sector Comparator	***H12:*** *Adopting public sector comparator for deciding guarantee-deserving infrastructure projects will have positive implication for public accountability under PFI/PPP government guarantee scheme.*	*Supported*
Democratic Accountability Dimension	Socio-Political Impact	***H13****: Robust social and political impact evaluation of PPP projects at the government guaranteed scheme level will have positive effect on public accountability.*	*Supported*
	Stakeholder Engagement	***H14:*** *Effective management of all stakeholders involved in government guaranteed PFI/PPPs will have positive impact on public accountability*	*Supported*
	Rule of Law	***H15:*** *Upholding the rule of law in the management of PFI/PPP government guarantee scheme will have positive impact on public accountability*	*Supported*
	Parliamentary Scrutiny	***H16:*** *Parliamentary scrutiny of public managers' decisions and actions as they affect effective management of government's fiscal liabilities on guarantee schemes to PPPs will strengthen public accountability*	*Supported*

9.2 Outcome-based Accountability Mechanisms and Its Impact on PFI/PPP Government Guarantee Scheme.

As explored in the theoretical review chapter, fulfilment of public policy goals have been favoured in some quarters ahead of the usual adherences to ground norms and processes of formal accountability in public sector management. This section therefore discusses results of outcome-based accountability mechanisms as regards the evaluation of prospective publicly guaranteed PPPs. Based on results of the structural equation model conducted in this study, four out of the five accountability mechanisms examined were rated highly by respondents. The accountability mechanisms were considered very critical towards strengthening public accountability in PFI/PPP government guarantee scheme. The accountability mechanisms include the following in their ranking order:

- Value for Money (VFM)
- Risk Management (RM)
- Environmental Sustainability (ES) and
- Collaborative Partnership (CP)

9.2.1 Value for Money (VFM) and its implication for accountability in PFI/PPP Government Guarantee Scheme

With a standardised regression weight of (β_{Value}) of 0.79 at 99% significance level (as shown in Fig 8.2), Value for money (VFM) emerged as the topmost accountability mechanism essential for evaluating potential projects under the infrastructure guarantee scheme. VFM also showed group reliability Cronbach's α of 0.73 suggesting the accountability mechanism's huge impact on the overall model. The value of 0.71 percentage (%) variance, based on Fig 8.9 also suggested the predictive influence of the factor on the

model. This results confirms the unanimous agreement of both public and private sector stakeholders on the core essence of value addition in public sector transactions. This value measurement approach is focused on ensuring publicly funded facilities are delivered economically, efficiently and effectively (Raisbeck et al., 2010). As argued by Bracci *et al.* (2015), albeit reducing cost of public procurements remains a key issue under austerity, significant value is attached to project delivery to time, quality and within budget (Oyedele, 2013). In line with the perspective of Ismail (2013), the use of government guarantee schemes needs to be justified in terms of the public value it brings to taxpayers. Zeleti et al. (2016) also suggested that, unless government obtains value that is equal or greater to the incentives derived by private investors, public guarantee schemes may become a mere generous reward for doing nothing. From the perspective of Adrian and Ashcraft (2016), under the current austerity, government's drive towards balancing the budgets makes VFM extremely essential when considering government possible liabilities. In such instance, deriving maximum value from fiscal transactions becomes more crucial than the cost incurred in the procurement (Adrian and Ashcraft, 2016). Public sector guarantees must therefore offer value to public sector in terms of the general socio-economic and cost savings benefits from the project delivery. According to HM Treasury (2014), VFM evaluation in government guarantee also involves estimating the impact of guaranteed projects on economic growth. As argued by Shan *et al.* (2010) where competing projects are involved in soliciting government guarantee, it is in the public interest to examine the economic benefits accruable to the society from each project. Going further, based on the results as shown in Fig 8.2, the top-five drivers of value for money (VFM) for PFI/PPP government guarantee scheme are, ***VFM 1****=Least procurement cost- (standardised estimate of .088),* ***VFM3****=Equitable risk allocation among project parties (standardised estimate of .083),* ***VFM6****=Competitive bidding process (standardised estimate of .077),* ***VFM2****=Service quality/output specification*

(standardised estimate of .072), ***VFM4****=Minimal whole life costing of project (standardised estimate of .065).* Studies such as Atmo and Duffield (2014) and Eadie *et al.* (2013), have suggested one of the cardinal ingredients of VFM is economy. Project affordability allows PPP projects to justify their selection against traditional procurements and provide value in terms of cost savings (Oyedele, 2013). HM Treasury (2014) describes risk allocation in PFI/PPP as the equitable transfer of risk to the party that best manages and controls the risk. Effectively allocating project risks has enormous benefits to both public and private sector as it ensures parties can focus on their responsibilities with less distraction. Risk Management also helps project parties have a clearer and longer-term view of mitigating strategies (Chou and Pramudawardhani, 2015). Better understanding of project risks makes future projects a bit easier to manage and while also encourage better synergy among stakeholders (Atmo and Duffield, 2014). According to Liu *et al.* (2014), whilst output specifications may be used to ensure quality in public procurement, optimum combination of whole life cost and service quality to users is essential for value assessment in PFI/PPP. According to Arthur Andersen and Enterprise LSE report (commissioned by Treasury Taskforce 2000), PFI/PPP project performance is a measure of how well projects meet pre-agreed technical and operational standards specified by the concession. Outputs specification also relate to service quality in which the project contractor is expected to deliver innovative solutions that meets or surpassed client's expectations (Rintamaki et al., 2007; Coulson, 2008). Due to high risk profile of PPPs (Ball *et al.,* 2003), projects risks must be equitably distributed to parties best capable of managing such risks (Wojewnik-Filipkowska and Trojanowski, 2012). Different studies have also suggested that VFM may be justified if a competitive bidding process that allows creative and value added options are provided (Eadie et al., 2013; Ismail, 2013; Atmo and Duffield, 2014).

9.2.2 Risk Management (RM) and its implication for accountability in PFI/PPP Government Guarantee Scheme.

Risk management (RM) was rated as the second most important outcome-based accountability mechanism in terms of its impact on PFI/PPP government guarantee scheme. This mechanism recorded standardised regression weight (β_{Value}) of 0.71 at 99% significance level (as shown in Fig 8.2). RM also reflected group reliability Cronbach's α of 0.81, indicating the accountability mechanism's influence on the overall model. The value of 0.68 percentage (%) variance, based on Fig 8.9 also indicated the predictive influence of the factor on the model. This result succinctly highlights studies such as Irwin (2007), Wibowo and Kochendoerfer (2010), and Atmo and Duffield (2014), who argued that, guarantees to PPPs are associated with a number of potential risks, which must be carefully evaluated. Due to the nature of PPPs, risks such as default risk by the guarantee beneficiary, construction related risks; risks associated with insufficient demand/usage of the project are all possible incidences, which may create challenges leading to a call on government guarantees. Albeit, public guarantees pose risks with huge fiscal consequences for government especially during uncertain economic conditions (Setiawan and Surachman, 2016), most policy formulators appear passive about these risks and have continued to guarantee many PFI/PPPs (Owolabi *et al.,* 2015). As shown in Fig 8.2, evidences from the study indicate four (4) most significant measures of risk management influencing accountability in government guarantees for PFI/PPPs. These indicators are listed below in their order of ranking (based on their regression weights): ***RM2****=Integrating risk management systems into public sector evaluative frameworks (with a regression weight=0.87 and reliability coefficient of 0.713);* ***RM1****=Improved public sector risk management competences/capabilities (with a regression weight=0.79 and reliability coefficient of 0.710);* ***RM4****=Proactive evaluation of past risk*

events (with a regression weight=0.74 and reliability coefficient of 0.704); ***RM3****=Regular risk identification and reporting (with a regression weight=0.68 and reliability coefficient of 0.729).* Findings from this results mirror recent discussions on the management of public sector contingent liabilities (Carbonara *et al.,* 2015; Hwang *et al.,* 2013; Chan *et al.,* 2014). As suggested by Carbonara *et al*. (2015), government's efforts towards developing their own robust risk management systems have been very little. As such, an integrated risk framework is needed to cope with the risks involved in underwriting very risky infrastructure projects for which guarantees are often applied (Carbonara, 2015). In a related study, Kumar *et al.* (2017) suggested, the better the in-house competency of the public sector in terms of market-driven risk pricing and evaluation of project applications, the better the risk decision on guarantee. Chan (2014) also argued that risk assessment of guarantee applications (projects) should be holistic as to cover the potential impact of the project's contribution towards fiscal risks. Such evaluation should be comprehensive by looking into past, present risk and possible future events which may impact on the project and thereby affect the guarantee (Chen *et al.,* 2017). Effective reporting of such risks towards creating an in-house knowledge-based could be useful for sensitivity or scenario analysis. This will ultimately help government better prepare for risks on guarantee (Liu et al., 2014).

9.2.3 Environmental Sustainability (ES) and its implication for accountability in PFI/PPP Government Guarantee Scheme.

The third most important outcome-based accountability mechanism for evaluating PFI/PPP government guarantee scheme is environmental sustainability. Going by its standardised regression weight of (βValue) of 0.65, the factor is significant at 95% confidence interval. The composite reliability for this factor also show reliability of the factor at 0.65 whilst accounting for 0.57 percent of variance of in model. This result confirms the collective concern for sustainable environment across public and private sector respectively. Hirsh

(2014), described sustainability as the adaptation of individual behaviours and organisational policies to the long-term survival of human society. Whilst sustainability have diverse perspectives across different fields (Hueskes *et al.*, 2017), the environmental management perspective of sustainability in particular focuses on resource efficiency (Carrillo-Hermosilla et al., 2010; Frondel et al., 2008; Potts, 2010). This standpoint emphasises the utilisation of natural resources in a manner that generates lasting benefits to the population of a country, while protecting the environment (Bell and Morse, 2013; Chambers *et al.*, 2014). In the UK, sustainability is a critical policy and regulatory issue, with most aspects of public sector and corporate dealings needing to comply and promote sustainability practices (Radnor and Johnston, 2013; Ball et al., 2014). Difference policy efforts to encourage sustainability comprise energy efficiency in constructed facilities (Potts, 2010), construction and food waste minimisation (Ajayi et al., 2015), Landfill Tax and Climate Change Levy (Akadiri and Fadiya, 2013), Sustainable Business and Sustainable Procurements among others (Walker and Brammer, 2009/2011; Lawrence et al., 2013). Under the UK's sustainable procurement agenda, all public sector procurements are legally required to conform with various sustainability laws and standards of the government (Brammer and Walker, 2011; Meehan and Bryde, 2011). With government procuring nearly 40% of the nation's construction activities (NAO, 2001; Eadie *et al*., 2011), it therefore suffice to say that projects delivered through public-private arrangements or even guaranteed by government requires greater demand for outcomes in terms of sustainability. Going by findings as reflected in Fig 8.2, the top-four drivers of environmental sustainability in this study are ***ES5=****Compliance with regulatory standards on sustainable project delivery (with a regression weight=0.87 and reliability coefficient of 0.729);* ***ES4=****Project's contribution to reduction in material wastage (with a regression weight=0.82 and reliability coefficient of 0.714);* ***ES8=****Contribution to economic and social prosperity of surrounding communities (with a regression weight=0.75*

and reliability coefficient of 0.726); ***ES3****=Adoption of energy efficient solutions (with a regression weight=0.67 and reliability coefficient of 0.757).* According to Zou et al. (2015), government often play a vital role in promoting sustainable development by enacting laws and ensuring compliance to sustainability laws. These laws in most instances comprise policies targeting reduction in carbon emission, reduction in food and other material wastage and sustainable procurements (Bing et al., 2005). As part of government's wider sustainability plans, projects' contribution towards economic prosperity and social benefits of host community is also considered a key factor in sustainability (Hoffman, 2009). This has to do with improving the quality of life and environment in communities (Khadaroo et al., 2008).

9.2.4 Collaborative Partnership and its implication for accountability in PFI/PPP Government Guarantee Scheme.

Collaborative Partnership (CP) is the least ranked outcome-based accountability mechanism regarding its impact on PFI/PPP government guarantee scheme. This mechanism showed a regression weight (βValue) of 0.64 at 95% significance level (as shown in Fig 8.2). CP also reflected group reliability Cronbach's α of 0.781 indicating the accountability mechanism's contribution to the overall model. The value of 0.50 percentage (%) variance, based on Fig 8.9 also indicated the predictive influence of the factor on the model. According to Zou *et al*. (2014), evidences have shown that most successful PPP arrangements are the ones in which greater collaboration exist between the government and private parties. When PPPs enjoy government guarantee backing, collaboration among project parties becomes even more essential considering the intertwined objectives of government and huge stake on such projects (Nugroho, 2014). As suggested by Smyth and Edkins (2007), developing non-adversarial relationship among parties in PFI/PPPs is seen by the government as an effective

way to improve project effectiveness. The complex nature of PFI/PPP projects and the long time frame between conception and project completion also suggest robust management of relationships among parties is crucial (Broadbent and Laughlin, 2003; Smyth and Edkins, 2007). As shown in Fig 8.2, evidences from the study indicate four (4) most significant measures of collaborative partnership influencing accountability in government guarantees for PFI/PPPs. These indicators are listed below in their order of ranking (based on their regression weights): **CP1=** *Open and honest communication among project parties (with a regression weight=0.77 and reliability coefficient of 0.772);* **CP2=** *Consortium senior officials' commitment towards successful collaboration (with a regression weight=0.73 and reliability coefficient of 0.712);* **CP6=** *Early warning signals for detecting and solving conflicts or crisis (with a regression weight=0.67 and reliability coefficient of 0.724);* **CP3=** *Existence of clearly defined relationship and communication sharing strategy(with a regression weight=0.61 and reliability coefficient of 0.755).* This result highlight earlier studies such as Yang *et al*. (2011), Stapel and Schneider (2014), and Roumboutsos and Pantelias (2015) on the critical role of collaborative partnership in PFI/PPP cum government guarantee scheme. El-Gohary et al. (2006), Yang *et al*. (2011) and Stapel and Schneider (2014), suggested open and honest communication among project parties as a means of building trust and ensuring better cooperation. Such transparent and honest dialogue is crucial for avoiding the usual incidence of information asymmetries and moral hazards associated with government guarantee schemes (Zou *et al.,* 2014; Shi *et al.*, 2016). In line with this perspective, Jelodar et al. (2016) and Pal et al (2017) suggested that commitment and participation of senior officials of project consortiums is needed to drive the required vision for successful partnership. As such top management efforts will ensure that the relationship being built is not superficial (Pal *et al*., 2017). Hwang (2013) also suggested other factors encouraging collaboration in PPPs such as existence of clearly defined relationship and

communication sharing strategy among project parties, commitment of the project delivery team (Torchia *et al.,* 2015;); fair risk allocation among public-private parties (Du et al., 2016), multidisciplinary team to be responsible for handling collaboration with project parties (Noble and Jones, 2006), integrating information systems with all projects parties (Weihe, 2008), and early warning signals for detecting and solving conflicts or crisis (Meng, 2015).

9.3 Ethics-based Accountability Mechanisms and Its Impact on PFI/PPP Government Guarantee Scheme.

Results of the Structural Equation Modelling (SEM) and reliability analysis also suggested the important influence of accountability mechanisms evaluating actors' moral conscience and ethical behaviours in PFI/PPP government guarantee scheme. Thus, this section deliberates results of ethics-based accountability mechanisms, in terms of their significance in evaluating publicly guaranteed projects. Going by findings from the SEM, the two accountability mechanisms examined in the study contribute positively towards strengthening accountability in PFI/PPP Government guarantee scheme. These accountability mechanisms comprise:

- AC=Anti-corruption
- WB=Whistle Blowing

These ethics-based mechanisms are extensively discussed below as they impact on PPP infrastructure guarantee scheme.

9.3.1 Anti-Corruption and its implication for accountability in PFI/PPP Government Guarantee Scheme.

With a standardised regression weight of (βValue) of 0.79 at 99% significance level (as shown in Fig 8.4), Anti-Corruption (AC) emerged as the topmost ethics-based accountability mechanism in the study, based on its significance in evaluating potential projects under the infrastructure guarantee scheme. The composite reliability and group Cronbach's alpha reliability coefficients for this factors indicated 0.81 and 0.769 respectively. This indicated the enormous reliability of the factor and its contribution towards the overall model. In addition, Anti-corruption as an accountability contributes 0.57 of percentage (%) variance in the overall model. This result confirms the agreement of all the respondents on the need to strengthen accountability in PFI/PPP government guarantee scheme through addressing the issue of policy abuse and corruption. Theorists described ethical accountability as a concept that focuses on the actors' moral conscience and the feeling of being responsible or accountable (Finlay, 1996; Zadek, 1998; Shearer, 2002; Banks, 2004; Frederickson and Ghere, 2013). In public administration, ethical mechanisms of accountability emphasizes institutional systems for curtailing indiscretions among public actors and holding them accountable to certain moral standards (Mulgan, 2000). One of the biggest concerns in government guarantee scheme is the problem of corruption arising from moral hazards and other vulnerabilities (Rose-Ackerman, 2013). Corruption is described as a fraudulent and unethical conduct by a person or persons seeking to obtain underserved personal advantage in a transaction (Rose-Ackerman, 2013). According to Allen *et al.* (2015), corruption can have debilitating impacts on policy goals under government guarantee schemes and by creating rooms for resource leakages and abuse of institutions (Philip and Peter, 2013). From the perspective of Moser *et al*. (2008) and Bringselius (2014), the challenge for government with guarantee schemes is not only about fulfilling targeted objectives but avoiding vulnerabilities that could encourage opportunistic behaviours from beneficiaries and applicants alike. As such, effective management of state guarantees is often a tricky one given government's

limited in-house expertise in complex financial structuring (Niehaus and Sukhtankar, 2013). According to Bringselius (2014), guarantee schemes are often replete with reports of different corrupt behaviours like false or incomplete information declaration (Huang and Wang, 2012), conflict of interest in decision-making, undue political influence, fraud in evaluations (OECD, 2016), dubious documentation (Bringselius, 2014), and sometimes weak due diligence and scrutiny by public officials (Farhi and Tirole, 2012; Rowell and Connelly, 2012). Going by the results, the top-four measures contributing towards anti-corruption as an accountability mechanisms are identified below: ***AC1=****Strong stance against corruption in government guarantee schemes (with a regression weight=0.81 and reliability coefficient of 0.719);* ***AC5=*** *Robust due diligence appraisals through extensive information gathering (with a regression weight=0.77 and reliability coefficient of 0.757);* ***AC4=*** *Effective sanctions against corrupt practices (with a regression weight=0.71 and reliability coefficient of 0.766);* ***AC3=*** *Effective internal and external oversight and control (with a regression weight=0.65 and reliability coefficient of 0.635).*These results confirms studies such as Moser *et al*. (2008), Agusman et al. (2014), Bringselius (2014), and OECD (2016) who have suggested strong stance against corruption in guarantee schemes while also highlighting different strategies for combatting such menace. According to OECD (2016), clear, adequate and timely information about happenings, processes and rules creates level playing field for businesses and ensure transparency. Investors often require adequate information in order to make business decisions in terms of how government-support-schemes benefits businesses. Also, Turner (2011) suggested effective internal and external oversight and control as a key mechanism for preventing risk-induced behaviour among public officials and the private sector in state aid arrangements. In another study, Campbell *et al.* (2009) and Niehaus and Sukhtankar (2013), also identified effective sanctions against corrupt practices as an important panacea for curbing corruption in public procurements. According to Campbell *et*

al. (2009), sanctions against corruption and similar tendencies helps create deterrence and stimulate compliance among officials and stakeholders. In addition, Agusman *et al.* (2014), suggested more robust due diligence appraisals through extensive information gathering, will ensure better reaction to fraud by public officials.

9.3.2 Whistle Blowing and its implication for accountability in PFI/PPP Government Guarantee Scheme

Whistle Blowing (WB) was ranked the second important ethics-based accountability mechanism in terms of significant influence on accountability in PFI/PPP government guarantee scheme. This mechanism showed a regression weight (βValue) of 0.66 at 95% significance level (as shown in Fig 8.4). WB also showed group reliability Cronbach's alpha of 0.780 indicating the accountability mechanism's significant contribution towards the overall model. The value of 0.50 percentage (%) variance, based on Fig 8.9 also indicated the predictive influence of the factor on the model. This result very much highlights existing studies on accountability and whistle blowing as it affects government guarantee scheme (Lambert and Lapsley, 2006; Whitfield, 2007; Spence and Dinan, 2011; Kew and Stredwick, 2016). From the perspectives of Maroun and Atkins (2014), Alleyne et al. (2013) and Henik (2015), whistle blowing has become an important governance mechanism amidst rising cases of corporate scandals in many multinational institutions. Within the UK public sector, reports have shown that more employees are passing on information against perceived violations and wrongdoings especially in the Health, social services and banking sectors (Vandekerckhove and Lewis, 2012; Moberly, 2012; Jones and Kelly, 2014). The UK Government's whistle blowing law (Public Interest Disclosure Act 1998) has also recently widened offences covered under the Employment Rights Act 1996, to include disclosures relating to personal grievances such as work place bullying, discrimination and harassment (NAO, 2014;

Department for Business Innovation and Skills, 2015). However, whilst voluntary disclosure culture has gained acceptance in some sectors (Outterson, 2012; Reader and Gillespie, 2013), much has not been seen in public procurements. The UK public procurements especially in PFI/PPPs have remained tainted by criticisms of commercial confidentiality of financing terms including secrecy regarding true fiscal cost of government guarantees (Koenig-Archibugi and Macdonald, 2013; Jones and Kelly, 2014). Hence, employee-voluntary disclosures have long been canvassed as a necessary mechanism for strengthening accountability in such hybrid contracts (Lambert and Lapsley, 2006; Whitfield, 2007; Spence and Dinan, 2011; Kew and Stredwick, 2016). Going by findings as reflected in Fig 8.4, the three important factors contributing towards whistle blowing as an important ethics-based accountability mechanism comprise: ***WB2=*** *Adequate protection for whistle blowers against institutional witch-hunt (with a regression weight=0.74 and reliability coefficient of 0.741);* ***WB3=*** *Implementing procedurally correct actions to address reported wrongdoings (with a regression weight=0.68 and reliability coefficient of 0.772); and* ***WB1=*** *Effective institutional arrangement to the inculcate culture of openness among staff (with a regression weight=0.61 and reliability coefficient of 0.766).* In line with Brown (2013), Miceli and Near (2013), Jones, Bashir et al. (2011) and Ash (2016) adequate protection for whistle blowers against institutional witch hunt or ostracism is an essential measure for encouraging accountability in public sector transactions. Protections such as confidentiality of whistle-blower identity and protection of whistle blowers' personal and employment rights will help facilitate transparency and accountability (Kelly, 2014; Ash, 2016). In addition, implementing procedurally correct actions to address reported wrongdoings is suggested to help strengthen openness and compliance (Brown, 2013; Miceli and Near, 2013). Jones and Kelly (2014) have also argued in favour of effective institutional arrangement to inculcate culture of openness among staff through open meetings. This, according to Jones and Kelly (2014)

helps staff especially new employees to freely express their concerns while also aligning them with organisational culture of openness from inception.

9.4 Process-based Accountability Mechanisms and Its Impact on PFI/PPP Government Guarantee Scheme.

As reflected in the literature, the traditional mechanisms of formal accountability are often reflected in systems, procedures and processes especially in fields such as accounting and public management. This results thus confirm the validity of these process-based accountability mechanisms as they contribute towards strengthening accountability in PFI/PPP Government guarantee scheme. As a result, this section elaborates the results of process-based accountability mechanisms. Going by results of the structural equation model (SEM) in the study, four out of the five accountability mechanisms evaluated were highly ranked by respondents as essential for strengthening public accountability in PFI/PPP government guarantee scheme. These accountability mechanisms comprise the following in their ranking order:

- Competition (C)
- Public Sector Comparator (PSC)
- Monitoring (M)
- Performance Auditing (PA).

These highly ranked process-related mechanisms and their associated impact on accountability in PFI/PPP government guarantee scheme are explained in details below.

9.4.1 Competition and its implication for accountability in PFI/PPP Government Guarantee Scheme

Given a standardised factor coefficient of 0.87 at 95% significance level (as shown in Fig 8.4), Competition (C) emerged as the topmost process-based accountability mechanism in the study. This is based on its significance in evaluating potential projects under the infrastructure guarantee scheme. The composite reliability and group Cronbach's alpha reliability coefficients for this factor recorded 0.61 and 0.773 respectively. This indicated the huge reliability of the factor and its contribution towards the overall model. In addition, competition as an accountability contributes 0.70 of percentage (%) variance in the overall model. This result confirms the agreement of all the respondents on the need to strengthen accountability in PFI/PPP government guarantee scheme via creating a competitive market environment. This result confirms Osei-Kyei and Chan (2015), who described market competition as an essential ingredient of free-market innovations like the PFI/PPPs. According to Kappelman *et al.* (2006), competition is described as an instrument of choice that allows the elimination of market inefficiencies by facilitating rivalry among suppliers within an economic system. Gentzkow and Shapiro (2008) suggested that when firms compete to achieve goals such as maximising profits, increasing market share or bigger turnover, innovation and value is brought to the market thereby resulting in efficient allocation of resources. In PFI/PPP procurement, the role of market competition has also become pivotal to cost efficiency and value for money considerations (Osei-Kyei and Chan, 2015). Through competitive bidding and tendering processes, public authorities are able to award PFI/PPP concessions to contractors based on different value indicators like least procurement cost, innovation, performance, quality, and equitable risk transfer among project parties (Smyth and Edkins, 2006; Galford and Drapeau, 2004; Robinson and Scott, 2009). However, when PFI/PPP concessions are provided government support via guarantee schemes, accountability gaps become noticeable, especially because competitive bidding is not known with government guarantee approval processes (NAO, 2015). Such flaw,

according to the NAO (2015), may result in underserving projects benefiting from government support, irrespective of their unsuitability. As such, studies have suggested the need for a competitive process in choosing guarantee-deserving public projects (NAO, 2015; Whyte, 2015; Owolabi *et al.*, 2015). Such competitive arrangement is believed could help free up UK's infrastructure finance market space for potential investors, and thus enhance efficiency in the guarantee scheme (Georghiou *et al.,* 2014; NAO, 2015). As reflected in Fig 8.6, the top-four accountability measures impacting on market competition as an accountability mechanism are highlighted below: ***C4=*** *Transparent bidding and tendering process (with a regression weight=0.85 and reliability coefficient of 0.766);* ***C1=*** *Increasing the number of potential bidders or applicants (with a regression weight=0.79 and reliability coefficient of 0.741);* ***C2=*** *Availability of in-house commercial skills within the public sector (with a regression weight=0.73 and reliability coefficient of 0.741);* ***C3=*** *Open and comprehensive bidding parameters and requirements (with a regression weight=0.65 and reliability coefficient of 0.716).* These findings align with earlier studies such as Raisbeck et al. (2010), Gangwar and Raghuram (2015), and Georghiou *et al.* (2014), who suggested transparent bidding and tendering process as a key measure of competition in public sector. A transparent tendering arrangement involves open and comprehensive bidding parameters for creating an unbiased competitive procurement (Uyarra, 2013; Gong and Zhou, 2015). According to Loader (2013), transparent tendering and comprehensive parameters allows all bidders have access to similar information which helps eliminate unfair advantage. In line with Georghiou *et al.* (2014), increasing the number of potential bidders or applicants is also suggested to stimulate competition in public sector bidding processes. Such atmosphere of competition requires level playing field among participants to prevent skewing the process in favour of select few (Gangwar and Raghuram, 2015). These will therefore encourage investors to compete through innovative and quality solutions that bring better value to the

public sector (OECD, 2011). In another study, Botswana (2013) argued that the amount of in-house commercial skills available to the public sector will influence government's ability to create and drive competitive procurement. According to Botswana, government requires sufficient in-house expertise to understand targeted markets, including its various attributes and trends that may jeopardise the desired competition. In addition, Lember *et al.* (2014) proposed adequate incentives to encourage the supply of innovation from the private sector. According to Lember, such incentives could catalyse bidder competition since most participants will seek to take advantage of such incentives to drive down their cost.

9.4.2 Public Sector Comparator and its implication for accountability in PFI/PPP Government Guarantee Scheme.

Public Sector Comparator (PSC) was ranked the second most important process-based accountability mechanism in terms of its impact on PFI/PPP government guarantee scheme. This accountability mechanism showed standardised regression weight (β_{Value}) of 0.83 at 99% significance level (as shown in Fig 8.6). PSC also recorded group reliability Cronbach's α of 0.764 indicating the accountability mechanism's influence on the overall model. The value of 0.58 percentage (%) variance, based on Fig 8.9 also indicated the predictive influence of the factor on the model. PSC is commonly used in public procurement decision-making as a yardstick against which private investment proposals are compared (Khadaroo, 2008). If, when converted into present values, the private costs are lower than the PSC, then the proposal is deemed to be more efficient than conventional procurement (English, 2007). Thus, PSCs are central in the decision-making process about where, when and how to use privately-financed infrastructure solutions—such as those encouraged under PFI/PPP (HM Treasury 2003).

The UK HM Treasury claims the use of the PSC is designed in a way that ensures no preference for any particular model of infrastructure financing (HM Treasury, 2007). However, various criticisms of the PSC abound in the PFI/PPP literature ranging from the apparent bias of ministers and other political actors for PSC (Coulson, 2008), arbitrary choice of parameters to suite PFI as against traditional procurement (Grimsey and Lewis, 2002), contentious arguments about possible cost savings from PFI and bias of public evaluators for PFI among others (Hodge and Greve, 2007). In a scathing remark against the PSC, Ball *et al.* (2001), described the tool as lacking in objectivity, clarity and necessary information regarding methodological approach. However, despite these disapprovals, PSC remains the important tool for deciding PFI procurements and important considerations like value for money, risk transfer, and projects' impact assessments among others still form the core of it (Cruz and Marques, 2013). In the context of publicly guaranteed PFI/PPPs, the possible use of the PSC will attract serious accountability questions. One of the big questions is the supposed relevance of the PSC in government guarantee program, and whether the comparison of overall benefit derived from guaranteeing private infrastructure finance vis-a-vis the immediate and contingent cost to government may be necessary. Going further, based on the results of the SEM analysis, the two factors contributing towards the PSC as a construct are ***PSC1=*** *Compulsory PSC evaluation both at project and guarantee scheme levels (with a regression weight=0.88 and reliability coefficient of 0.701);* ***PSC2=*** *Integrating PSC evaluation into government guarantee-decision making process (with a regression weight=0.79 and reliability coefficient of 0.698).* These results highlight existing studies on the essence of public sector comparator as an essential tool for examining accountability in infrastructure PPP (NAO, 2015, pp7; Whyte, 2015; Bain, 2010; Cruz and Marques, 2013). According to Zwalf *et al*. (2017), the PSC addresses value for money (VFM) by focusing on output specification with effective simulation of risk allocation that helps select a risk

strategy with the best value. In addition, the PSC allows the public sector to gain insightful knowledge into the project/business determinants and thus seem an effective tool for projects under public guarantees (Hu *et al.*, 2014).

9.4.3 Monitoring and its implication for accountability in PFI/PPP Government Guarantee Scheme

The third most significant process-based accountability mechanism for appraising PFI/PPP government guarantee scheme is "Monitoring". Going by its standardised regression weight of (βValue) of 0.78, the factor is significant at 99% confidence level. The composite reliability for this factor also show reliability of the factor at 0.76 whilst accounting for 0.54 percent of variance of in model. This result highlights some existing studies as monitoring plays critical role is successful delivery of PFI/PPP projects (Gropp et *al.*, 2013; Allen *et al.*, 2015; Beck et al., 2010; Mladenovic *et al*., 2013). Stelling (2014) highlighted the existence of effective monitoring mechanism, as a critical strategy for ensuring better service delivery through vigilant observation of actors' behaviours (Asenova, 2013; Stelling, 2014). According to Liu *et al.* (2016), monitoring helps avoid poor decision-making that may result in undesired consequences for projects. Evidences have shown that, where monitoring is lax, abuse and inefficiency hinders the achievement of public policy goals for PPPs (Hodge and Greve, 2007; Campagnac, 2011; Shaw, 2011). As suggested by Robinson and Scott (2009), fulfilling the theoretical value for money (VFM) claims in PFI will also largely depend on the effectiveness of the monitoring mechanisms in place for ensuring practical value in service delivery. McDowall (2000) adds that since PFI projects involve the public sector paying for services delivered over 25-30years of concession, effective project performance monitoring is necessary for achieving service level agreements. As shown in Fig 8.6, the three essential factors under monitoring that is contributing towards accountability in PFI/PPP government

guarantee scheme are listed below. ***M1=****Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee (with a regression weight=0.72 and reliability coefficient of 0.715), M2=More qualitative public awareness on fiscal risks arising from contingent liabilities (with a regression weight=0.67 and reliability coefficient of 0.701) and M3=External monitoring through audit institutions and other interest groups (with a regression weight=0.64 and reliability coefficient of 0.725)*. Studies such as Beck *et al.* (2010), Mladenovic *et al.*, (2013), and Javed *et al.* (2013) have argued that continuous monitoring of corporate and external dealings of the project consortium during the period of guarantee may be needed to prevent practices that could later jeopardize the project. In addition, Priemus *et al. (*2007); Robinson *et al*, (2009); and Boussabaine, (2013) have called for more qualitative public awareness on fiscal risks arising from contingent liabilities and external monitoring through audit institutions. Carbo-Valverde et al. (2013) and Gozzi and Schmukler, (2015) also suggested the use of sanctions against wrong practices to serve as incentive for actors to ensure effective monitoring of projects under guarantee scheme.

9.4.4 Performance Auditing and its implication for accountability in PFI/PPP Government Guarantee Scheme.

Performance Auditing (PA) is the least ranked process-based accountability mechanism in terms of its impact on PFI/PPP government guarantee scheme. This mechanism showed a regression weight (βValue) of 0.69 at 95% confidence interval (as shown in Fig 8.6). PA also revealed group reliability Cronbach's α of 0.801 suggesting the accountability mechanism's contribution towards the overall model. The value of 0.58 percentage (%) variance, based on Fig 8.9 also indicated the predictive power of the factor on the model. Confirming the significant contribution of performance auditing, Pollitt *et al*. (1999, pp.128) described

auditing of effectiveness and good management 'demands an investigation of outcomes. Outcome investigation by definition takes place in the world beyond the organisation or program', and requires the use of independent evaluation criteria. Performance audits focuses on measuring improvements in outputs (efficiency) and outcomes (effectiveness) of public sector products or services against pre-articulated standards (Ameyaw *et al.*, 2015). Under PFI/PPP procurement, auditing project performance is seen as a critical aspect of accountability especially given PFI's political and financial significance (Edwards *et al*., 2004; Pollock and Price, 2004). A major reason for this is due to various theoretical and empirical arguments regarding the validity, cost and value of privately procured public infrastructure (Owolabi *et al.,* 2015). As suggested by Yaun *et al.* (2009), conducting effective performance audit relies on a clearly identified overall objective for such evaluation. In the case of PFI/PPPs, the ultimate objective for the public sector client is the achievement of best value in projects and service delivery (Christensen and Lægreid, 2015). Best value, which Oyedele (2013) described as the maximum obtainable outcome from any infrastructure development, emphasizes value elements such as quality, effectiveness, efficiency, value for money and performance (Yaun *et al*., 2009). The significance of these best value elements is often reliant on the integration of stakeholder requirements, project characteristics and the achievability of the value elements vis-a-vis available resources (Bawole and Ibrahim, 2016). Going by findings from Fig 8.6, the four performance auditing factors contributing towards accountability in PFI/PPP government guarantee scheme are listed below in their order of ranking. ***PA1=****Project life cycle cost reduction (with a regression weight=0.71 and reliability coefficient of 0.791),* ***PA2=*** *Adequate risk transfer among project parties (with a regression weight=0.65 and reliability coefficient of 0.746),* ***PA5****= On-time project completion, (with a regression weight=0.62 and reliability coefficient of 0.730)* and ***PA3****= Acceptable project quality (with a regression weight=0.61 and reliability coefficient of 0.782).* These results

highlight studies such as Diefenbach (2009), Yaun *et al*. (2009), Hodge and Greve (2013), and Fombad (2014) who all agreed that performance audit is a critical ingredient of neo-liberal market philosophy of New Public Management (NPM). Bourn (2007) suggested project life cycle cost reduction as an indicator of performance which originally has huge impact on the overall rationale for adopting a private procurement route. Adequate risk transfer among project parties (Akbıyıklı, 2013), acceptable project quality (Diefenbach, 2009), and quality service delivery (Christensen and Lægreid, 2015) were also identified as measures determining the performance of PFI infrastructure. In another related study, Hodge and Greve (2013) and Fombad (2014) also suggested on-time project completion, and economic empowerment of local community as essential factors reflecting the performance of PPP projects.

9.5 Democratic Accountability Mechanisms and Its Impact on PFI/PPP Government Guarantee Scheme.

As discussed under the theory chapter, an important aspect of accountability is to ensure public managers act in the interest of the public through accountability processes that strengthens democracy. Thus, this section discusses findings from analysis of democratic accountability mechanisms as they impact on accountability in PFI/PPP infrastructure guarantee scheme. Based on results of the structural equation model carried out in this study, four out of the five democratic accountability mechanisms examined were highly considered by respondents as essential for strengthening public accountability in PFI/PPP government guarantee scheme. These democratic mechanisms include the following in their ranking order:

- PS=Parliamentary Scrutiny
- SPI=Social and Political Impact

- RL=Rule of Law
- SE=Stakeholders Engagement.

These democratic accountability mechanisms are extensively discussed below as they impact on PFI/PPP infrastructure guarantee scheme.

9.5.1 Parliamentary Scrutiny and its implication for accountability in PFI/PPP Government Guarantee Scheme.

With a standardised regression weight of (β_{Value}) of 0.85 at 99% confidence interval (as shown in Fig 8.8), Parliamentary Scrutiny (PS) emerged as the topmost accountability mechanism essential for evaluating potential projects under the infrastructure guarantee scheme. Parliamentary Scrutiny also showed group reliability Cronbach's α of 0.720 suggesting the accountability mechanism's huge impact on the overall model. The value of 0.61 percentage (%) variance, based on Fig 8.9 also suggested the predictive impact of the factor on the model. This results confirms the unanimous agreement of both public and private sector stakeholders on the democratic role public actors in ensuring accountability in PPP government guarantee scheme. Parliamentary scrutiny is an institutional activity that involves the evaluation of the expenditures, policies and general administration of government (Grube, 2014; Thompson, 2014). From a broader perspective, scrutiny is one of the three cardinal responsibilities of the parliament, with the remaining two being the enactment of legislation and approval of government's financial budgets (Ward, 2015). There is fairly widespread consensus that well-developed institutions are essential constituents of democratic accountability, and a lack of effective accountability processes and arrangements weakens democracy (Olsen, 2013). Institutions in this context are portrayed as mechanisms for oversight, control and compliance. Public actors are presumed to be more likely to act in the interest of the public when they are accountable to the governed (Bovens *et al.,* 2015). Democratic accountability mechanisms therefore play huge role in holding public managers accountable to the people within a democratic system (Bertelli and Sinclair, 2016). Many scholars have called for greater parliamentary oversight on EU member nations' management of state aids (Featherstone, 2011; Buiter and Rahbari, 2012; Beck, 2012; Karanikolos *et al*.,

2013). As suggested in studies like Reinhart and Rogoff, (2011) and Weil *et al. (*2013) greater control of contingent liabilities allows the parliament better oversight that strengthens the fiscal management. As shown in Fig 8.8 above, there are three factors under PS that are contributing towards accountability in PFI/PPP government guarantee scheme. These factors include ***PS3=*** *Encouragement of policy debates on government guarantee scheme (with a regression weight=0.89 and reliability coefficient of 0.716)****, PS2=*** *Interactions with external experts and interest groups to examine wider impact of government guarantee scheme (with a regression weight=0.78 and reliability coefficient of 0.647)* and ***PS1=*** *Effective use of committee hearings to evaluate the management of government guarantee scheme (with a regression weight=0.73 and reliability coefficient of 0.711).* These results highlight existing studies like Featherstone (2011), Buiter and Rahbari (2012), and Beck (2012) on the role of public actors in strengthening democratic institutions and processes. In parliamentary democracies like UK, Belgium etc., the traditional vertical accountability has often placed much emphasis on ministerial responsibilities (Bovens, 2005). Formal accountability is often done via ministerial responsibilities to the parliament, while public managers are not considered politically accountable (Bovens *et al.,* 2015). However, over the past decades, hierarchical accountability approach has given way to diversified accountability relationships, with more studies calling for more parliamentary engagement of public managers (Shaoul et al., 2010; Laegreid and Christensen, 2013; Bovens *et al.,* 2015). Accountability forums are now calling for increased use of parliamentary questioning and policy debates to hold public managers to account in the performance of their specific duties (Bovens *et al.,* 2015; Van Dooren and Van de Walle, 2016). Such accountability dimension of bringing institutions and individual officials under parliamentary scrutiny could help address the weak scrutiny in government guarantee schemes. As suggested by Buiter and Rahbari (2012), the non-fiscal nature of government guarantee and its popular adoption in PFI/PPPs has allowed many

governments to rack-up huge public debt. These situation becomes dicier especially with the current uncertainty in the global economy which is threatening different economies (Gulati and Buchheit, 2013). In the event of economic challenges, contingent liabilities may present real financial challenge for government when guarantees are called (Weil *et al.*, 2013).

9.5.2 Socio-Political Impact and its implication for accountability in PFI/PPP Government Guarantee Scheme.

Socio-Political Impact (SPI) was ranked second most significant democratic accountability mechanism regarding its impact on PFI/PPP government guarantee scheme. This accountability mechanism showed a regression weight (β_{Value}) of 0.78 at 99% confidence level (as shown in Fig 8.8). Socio-political impact also reflected group reliability Cronbach's α of 0.826 indicating the accountability mechanism's contribution towards the overall model. The 0.69 percentage (%) variance and represented on Fig 8.9 also suggested the predictive influence of the factor on the model. This result succinctly highlights the argument of Marcelino-Sádaba *et al.* (2015) that maximising the social welfare of the project users and host communities, whilst fulfilling government's political objectives is essential for accountability in PPP. According to the HM Treasury Green Book (2003), examining wider society's impact of projects plays important role in value for money (VFM) analysis. Example of social factors that may be examined include project's impact on job creation and unemployment (Ugwu and Haupt, 2007), project's impact on travel time and journey quality (Warner, 2013), affordable user charges (Tsamboulas *et al.*, 2013), access to services (Ng *et al.*, 2012), better stakeholder engagement (Shen *et al.*, 2011), adequate security (Marcelino-Sádaba *et al.*, 2015), impact on biodiversity among others (Leigh and Neill, 2011; Zeng *et al.*, 2015). As represented in Fig. 8.8, there are top four factors under SPI contributing towards accountability in PFI/PPP government guarantee scheme. These factors include: ***SPI1=*** *Project's impact on job creation and unemployment (with a regression weight=0.78 and*

reliability coefficient of 0.820); ***SPI8=*** *Sufficient risk transfer away from public sector (with a regression weight=0.75 and reliability coefficient of 0.822);* ***SPI11=*** *Better collaboration between public and private sector (with a regression weight=0.71 and reliability coefficient of 0.813);* ***SPI9=*** *Adequate response to public needs through timely project delivery (with a regression weight=0.68 and reliability coefficient of 0.825).* These results confirm the studies of Ruckert and Labonté (2014), and Hu *et al.* (2014) who suggested that PPPs are often designed to satisfy social benefits such as job creation, improving access to services, economic growth among others. As argued by Vining and Boardman (2008), social impact analysis of projects facilitates more comprehensive cost-benefit evaluation, by ensuring net gains to the society outweighs unintended negative impacts (Ruckert and Labonté, 2014). In addition, political imperatives of government and pressures of host communities also have huge influence on PPP projects (Aldred, 2008). As suggested by Brugha, and Zwi (1998) most PPPs are a product of high level political considerations, therefore often get caught in the web of different political manoeuvres and pressures (Ng *et al.*, 2012). As such, different political factors are often considered when developing PPP projects such as local empowerment and stimulating evenly distributed urban development among others (Warner, 2013, Ameyaw and Chan, 2015).

9.5.3 Rule of Law and its implication for accountability in PFI/PPP Government Guarantee Scheme

The third most important democratic accountability mechanism relevant for appraising PFI/PPP government guarantee scheme is rule of law. Going by its standardised regression weight of (βValue) of 0.75, the factor is significant at 95% confidence interval. The composite reliability coefficient for this factor also showed a reliability of 0.63 whilst accounting for 0.63 percent (%) of variance of in model. This result mirrors the critical

influence of compliance with the rule of law and regulatory requirements in PFI/PPP government guarantee scheme. Rule of law refers to the submission of people to the dictates of the law regardless of their position in the society (poor or rich, high born or low born) (Fallon Jr, 1997; Chesterman, 2008). From a narrower perspective, rule of law implies that government's authority may only be exercised in line with enshrined laws (Skaaning, 2010). In this sense, the law is superior to the wishes or dictates of individuals or rulers. Albeit, governments' authority permeates all aspects of public sector transactions with various parties (Endicott, 1999; Møller and Skaaning, 2014), such dealings or contracts often happen within legal limits (Skaaning, 2010). In public sector transactions such as PFI/PPP procurements, government's interaction with the private sector is also governed by legally bonded contractual arrangements which are enforceable under the law (Yehoue *et al.*, 2006). This fact is also applicable to transactions like government's implicit or explicit guarantees, with such arrangements having legal implications within relevant public policy frameworks (Joshi, 2010). As represented in Fig 8.8, there are four important factors driving rule of law in PFI/PPP government guarantee scheme. These factors include ***RL2=****Adequate institutional arrangements for supporting contract enforcement (with a regression weight=0.77 and reliability coefficient of 0.730),* ***RL1=****Enforceability of contracts and agreements in projects (with a regression weight=0.68 and reliability coefficient of 0.716),* ***RL3=****Legal scrutiny and evaluation of policy, projects and performance (with a regression weight=0.61 and reliability coefficient of 0.713),* ***RL4=****Clarity in legal/contractual rights and responsibility among project parties (with a regression weight=0.54 and reliability coefficient of 0.712).* These results confirm some existing studies who have suggested that effective enforcement of contractual agreements (De Jong *et al.*, 2010) and adequate institutional arrangements for enforcement (Fombad, 2013; Fombad, 2014), would ensure public accountability in public-private contracts. Whilst Shen *et al.* (2006) and Hodge and Greve (2007) also suggested legal

scrutiny and evaluation of policy, projects and performance. Additionally, Zhang *et al.* (2015) and Delmon (2017) argued for more clarity in legal/contractual rights and responsibility among PPP project parties.

9.5.4 Stakeholders Engagement and its implication for accountability in PFI/PPP Government Guarantee Scheme.

Stakeholder Engagement (SE) is the least ranked democratic accountability mechanism regarding its impact on PFI/PPP government guarantee scheme. This mechanism reflected a regression weight (βValue) of 0.61 at 95% significance level (as shown in Fig 8.8). Stakeholder engagement also reflected group reliability Cronbach's α of 0.826 suggesting the accountability mechanism's contribution towards the overall model. The value of 0.60 percentage (%) variance, based on Fig 8.9 also show the factor's percentage contribution towards the overall model. These findings evidenced existing studies Li *et al*. (2005), Smyth and Edkins (2007), Cheung *et al*. (2010) and Sierra-García *et al.* (2015) linking stakeholder engagement as a critical success factor for PFI/PPP projects. According to Ei-Gohary *et al*. (2006), many PPP projects across the world have failed as a result of poor management of stakeholders resulting in public opposition in most cases. Typically, PPP involves multiple participants that include but not limited to the project client (governing authority), project sponsors, senior lenders, construction and operation contractors, insurers, host communities among others (Li *et al*., 2005; Smyth and Edkins, 2007; Cheung *et al*., 2010). However, on most occasions, the interests of these participants often conflict due to competing motivations and objectives (Smyth, 2008). In addition, the complex arrangements in PPP contracts in addition to the long term nature of the relationships among project parties sometimes create difficulty in aligning all interests at all times (Boussabaine, 2013). As such, engagement among project stakeholders is seen as a means of reaching common ground while also

achieving individual objectives (De Schepper *et al.*, 2014). That said, under infrastructure government guarantee schemes, the nature of relationships among parties become even more complex due to increased number of participants and the complexity of such fiscal transaction (Owolabi *et al.*, 2015). New parties such as the guarantee administering authority (i.e. HM Treasury), Infrastructure and Project Authority (in the UK it's called Infrastructure UK), external stakeholders like pressure and advocacy groups, the media among others all contribute towards the protection of different vested interests (NIP, 2011). As shown in Fig 8.8, there are top four factors contributing towards stakeholder engagement under PFI/PPP government guarantee scheme. These factors comprise **SE5=***Clear understanding of all stakeholders' area of interests*, **SE1=***Effective communication and dialogue*, **SE2=***Clear and effective communication channels* and **SE4=***Transparent decision-making process.* These findings are in line with several studies on managing stakeholders in PFI/PPP and guarantee scheme (Sierra-García *et al.*, 2015; Erkul *et al.*, 2016; Swoszowski *et al*., 2013). Due to the increased complexity, Swoszowski *et al*. (2013) suggested effective communication and dialogue as a necessary condition for managing every stakeholder in order to achieve successful project delivery. According to Wiek *et al.* (2012), dialogue provides a means for parties to express their candid views and thus allow smooth resolution of issues. Two-way free flow of communication also ensures all stakeholders are on the same page at all times (Assaf and Al-Hejji, 2006). Other studies such as Anvuur *et al.* (2011) and Golob and Podnar, (2014) have also suggested effective communication channels and staff commitment to laid down stakeholder engagement strategy. In another study, Erkul *et al.* (2016) and Yang *et al*. (2009) also identified transparent decision-making process and clear understanding of stakeholders' area of interests as critical success factors for managing project stakeholders.

Chapter Summary

This chapter discussed results of descriptive, reliability analysis and structural equation modelling as it examined accountability in PFI/PPP government guarantee scheme. The results of Mann Whitney U analysis identified differences in perceptions among public and private sector respondents on three key factors influencing accountability in PFI/PPP government guarantee scheme. These factors include (1) adequate incentives to encourage the supply of innovation from the private sector, (2) project's contribution to social participation and inter-racial cohesion, and (3) continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee. A further examination of these factors showed a reflection of the popular disdain among the private sector towards perceived over-accountability from the public sector. These perception difference also raises the question of "responsibility", especially regarding who has responsibility for actualising complex social objectives attached to government-backed PFI/PPP projects.

This chapter also elaborated key accountability mechanisms and associated indicators influencing PFI/PPP government guarantee scheme. The chapter unravelled the intertwined relationships among 14 essential accountability mechanisms such as value for money, parliamentary scrutiny, rule of law, stakeholder engagement among others. Amos IBM SPSS was then used to construct four different structural components of the overall model. Each of the components reflected a collection of mechanisms under outcome-based accountability, process-based, ethics-based and democratic accountability. Across the four broad accountability spectrums, the study identified 6 top-ranked accountability mechanisms critical for evaluating accountability in PFI/PPP government guarantee scheme. These mechanisms include Value for money, Risk Management, Collaborative Partnership, Environmental Sustainability, Anti-corruption and Whistle Blower Policy. These

accountability mechanisms were selected having showed high regression estimates including Average Variance Extracted and Composite Reliability coefficients. The top-ranked accountability factors contributing towards each of the six top-ranked mechanisms were also unravelled and discussed in details vis-a-vis the overall final model produced at the end of the statistical analysis.

Chapter Ten: Conclusion, Recommendations and Future Works

10.0 Chapter Overview

This chapter concludes the study by providing a summary of the entire study and the findings from qualitative and quantitative data collection and analysis. The following section presents comprehensive summary of the study and highlights the research aim, research design, techniques of data collection and the analytical approach employed in the study. Immediately following this, is the presentation of the key findings from the study, which are discussed in line with the objectives of the research, as identified in chapter one of the study. Theoretical and policy implication of the research findings, the study's limitations and areas of future research interests are also covered in this concluding chapter.

10.1 Summary of the Study

With the global adoption of PFI/PPPs and the limited public sector resources, the use of government guarantee schemes to stimulate private sector investments in infrastructures has become a trend among many economies. Although, guarantee is only a contingent financial obligation of government, recent events threatening global economic resilience have shown that many economies including the UK may witness downturn. In the likely event of such happening, government guarantees may become a real and actual financial burden, further complicating already stressed public finances (as was the case with economies like Argentina and Greece). With this background in mind, a major concern for guarantees remains weak public accountability scrutiny despite that guarantees present huge fiscal implications, and

also changes the nature of risk allocation between public and private parties in PPPs (Chan and Xu, 2013). The popular accounting treatment of accrual method and budgetary reporting of guarantees (Marcel, 2014; Kopits, 2014) have been criticised as ineffective and need to be used in combination with other governance mechanisms (Laughlin, 2012; Guess and Ma, 2015). As a result, this study set out to develop a public accountability framework suitable for evaluating PFI/PPP government guarantee scheme within UK context. Accordingly, the study investigated constructs from accountability theory and identified accountability mechanisms relevant for evaluating PFI/PPP government guarantee scheme. Asides identifying the key and underlying measures contributing towards public accountability in PFI/PPP government guarantee scheme, the study proceeded to explore differences in perceptions on the accountability measures among the research participants. The participants in the study comprise public sector employees and private sector stakeholders with experiences in PFI/PPP and Infrastructure government guarantee.

In order to implement this study, multiples data collection methods were employed. In line with the epistemological proposition of critical realism, subjective cum objective research strategies were adopted. The study therefore combined qualitative with quantitative data collection methods under an exploratory sequential mixed method approach. The initial stage of the data collection involved a triple-method qualitative strategy. These comprise extensive theoretical review of literature at the earlier stage. This review led to the identification of 16 accountability mechanisms along with 85 associated accountability indicators suitable for evaluating PFI/PPP government guarantee scheme. So as to confirm the relevance of the identified mechanisms and associated factors within real life context of Government Guarantee-backed PFI/PPP projects in UK, multiple case study strategy was adopted. To this end, maximum variation sampling method was used to select three uniquely different but

suitable PFI/PPP projects in the UK. Twenty three (23) semi-structured interviews and documentation analysis were used to explore public and private sector participants' views on accountability arrangements within government guarantee and PFI/PPP process. More importantly, participants were asked to confirm whether the identified accountability measures were relevant to guaranteed PPP projects, based on their experiences. Their confirmations were corroborated with findings from project documentations from each case study PPPs investigated. After coding the interview and documentation data, a total of 78 factors were considered relevant to the process within the scheme and PPPs including the 16 accountability mechanisms. The 16 mechanisms and 78 associated indicators were then prepared for the next stage of the study.

To strengthen the generalizability of the qualitative findings, the identified 16 mechanisms and 78 associated factors/indicators were used to formulate a questionnaire. The questionnaire was initially piloted and later distributed to wider audiences. The questionnaire respondents comprise UK's public and private sector stakeholders with prior involvement with PFI/PPPs and infrastructure guarantee scheme. Snowball sampling was used to gradually build up a pool of questionnaire respondents. Out of the 118 distributed questionnaires, 94 were returned and three incomplete questionnaires were identified, leaving the study with a total of 91 usable questionnaires for analysis. The analysis conducted included Descriptive Mean Rating, Reliability Analysis, and Non-Parametric Test of Significant Differences (Mann Whitney U Test). These statistical analysis helped uncover the key underlying factors contributing towards accountability in PFI/PPP Government Guarantee Scheme. These were identified across the 16 accountability mechanisms and under the four broad accountability spectrums.

To further understand the structural path and underlying accountability mechanisms vital for evaluating PFI/PPP government guarantee scheme, structural equation models were developed. Reliability and missing value analysis were performed to ensure that only reliable factors were considered for the model and no data was missing. Series of analysis including model fitness, modification and re-specification of the structural and measurement models were used to establish the underlying measures contributing towards public accountability in PFI/PPP government guarantee scheme. The key accountability mechanisms suitable for evaluating PFI/PPP government guarantee scheme were also unravelled, with fourteen out of the 16 theoretical hypothesis validated. The results were then used to produce a final structural equation model through a conceptual framework for evaluating public accountability in PFI/PPP Government Guarantee Scheme was presented.

10.2 Main Findings of the Study based on Research Objectives

Results of the study are elaborated in line with the aim and objectives set out for the study. Whilst the first part of this section is based on the first objective of the study which identifies suitable accountability mechanisms and associated indicators for evaluating PFI/PPP government guarantee scheme. The second part of the section, in line with objectives two of the study, examines differences in perception among UK public and private sector stakeholders on identified accountability mechanism and associated indicators. The third section addresses the third objective of the study, which focuses on identifying the key underlying accountability mechanisms for evaluating accountability PFI/PPP government guarantees. The fourth section of the study addresses the fourth objective of the study by

developing structural equation model for evaluating accountability in PFI/PPP government guarantees.

10.2.1 Identification of Accountability Mechanisms and Associated Indicators for Evaluating PFI/PPP Government Guarantee Scheme.

Accountability mechanisms and associated measures for evaluating PFI/PPP government guarantee scheme were identified through extensive review of literature. In this regard, constructs from accountability theory – process-based accountability, outcome-based, ethics-based and democratic accountability were deeply reviewed. In addition, literature review of accountability in PFI/PPPs, public sector management and government guarantee schemes were also carried out. This review helped reveal 16 relevant accountability mechanisms across the four broad spectrums of accountability dimensions in the study comprising risk management, rule of law, parliamentary scrutiny among others. In addition, a total of 85 associated measures for evaluating PFI/PPP government guarantee scheme were revealed. The study confirmed the relevance of the identified measures via case study documentation and 23 semi-structured interviews with public and private sector experts having PFI/PPP and infrastructure guarantee experience. After the subjective confirmation by interview participants, a total of 7 out of the 85 accountability measures were rejected and therefore dropped. The remaining 78 associated measures were considered useful for evaluating accountability in PPP government guarantee, and therefore used to develop a questionnaire survey (See Table 6.5). The rejected accountability measures cuts across four accountability mechanisms (i.e. Whistle blowing, Environmental Sustainability, Collaborative Partnership and Benchmarking) and comprise the following:

1. ***WB4=****Financial incentives for encouraging whistle blowing among public employees.*
2. ***ES9=****Security of project host community.*

3. ***ES10=****Contribution towards replenishing non-renewable mineral and energy resources.*

4. ***CP7=****A multidisciplinary Team to be responsible for ensuring collaboration among project stakeholders.*

5. ***CP8=****Integrating information Systems with all project parties.*

6. ***C6=****Timely dissemination of information to bidders.*

7. ***BM3=****Adequate resource committed to benchmarking exercises.*

10.2.2 Differences in perception among UK public and private sector stakeholders on accountability mechanism and associated indicators.

In line with the second objective of the study, it was important to confirm whether all the accountability measures identified were perceived differently or similarly based on the job sector of the respondents. Hence, having qualitatively confirmed the relevance of each accountability mechanisms and indicators, the study checked for existence of significant differences in perceptions among public and private sector respondents on each identified accountability measures. This was done after the first wave of descriptive and reliability analysis performed on the collected questionnaire data. Mann Whitney U test of significant differences was therefore conducted for all the measures across the 16 accountability mechanisms. These analyses was carried out for measures classified under each of the four broad accountability dimensions (i.e. outcome-based, process, ethics and democratic etc.).

The first phase of the Mann Whitney U test was implemented for accountability mechanisms classified under outcome-based accountability. These comprised five accountability mechanisms including Value for Money, Risk Management, Collaborative Partnership, and Environmental Sustainability. All the four mechanisms contained 28 associated measures in the order of 7, 5, 6, 2, and 8 measures respectively. The Mann Whitney U result indicate that,

out of the 28 outcome-based factors across the five mechanisms, only 1 factors were perceived differently by the (public and private sector) participants. The disputed factor is: ***ES1=****Project's contribution to social participation and inter-racial cohesion.* However, with 98.01% of respondents' in agreement with all the factors, the null hypothesis of no significant difference was validated. Whilst, for public sector, the result highlighted government's desire to pursue social and developmental goals with PPP project delivery, while creating equitable opportunities and engender social participation across the rank and files. For the private sector, the result raises the question of responsibility, with the argument that social inclusion and inter-racial participation are wider policy issues needing multifaceted approach than a collection of projects.

The second phase of the Mann Whitney U test was performed on ethic-based accountability measures. These comprise two different accountability mechanisms, namely whistle blowing policy and anti-corruption, both having three and five associated measures respectively. Based on the Man Whitney U test, the result suggested all the factors were perceived similarly by respondents across public and private sectors at 95% confidence level. The third phase of the Mann Whitney U test was conducted on process-based accountability measures. These comprise mechanisms such as Competition, Monitoring, benchmarking, Performance Auditing, and Public Sector Comparator. All the five mechanisms comprise 5, 2, 4, 6, and 2 associated measures respectively. Results of the Man Whitney U test suggest that out of all the 19 process-based factors/measures analysed, two (2) factors were perceived differently across the two category of respondents (public and private sector participants). In addition, the result confirm 97.2% of the respondents are in agreement with all the process-based factors in confirmation with the null hypothesis. The two disputed measures *include* ***C5=*** *Adequate incentives to encourage the supply of innovation from the private sector and,*

M1*=Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee.* The result (C5) highlights public sector's argument that innovative solutions is already a key component of value for money (VFM) in PFI/PPP. Hence additional effort at incentivising private investment is less favourably considered a driver of accountability by public employees. From private sector perspective, public sector has less competence to engage in competitive market and therefore lacks innovative abilities which it must incentivise to create market competition. The respondents also differ on whether public accountability in PPP government guarantee be extended towards monitoring corporate and external dealings of guarantee beneficiaries. From private sector perspective, such accountability oversteps the traditional boundary of government in market-based arrangement and reflect encroachment that may unsettle business environment. Public sector's point of view differs by considering the greater risk of moral hazard as a key motivation for extensive due diligence and monitoring of beneficiaries.

10.2.3 Key underlying accountability mechanisms for evaluating accountability PFI/PPP government guarantees.

In line with the third objective of the study, key underlying mechanisms contributing towards public accountability in PFI/PPP government guarantee scheme. Going by the results of the structural equation model, out of the fourteen statistically important accountability mechanisms, the five top-ranked accountability mechanisms were identified. These mechanisms include are:

- Value for Money (VFM)
- Competition (C)
- Social and Political Impact (SPI)
- Risk Management (RM)

- Parliamentary Scrutiny (PS)

Value for money (VFM) - Based on the results of the structural equation modelling and group reliability Cronbach's alpha coefficient, VFM was rated the most important underlying mechanism for evaluating accountability in PFI/PPP government guarantee scheme (See Table 8.2). Accordingly, out of the seven (7) measures of value for money (VFM), the top-five VFM measures as reflected in Fig. 8.2 are (1) **VFM1=**Least procurement cost, which emphasises affordability of projects delivery, (2) **VFM3=**Equitable risk allocation among project parties, which entails transferring risk to the party that is best able to control and manage such risks. In addition, whilst the 3rd important VFM measure is (3) **VFM6=**Competitive bidding process, which involves creating level playing field and allowing increased participation of bidders; (4) **VFM2=**Service quality/output specification entails meeting pre-defined service and technical specification in delivered projects. Finally, the fifth important VFM measure is (5) **VFM4=** Minimal whole life costing of project, which emphasizes reduction in the cost a project right from the construction and operation life of the project till the end of the concession.

Competition (C) – Going by results of the structural equation modelling (See Table 8.2), the second most important underlying mechanism for evaluating accountability in PFI/PPP government guarantee scheme is Market Competition. Competition is described as an instrument of choice that allows elimination of market inefficiencies through facilitating rivalry among suppliers within an economic system (Osei-Kyei and Chan, 2015). Based on result in Fig 8.2, the top-five accountability measures contributing towards Market Competition are (1) **C4=** Transparent bidding and tendering process, involving clarity in bidding rules and decision making process. (2) **C1=** Increasing the number of potential

bidders or applicants, which is seen as key parameter for creating competition that engenders innovation, (3) **C2=** Availability of in-house commercial skills within the public sector, which emphasizes the public sector competence in dealing with complex commercial deals and financial engineering that enables it take better informed judgement on PPP/guarantee contracts. In addition, whilst the fourth important measure of competition is (4) **C3=** Open and comprehensive bidding parameters and requirements, which is seen as precursor for creating level playing field among investors, (5) **C5=** Adequate incentives to encourage the supply of innovation from the private sector is seen as the least important measure of competition that highlights deliberate and conscious efforts of government at encouraging private sector investors to develop innovative solutions in project delivery.

Social and Political Impact (SPI) – Based on results of the structural equation modelling, the third most important accountability mechanism for evaluating PFI/PPP Government Guarantee Scheme is 'Social and Political Impact'. This results underline arguments that maximising social welfare of the project users and host communities, while also fulfilling government's political objectives is critical to PFI/PPP success (Osei-Kyei and Chan, 2017). Based on results shown in Fig 8.8, the top-five important measures of Socio-political impact are (1) **SPI1=** Project's impact on job creation and unemployment, which emphasizes the economic growth and empowerment contribution of the project to the host community, (2) **SPI8=** Sufficient risk transfer away from public sector, reiterating the traditional rationale for PPP and the risk aversion of the public sector towards the risks outside its tradition control. (3) **SPI11=** Better collaboration between public and private sector, (4) **SPI9=** Adequate response to public needs through timely project delivery, (5) **SPI3=** Affordable user charges.

Risk Management (RM) – Results of the structural equation model also revealed the fourth most important accountability mechanisms for evaluating PFI/PPP government guarantee scheme is Risk Management. According to the National Audit Office Report on Managing Risks to Improve Public Service (2011), the UK government considers effective risk management as a vital tool for curtailing failures in service delivery and improving overall efficiency. In line with the results of statistical analysis, the top-four accountability indicators of risk management are: (1) RM2= Integrating risk management systems into public sector evaluative frameworks, (2) RM1= Improved public sector risk management competences/capabilities, (3) RM4=Proactive evaluation of past risk events (4) RM3=Regular risk identification and reporting.

Parliamentary Scrutiny (PS) – Going by results of the structural equation modelling, the fifth most important accountability mechanism for evaluating PFI/PPP government guarantee scheme is Parliamentary Scrutiny.). Parliamentary scrutiny is an institutional activity that involves the evaluation of the expenditures, policies and general administration of government (Grube, 2014; Thompson, 2014). From a broader perspective, scrutiny is one of the three cardinal responsibilities of the parliament, with the remaining two being the enactment of legislation and approval of government's financial budgets (Ward, 2015). An examination of parliamentary scrutiny as shown in Fig. **PS3=** Encouragement of policy debates on government guarantee scheme**, PS2=** Interactions with external experts and interest groups to examine wider impact of government guarantee scheme, **PS1=** Effective use of committee hearings to evaluate the management of government guarantee scheme.

10.2.4 Developing a Structural Equation Modelling for Accountability in PFI/PPP Government Guarantee Scheme

The fourth objective identified for the study is to develop a structural equation model useful for evaluating accountability in PFI/PPP government guarantee scheme. In order to achieve, this objectives, the questionnaire data was checked for internal consistency of the measurement scale. Thus reliability analysis conducted helped arrive at a comprehensive set of reliable accountability factors. In addition, to further ensure that the model is built on set of statistically reliable factors, Construct validity and reliability of the models were assessed (using Average Variance Extracted and Maximum Shared Squared Variance MSV). Having established the fit indices of the models and the validity of the latent variables (accountability mechanisms) across the four accountability dimensions (outcome-based, process, ethics and democratic), a comprehensive structural equation model was developed. This was achieved by incorporating the four sub-component structural models in one final model. The integration allowed confirmation of the model structure vis-a-vis the intertwined relationship among all the fourteen latent (accountability mechanisms). In addition, the integration of the model helped estimate the impact of each first-order construct on the second-order variable (accountability in PFI/PPP Government Guarantee Scheme). So as to develop the final model as a second-order structural model, data imputation using AMOS IBM SPSS was employed to produce values for all the first-order variables (accountability mechanisms) across the four accountability dimensions in the study. This approach ensured the study avoided criticisms of lack of validity that is often associated with adopting third-order reflective or composite factors (Wetzels *et al.,* 2009). The overall and final model, as shown in Fig 8.9, revealed the % variance contributed to the model by the 14remaining accountability mechanisms.

10.3 Implication for Practice

Many nations across the world face the task of managing public sector guarantees which often arise from multiple sources, including trade, infrastructure PPPs, foreign exchange etc. The last Global Financial Crisis (GFC) of 2007/2008 and the associated huge public debt has made countries even more vulnerable to severe fiscal risks in recent times. Although various fiscal policy and accountability prescriptions that includes accrual budgeting and reporting have been advised by the World Bank and other multinational financial institutions (Kopits, 2014; Marcel, 2014). Yet, accountability lapses have continued to trail public sector handling of government guarantees schemes especially in the case of PPPs (Willems and Van Dooren, 2016). According to Willems and Van Dooren, (2016), among other shortcomings, the dual role of the public sector both in PPP project development and government guarantee approvals raises doubts about her ultimate neutrality in decision making. Hence, the big question of whether current accountability mechanisms are sufficient to prevent abuse of PPP government guarantee scheme remains a critical issue. In this study, a multidimensional framework was developed to provide insights into the evaluation of public accountability in PFI/PPP government guarantee scheme. Evidences suggest that successful management of guarantees can be linked directly to sufficient accountabilities that is built into its evaluative framework. Therefore, results of this study have a number of important policy implications for PPPs under guarantee contracts Firstly, evidences from this research nullifies a one size fits all public accountability approach to PPP guarantee scheme evaluation by suggesting a multidimensional accountability scrutiny. Instructively, no time is more auspicious that now, considering the UK government's new infrastructure delivery plan which eyes project delivery via PF2 and other private sector routes, in order to achieve her £483 billion targeted infrastructure investment by 2021 (NIP, 2016). Given the grand nature of this planned future infrastructure delivery in the UK vis-à-vis the role of £40 billion infrastructure guarantee

scheme, a comprehensive blend of accountabilities that helps deliver public value is essential. Such robust accountability framework will therefore require due consideration for ethical, democratic and outcome driven processes, so as to ensure successful management of PFI/PPP government guarantee scheme.

In addition, going by findings from this study, the top-five accountability mechanisms necessary for evaluating PFI/PPP guarantee scheme includes the following: Value for Money (VFM), Competition (C), Socio-Political Impact (SPI), Risk Management (RM) and Parliamentary Scrutiny (PS). In the case of value for money (VFM), the results suggest public managers are able to ensure that government guaranteed PFI/PPPs justify their superiority against traditional procurement. Additionally, existence of competitive guarantee application process helps enable selection of the most economically desirable projects, as against project selection that is merely based on low cost. In addition, ensuring maximisation of projects' social benefits to users and host communities, as well as fulfilling government's political objectives will ensure policy goals addresses the most cogent concerns of the citizenry. Furthermore, government guarantee is often associated with fiscal risks, and as such, a more robust risk management strategy is necessary in the case of PPPs. This will help mitigate against unexpected fiscal challenges that may result in a call on the guarantee, and therefore bring to live, the real financial liability. Additionally, the role of democratic institutions is seen as critical to public accountability, as Olsen (2013) suggested that lack of effective accountability processes weakens democracy. Hence, parliamentary scrutiny on the operations and handling of government guarantee scheme, will help ensure public interest is constantly upheld. The policy implication of these results for government is that, future government guarantee evaluation for PFI/PPPs can integrate these key accountability mechanisms into their due diligence appraisals. This will help ensure that a more

comprehensive approach that strengthens public accountability is taken whilst making decisions on deserving projects under the infrastructure guarantee scheme.

Finally, it is important to note that although the UK has voted for BREXIT, it currently remains in the EU till 2019 or longer and therefore bonded by EU rules until the final exit. In the light of this, the current use of government guarantee scheme for infrastructure PPP procurements and the reflection of such transactions on public sector balance sheet (under accrual accounting principle), has wider implications on a host of issues. Firstly, guarantees exert pressures on government's capacity to comply with EU-prescribed macroeconomic indices such as debt/GDP ratio and debt ceiling (Eubanks, 2010; Zandstra, 2011). With member states expected to observe 60% public debt/GDP ratio and 3% budget deficit (Verdun, 2015), the challenge for public managers is meeting policy objectives under the guarantees scheme, while also fulfilling deficit reduction. At the moment, the economic value of UK's contingent liabilities which includes government guarantees, pension's scheme, etc. that is reflected on the public balance sheet and the huge debt in future unitary payments on PFI projects, currently stands at £1.387Trillion by the end of 2012. This will therefore pile additional pressure on UK's gross national debt, with serious complications already created by BREXIT, in addition to some existing commitments to certain jointly signed EU contingent liabilities prior to BREXIT vote.

10.4 Theoretical Implication of the study

This research contributes to existing accountability theories in a number of ways. Firstly, the study confirms Boven's (2010) assertion that both "accountability as a virtue" and "accountability as a mechanism" are collectively needed to strengthen public accountability. Hence, although this study examined accountability mechanisms for evaluating PPP

guarantee scheme, themes such as reporting, transparent bidding and tendering, responsibility - all of which are normative concepts that mirrors accountability from a virtuous perspective, were reflected in the research findings and also statistically contributed towards study. The implication of this is that, for public accountability, especially in transactions with blurry lines of accountability between public and private parties, such as PFI/PPP. The combination of high moral standards and institutional mechanisms of accountability will therefore be important to strengthen public accountability. Similar to the above perspective, whilst exploring process accountability, Tetlock and Mellers (2011b), opined that most accountability mechanisms are a constantly evolving process-outcome hybrids that lean towards either side, depending on the context or task. According to Tetlock and Mellers, the desirability of one type of accountability is often based on context within which the accountee operate at a given time. This perspective is similar to the description by Sinclair (1995, pp. 219) of the chameleon-like nature of accountability which changes with context and remains ever evasive. As such, in this study, process, ethics, democratic and outcome-based accountabilities were used as theoretical constructs to classify a number of accountability mechanisms investigated. Based on the results from the study, only two accountability mechanisms (benchmarking and budgetary visibility/reporting), each from process and outcome-based accountability constructs were rejected by the respondents. There was no clear cut evidence of any statistically significant rating differences among respondents based on accountability dimension. The implication of this result confirms Tetlock and Mellers (2011) including Sinclair (1995) and suggested that accountability forums favour certain types of accountability tool at certain times based on whether their need are well served by its adoption. In this regard, for many accountability forums, accountability mechanisms remain a blend of different but useful accountabilities that interchanges rather than a stand-alone tool. Going by the result of this study therefore, a single accountability

mechanism will be incapable of addressing the multifaceted nature of transaction in PFI/PPP government guarantee scheme going the complexities of such public transactions. This research therefore join earlier literature such as Boven's (2010), Tetlock and Mellers (2011b), Bovens et al. (2015) to lay to rest the theoretical arguments of Luke (2010), Patil et al. (2014) and Olsen (2017) among others about a necessary dichotomy among accountabilities based process-outcome and virtue /mechanism.

Additionally, this study supports existing assertions in earlier studies such as Robinson and Scott (2009) and Sainati et al (2017) that the notion of off-budget financing of PPPs is unrealistic. This conclusion was based on findings from the study which highlighted how, contingent liabilities incurred in the name of PFI/PPP end up on public sector budget under the accrual accounting treatment of fiscal guarantees.

10.5 Limitations of the Study and Areas of Future Research

However some limitations of the study include the principal focus on the United Kingdom. A major reason for this was due to freedom of access to data sources, especially interview participants. In addition, the study also focused on perspectives of UK's public and private sector stakeholders alone especially the one with PFI/PPP and Infrastructure guarantee experience. Other economies using government guarantees for PPPs have not been considered in this study.

Furthermore, this study also focused mainly on Private Finance Initiatives (PFI) and Public Private Partnership (PPP) projects that have been backed with government guarantee. As such, other methods of infrastructure procurement including contracting and concession were excluded from this study. Another limitation of this study is that only three UK infrastructure

PFI/PPP projects were considered for the multiple-case qualitative investigation in this study. A major reason for this is because the UK currently has a small but growing portfolio of government guarantee-backed PFI/PPP projects. This research is also limited to accountability mechanisms and their significant contribution towards strengthening public accountability in PFI/PPP government guarantee scheme. Hence, other forms of accountability including managerial accountability, personal, legal, democratic or political accountabilities were not considered in this study.

This study have only considered infrastructure PFI/PPPs alone, such as roads, bridges, rails, among others. Other future studies might find it worthy to explore accountability in government guarantees for other type of PPPs (i.e. Forfeiture model, etc.). In addition, although this study focused specifically on government guarantee using the UK as a case point, further empirical studies can be carried out by looking into accountability framework for PPP government guarantee in other global economies. In addition, future empirical studies could be carried out to examine the possible impact of diffusion of EU's accountability practices into UK's framework on public-private procurements in the UK post BREXIT. It is also possible to examine the possible impact of accountability overload or over–accountability on PFI/PPP Government Guarantee Scheme. As earlier stated, this study has been conducted only within the context of the UK PFI/PPPs in relation to the infrastructure guarantee scheme. As such, findings from the study should therefore be interpreted only within this context. Studies from other countries on PFI/PPP and government guarantee could use findings from this study as a means of doing a comparative analysis with their own contexts.

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Appendix: Questionnaire
Public Accountability: A Case of Government Guarantee Scheme for PFI/PPP Projects.

Dear Respondents,

I am a postgraduate doctoral researcher studying PFI/PPP Project Finance and Management, at the Faculty of Business and Law, University of the West of England (UWE), Bristol. This questionnaire emerged after an extensive qualitative investigation into Accountability in Government Guarantee Scheme; and seeks to capture stakeholders' views concerning accountability mechanisms suitable for evaluating publicly guaranteed PFI/PPP projects under the United Kingdom (UK) Infrastructure Guarantee programme.

Responses from the questionnaire are only designed for academic purpose, and as such, all individual answers will be treated with utmost confidentiality. This is strictly in line with UWE's ethical guidelines as touching anonymity of academic research.

Additionally, I want to stress that your participation in this survey is voluntary, as you reserve the right not to consent or answer any particular question considered offensive or inappropriate. However, be assured that all questions only pertains to your experiences with UK's Infrastructure Guarantee Scheme and PFI/PPP projects in general. On estimate, filling this questionnaire will take about 30mins of your time. Finally, in case you have questions regarding the questionnaire, kindly feel free to express them.

Thank you in anticipation of your valuable contributions to this study.

Section A – Particulars of Respondents (Please mark answers with an 'X')

1. Type of Organisation you are working for:

   Bank ☐ Investment Firm ☐ Hedge Funds ☐ Insurance ☐ Special Purpose Vehicle ☐
   Construction Contractor ☐ FM/Operations Contractor ☐ Public Authority ☐Academics☐ others ☐

2. Job Title of Respondents:
   Director ☐ Senior Manager ☐ Manager ☐ Dep. Director ☐ Senior staff ☐ Junior Staff ☒ others ☐
   PFI/PPP Manager ☐ Project Manager ☐ Contracts Manager ☐

3. Years of Experience in the industry:
   ○ 1-5 ○ 6-10 ○ 11-15 ○ 16-20 ○ 21-25 ○ 26 and more

4. Number of PFI/PPP Projects you have personally being involved in?
   ○ 1-5 ○ 6-10 ○ 11-15 ○ 16-20 ◉ 21-25

5. Year of Experience in UK Infrastructure Government Guarantee Scheme?
   ○ 1-5 ○ 6-10 ○ 11-15 ○ 16-20 ○ 21-25

6. Responses to the questions in this questionnaire need to be based on your experience on UK Infrastructure Guarantee Scheme and/or a particular PFI/PPP project. Kindly specify by marking the type of PFI/PPP project that you have been involved with.

NHS (Hospital Facility) ☐ School Projects ☐ Road Project ☐ Waste Plant ☐ Oil and Gas ☒
Housing ☐ Defense Facility ☐ Rail Project ☐ Airport ☒ Prison Facility ☐ Energy Project ☐ Others ☐

Section B – Outcome-based Accountability factors influencing PFI/PPP Government Guarantee Scheme

This section considers (5) outcome-based accountability mechanisms (identified from the qualitative study) contributing towards accountability in PFI/PPP Government Guarantee Scheme and their associated indicators.

The following accountability factors are considered essential for strengthening accountability in PFI/PPP Government Guarantee Scheme. Kindly rate your level of agreement with these outcome-based accountability factors based on your experience with PFI/PPP projects and government guarantee scheme, on the following scale;

5=Strongly Agreed 4=Agreed 3=Undecided 2=Disagree 1=Strongly Disagree

Value for Money						
ID	***To what extent do you agree that the following Value for money measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?***	***Agreement on factor***				
		5	***4***	***3***	***2***	***1***
VFM 1	*Risk associated with the project's ability to generate sufficient cash flows to meet debt service repayments*					
VFM 2	*Least procurement cost*					
VFM 3	*Service quality/output specification*					
VFM 4	*Equitable risk allocation among project parties*					
VFM 5	*Minimal whole life costing of project*					
VFM 6	*Effective management of project over the long term period*					
VFM 7	*Competitive bidding process*					
VFM 8	*Innovative solutions*					
Risk Management Factors						
ID	*To what extent do you agree that the following Risk Management measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
RM1	*Improved public sector risk management competences/capabilities.*					
RM2	*Integrating risk management systems into public sector evaluative frameworks*					
RM3	*Regular risk identification and reporting*					

RM4	*Proactive evaluation of past risk events*					
RM5	*Strong stance on compliance with regulatory frameworks*					
	Collaborative Partnership					
ID	*To what extent do you agree that the following Collaborative Partnership measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
CP1	*Open and honest communication among project parties*					
CP2	*Consortium senior officials' commitment towards successful collaboration*					
CP3	*Existence of clearly defined relationship and communication sharing strategy*					
CP4	*Commitment of the project delivery team*					
CP5	*Fair risk allocation among public-private parties*					
CP6	*Early warning signals for detecting and solving conflicts or crisis.*					
	Budgetary Reporting					
ID	*To what extent do you agree that the following Budgetary Reporting measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
BR1	*Reporting government guarantees and other contingent liabilities in the national budget*					
BR2	*Oversight and control*					
	Environmental Sustainability					
ID	*To what extent do you agree that the following Budgetary Reporting measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
ES1	*Project's contribution to social participation and inter-racial cohesion*					
ES2	*Project's contribution to increased utilisation of local materials*					
ES3	*Adoption of energy efficient solutions*					
ES4	*Project's contribution to reduction in material wastage*					
ES5	*Compliance with regulatory standards on sustainable project delivery*					
ES6	*Prevention of massive changes to landscape*					
ES7	*Project's impact of surrounding plant and animals*					
ES8	*Contribution to economic and social prosperity of surrounding communities*					

Section C – Ethics-based Accountability factors influencing PFI/PPP Government Guarantee Scheme

This section considers (2) ethics-based accountability mechanisms (identified from the qualitative study) contributing towards accountability in PFI/PPP Government Guarantee Scheme and their associated indicators.

The following accountability factors are considered essential for strengthening accountability in PFI/PPP Government guarantee scheme. Kindly rate your level of agreement with these ethics-based accountability factors based on your experience with PFI/PPP projects and government guarantee scheme, on the following scale

5=Strongly Agreed 4=Agreed 3=Undecided 2=Disagree 1=Strongly Disagree

	Whistle Blowing Policy					
ID	*To what extent do you agree that the following Whistle blowing measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*Agreement on factor*				
		5	*4*	*3*	*2*	*1*
WB1	*Effective institutional arrangement to the inculcate culture of openness among staff*					

WB2	*Adequate protection for whistle blowers against institutional witch-hunt*					
WB3	*Implementing procedurally correct actions to address reported wrongdoings*					
	Anti-Corruption					
ID	*To what extent do you agree that the following Anti-Corruption measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
AC1	*Strong stance against corruption in government guarantee schemes*					
AC2	*Clear, adequate and timely information about happenings, processes and rules*					
AC3	*Effective internal and external oversight and control*					
AC4	*Effective sanctions against corrupt practices*					
AC5	*Robust due diligence appraisals through extensive information gathering*					

Section-D Process-based Accountability factors influencing PFI/PPP Government Guarantee Scheme

This section considers (5) process-based accountability mechanisms (identified from the qualitative study) contributing towards accountability in PFI/PPP Government Guarantee Scheme and their associated indicators.

The following accountability factors are considered essential for strengthening accountability in PFI/PPP Government guarantee scheme. Kindly rate your level of agreement with these process-based accountability factors based on your experience with PFI/PPP projects and government guarantee scheme, on the following scale

5=Strongly Agree 4=Agree 3=Neutral 2=Disagree 1=Strongly Disagree

	Competition					
ID	*To what extent do you agree that the following Competition measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*Agreement on factor*				
		5	*4*	*3*	*2*	*1*
C1	*Increasing the number of potential bidders or applicants*					
C2	*Availability of in-house commercial skills within the public sector.*					
C3	*Open and comprehensive bidding parameters and requirements*					
C4	*Transparent bidding and tendering process*					
C5	*Adequate incentives to encourage the supply of innovation from the private sector*					
	Benchmarking					
ID	*To what extent do you agree that the following Benchmarking measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
BM1	*Comprehensive articulation of historically good practices and processes*					
BM2	*Constant improvements on benchmarking techniques.*					
	Monitoring					
ID	*To what extent do you agree that the following Monitoring measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
M1	*Continuous monitoring of corporate and external dealings of the project consortium members during the period of guarantee*					
M2	*More qualitative public awareness on fiscal risks arising from contingent liabilities*					
M3	*External monitoring through audit institutions and other interest groups.*					
M4	*Effective use of sanctions against wrong practices*					

	Performance Auditing					
ID	*To what extent do you agree that the following Performance Audit measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
PA1	*Project life cycle cost reduction*					
PA2	*Adequate risk transfer among project parties*					
PA3	*Acceptable project quality*					
PA4	*Quality service delivery*					
PA5	*On-time project completion,*					
PA6	*Economic empowerment of local community*					
	Public Sector Comparator					
ID	*To what extent do you agree that the following Public Sector Comparator measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
PSC 1	*Compulsory PSC evaluation both at project and guarantee scheme levels.*					
PSC 2	*Integrating PSC evaluation into government guarantee-decision making process.*					

Section-E Democratic Accountability factors influencing PFI/PPP Government Guarantee Scheme

This section considers (4) democratic accountability mechanisms (identified from the qualitative study) contributing towards accountability in PFI/PPP Government Guarantee Scheme and their associated indicators.

The following accountability factors are considered essential for strengthening accountability in PFI/PPP Government guarantee scheme. Kindly rate your level of agreement with these democratic accountability factors based on your experience with PFI/PPP projects and government guarantee scheme, on the following scale

5=Strongly Agree 4=Agree 3=Neutral 2=Disagree 1=Strongly Disagree

	Social and Political Impact					
ID	*To what extent do you agree that the following indicators of Social and Political Impact (SPI) are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*Agreement on factor*				
		5	*4*	*3*	*2*	*1*
SPI1	*Project's impact on job creation and unemployment*					
SPI2	*Project's impact on travel time and journey quality*					
SPI3	*Affordable user charges*					
SPI4	*Access to services*					
SPI5	*Better stakeholder engagement*					
SPI6	*Adequate security*					
SPI7	*Project's impact on biodiversity*					
SPI8	*Sufficient risk transfer away from public sector*					
SPI9	*Adequate response to public needs through timely project delivery*					
SPI10	*Minimal life cycle cost*					
SPI11	*Better collaboration between public and private sector*					
	Stakeholder Engagement					
ID	*To what extent do you agree that the following Stakeholder Engagement measures are essential*	*5*	*4*	*3*	*2*	*1*

	for strengthening accountability in PFI/PPP Government Guarantee Scheme?					
SE1	*Effective communication and dialogue*					
SE2	*Clear and effective communication channels*					
SE3	*Staff commitment to laid down stakeholder engagement strategy*					
SE4	*Transparent decision-making process*					
SE5	*Clear understanding of all stakeholders' area of interests*					
	Rule of Law					
ID	*To what extent do you agree that the following indicators of Rule of Law are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
RL1	*Enforceability of contracts and agreements in projects*					
RL2	*Adequate institutional arrangements for supporting contract enforcement*					
RL3	*Legal scrutiny and evaluation of policy, projects and performance.*					
RL4	*Clarity in legal/contractual rights and responsibility among project parties.*					
	Parliamentary Scrutiny					
ID	*To what extent do you agree that the following Parliamentary Scrutiny measures are essential for strengthening accountability in PFI/PPP Government Guarantee Scheme?*	*5*	*4*	*3*	*2*	*1*
PS1	*Effective use of committee hearings to evaluate the management of government guarantee scheme*					
PS2	*Interactions with external experts and interest groups to examine wider impact of government guarantee scheme*					
PS3	*Encouragement of policy debates on government guarantee scheme*					

<u>SECTION F</u> – Key Accountability Mechanisms for Evaluating PFI/PPP Government Guarantee Scheme

To what extent do you agree with the following as important accountability mechanisms necessary for strengthening accountability in PFI/PPP Government Guarantee Scheme? *Kindly indicate the extent of your agreement with the statements on the scale of 1-5, where*

5= Strongly Agree 4= Agree 3= Undecided 2= Disagree 1= Strongly Disagree

I.D	***To what extent do you agree that the following accountability mechanisms contribute positively towards strengthening accountability in PFI/PPP Government Guarantee Scheme?***	***Degree of Agreement***				
		5	**4**	**3**	**2**	**1**
F1.	*Determining the Value for money in guaranteed projects will contribute positively towards public accountability in PFI/PPP Government Guarantee Scheme.*					
F2.	*Effective public sector risk management will strengthen public accountability in PFI/PPP government guarantee scheme.*					
F3.	*Better collaboration between government and private sector parties on publicly guaranteed projects will strengthen accountability in government guarantee scheme to PFI/PPPs.*					
F4.	*Reporting government's contingent liabilities in publicly guaranteed PFI/PPPs on national budgets will improve public accountability in government guarantee scheme for PPPs.*					
F5.	*Ensuring sustainable project delivery will strengthen public accountability in Government Guarantee Scheme for PFI/PPP projects.*					
F6.	*Encouraging whistle blowing among employees involved in PFI/PPP government guarantee scheme will have positive impact on public accountability.*					
F7.	*Prevention of corrupt practices and dishonest behaviours in the handling of PFI/PPP government guarantee scheme will have a positive impact on public accountability.*					

F8.	*Competitive project selection process under government guarantee scheme for PFI/PPPs will have positive impact on public accountability.*					
F9.	*Benchmarking potential guaranteed PPP projects against historically good standards and processes under the government guarantee scheme will have positive impact on public accountability.*					
F10.	*Effective monitoring of government guarantee scheme, actors and beneficiary PFI/PPP projects will have positive impact on public accountability.*					
F11.	*Greater effective performance auditing of projects benefitting from government guarantee scheme will have positive impact on public accountability.*					
F12.	*Adopting public sector comparator for deciding guarantee-deserving infrastructure projects will have positive implication for public accountability under PFI/PPP government guarantee scheme.*					
F13.	*Robust social and political impact evaluation of PPP projects at the government guaranteed scheme level will have positive effect on public accountability.*					
F14.	*Effective management of all stakeholders involved in government guaranteed PFI/PPPs will have positive impact on public accountability.*					
F15.	*Upholding the rule of law in the management of PFI/PPP government guarantee scheme will have positive impact on public accountability.*					
F16.	*Parliamentary scrutiny of public managers' decisions and actions as they affect effective management of government's fiscal liabilities on guarantee schemes to PPPs will strengthen public accountability.*					

Any additional comments

Please state any further information that you feel may have particular importance to the outcome of this questionnaire.

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Thank you very much.