What Drives Value For Money of Public Private Partnership (PPP) Projects Implementation In Malaysia?

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ABSTRACT

The objectives of this present study are two-fold. First, it aims to investigate the factors that enhance the VFM achieved from PPP projects in Malaysia. Second, it aims to examine the differences in the perceptions of public and private sectors pertaining to the VFM factors of PPP implementation in Malaysia. A questionnaire survey was used to elicit the perceptions of public and private sectors on the VFM drivers for PPP projects in Malaysia. 179 usable responses were obtained and analysed using SPSS to rank the importance of the factors and to examine the differences in the perceptions between government and private sector. The results reveal that the top five factors that enhancing the VFM achievement for PPP projects, in descending order of importance are: 1) competitive tender; 2) private sector technical innovation; 3) optimal use of asset/facility and project efficiency; 4) efficiency risk allocation (allocating the risk to the party best able to manage it); and 5) performance-based payment mechanism. For majority of the factors, the results reveal significant differences in the perception of public and private sectors on the importance of the VFM drivers.

Keywords: Public Private Partnership (PPP), Value for Money (VFM), Malaysia

INTRODUCTION

Value for money (VFM) is one of the crucial requirements before a project can go ahead with Public Private Partnership (PPP) procurement (HM Treasury, 1997; Bell, 2002; Shaoul, 2002, Ismail and Pendlebury, 2006). VFM in PPP refers to 'the optimum combination of whole life cost and quality to meet the users' requirement' (Morallos et. al, 2009; Unit Kerjasama Awam Swasta, 2009). One of the popular measures to assess VFM is by comparing the present value cost of a PPP project against the present value cost of a public sector comparator (PSC). The option with the lower present value cost provides the better VFM (Ismail and Pendlebury, 2006). Besides using a PSC, each potential PPP project can be assessed for VFM by taking into account both the financial and the qualitative aspects, such as quality and impact on users which are not easily quantifiable (Grimsey and Lewis, 2004).

PPP is expected to provide better VFM as the private sector who normally bears significant responsibility in a PPP contract is perceived as being more innovative and efficient in meeting the needs of the customers (Treasury Taskforce, 1999). In Malaysia, PPP was introduced to streamline the procurement process of the privatisation program in order to ensure better VFM is achieved from the public infrastructure and facilities provided via PPP (Ninth Malaysia Plan, 2006; Takim et al., 2009). Therefore, it is crucial to identify the factors that contribute to the achievement of VFM, hence this present study intends to investigates the factors that enhances the VFM for PPP projects in Malaysia.

The exclusive contribution of this paper is that it highlights not only the factors that enhancing the VFM achievement for PPP projects in Malaysia, but also offers evidence concerning the differences in the perceptions of public and private sectors pertaining to the importance of the VFM factors. It is vital to put forward the differences in the opinion of the two parties because each party plays a different role in a PPP contract. The remainder of this paper is structured as follows. The next section offers a brief background of the public private partnership in Malaysia. Then, the following section reviews relevant literature concerning VFM in PPP implementations. This is followed by a methodology section, which describes the instrument used, sample and data collection, and analysis procedures. The results are discussed in the next section, followed by the implications, limitations, and suggestions for future research, and, finally, the study is concluded.

LITERATURE REVIEW

Public Private Partnership (PPP) In Malaysia

The concept of PPP has existed since the mid 1980s, as a result of Malaysia's previous privatization program and the adverse impact of the world economic recession that caused the government to seek assistance from the private sector for the development and economic activities of the country (Ismail and Rashid, 2007; Rusmani, 2010). Malaysia focuses on Private Finance Initiative (PFI), a subset of PPP, to improve the shortfall of the previous privatization program meant for better value for money (VFM) and more stringent control over projects (Takim et al., 2009).

Since Malaysia has the target to become an industrialized and a developed nation by the year 2020 as stated in vision 2020 introduced by the fourth Prime Minister, several policies have been introduced to enforce relationship between public and private sectors in delivering the public projects (Nambiar, 2007; Rusmani, 2010). The evolution of PPP regulation in Malaysia had been started from privatization of the 4th Malaysia Plan Incorporated in 1981, 5th Malaysia Plan Privatization Policy in 1985, 6th Malaysia Plan Privatization Master Plan in 1991 as well as PPPs in the 8th Malaysian Plan, 9th Malaysia Plan and 10th Malaysia Plan (Ismail and Yusof, 2009; Tenth Malaysia plan, 2010).

Under the Ninth Malaysia plan, the government officially announced the implementation of public projects using the Public Private Partnership (PPP) or Private Finance Initiative (PFI) scheme (Ninth Malaysia Plan, 2006). The PPP is formally defined in the Ninth Malaysia Plan report (2006) as: *'the transfer to the private sector the responsibility to finance and manage a package of capital investment and services including the construction, management, maintenance, refurbishment and replacement of the public sector assets which creates a standalone business. The private sector will create the asset and deliver a service to the public sector client. In return, the private sector will receive payment commensurate with the levels, quality and timeliness of the service provision throughout the concession period'* (Ninth Malaysia Plan, 2006).

The main objective of PPP in Malaysia is to revise and improve the implementation process of the existing privatization policy (Ninth Malaysia Plan, 2006 and Tenth Malaysia plan, 2010). PPP will be employed for infrastructure and service development projects that meet two conditions. First, the implementation of PPP must be able to make government projects more efficient where the risks and rewards are optimally shared between the two parties. Second, PPP is to be used where government support enhances the viability of the private sector projects in strategic or promoted areas (Ninth Malaysia Plan, 2006).

In addition, another main reason on procuring projects through PPP is to enhance VFM by inviting the private sector to handle public works projects (Cheung, 2009). Hence, this present study focuses on factors that enhancing the VFM achievement for PPP projects in Malaysia. Besides, the study also investigates the differences in the perceptions of public and private sectors pertaining to the factors that increase the VFM of PPP implementation in Malaysia.

Value for Money (VFM) in PPP

In general, prior studies on VFM of PPP projects can be classified into two types that are firstly, studies that actually asses the VFM achieved from PPP projects (see for examples: Arthur Andersen and Enterprise LSE, 1999; IPPR, 2002; Parker, 2003; Ismail and Pendlebury, 2006) and secondly, studies that examine VFM determinants or mechanisms for evaluating VFM (see for instance: Arthur Andersen and Enterprise LSE, 1999, Tanaka et al., 2005; Yuan et al., 2008; Cheung, 2009; Takim et al., 2009; Asenova et al., 2010; and Ismail et al., 2011). Relevant to the context of this present study, the literatures reviewed in this section are mainly on the second type of VFM studies.

VFM refers to the 'optimum combination of whole-life costs, benefit, risks, and quality (fitness for purpose) to meet the user requirement and getting the best possible outcome at the lowest possible price' (Li and Akintoye, 2003; Grimsey and Lewis, 2004; and English, 2006). It is one of the fundamental requirements before a project can be decided to be delivered via PPP scheme (HM Treasury, 1997; Bell, 2002; Shaoul, 2002; Wynne, 2002; Edwards and Shaoul, 2003; Unit Kerjasama Awam Swasta, 2009).

One of the popular methods for assessing VFM is by comparing the whole life Net Present Costs (NPC) of the project as financed under the conventional procurement method, or the Public Sector Comparator (PSC), against the NPC of the PPP project (Heald, 1997 and Shaoul, 2002). The option with the lowest NPC is assumed to yield the greatest financial benefits. According to Owen and Merna (1997), the VFM test has three stages of decisions and possible outcomes to be considered. First, decide whether to proceed with the project at all. Second, if it is decided to proceed, then decide

whether to use PPP or traditional procurement. Third, if PPP is chosen, decide on which private supplier is preferred to provide the service.

However, Broadbent *et al.* (2001) claim that this assessment of VFM is based on the assumption that there is a possibility of having public funds to spend for the provision of the public services. If that is not the case then a PSC may not be relevant. Grout (2001) also argues that the framework used to assess VFM is flawed as it does not compare like with like. His criticism is that:

'The fact that one is comparing a public sector comparator that measures the cost of buying assets, on the one hand, with a PFI contract that measures the cost of buying services, on the other, is like comparing apples with oranges'

Likewise, Froud and Shaoul (2001) identified four main limitations in the procedures for determining whether the projects demonstrate VFM. The limitations include poor quality of the information provided, problems facing the determination of the best option, risk transfer problems and lack of comparability between PSC and PPP option. Tanaka et al. (2005) reviewed the VFM assessment technique for PPP projects in the UK and revealed that the main shortcoming of the VFM technique is due to the lack of transparency towards the general public. Tanaka et al. (2005) therefore suggested that for the VFM technique that currently being used in the UK to be adopted by developing countries, some considerations need to be taking into account and the authors proposed a VFM risk assessment methodological approach.

Takim et al. (2009) investigated the PSC components used in assessing VFM of PPP projects by different countries (i.e. UK, Australia and Japan) and proposed a framework of VFM assessment for PPP projects in Malaysia which involved six processes that are key assessment criteria (affordability, risk sharing and competition) of VFM assessment; VFM assessment approach by using PSC; VFM appraisal by application of three tests (financial, qualitative and cost benefit analysis); VFM drivers; benefits; and barriers that could affect the VFM assessment process.

Besides using a PSC, in assessing for VFM, other non-financial criteria are also important and must be taken into account (Grimsey and Lewis, 2004 and Takim et al., 2009). Hall (1998) and Li et al. (2005) suggested that gain of VFM depends on the existence of a competitive bidding process. Moreover, as listed in the Guidelines for PPP implementation in Malaysia, VFM from PPP projects can be achieved through *'risk transfer which allocates risks optimally between the public and private sectors', 'long term nature of contracts', 'the use of output specification which allows bidders to innovate', 'competition that provides fair value of the project', 'performance-based payment mechanism',* and *'private sector management expertise and skills'* (Unit Kerjasama Awam Swasta, 2009).

Yuan et al. (2008) developed a conceptual model to identify the Key Performance Indicators (KPIs) in assessing PPP performance in terms of VFM achievement. The authors claimed that KPIs are useful tools for project performance management and performance measurement in identifying the strength and weakness of the projects and thus an appropriate decision can be adopted for improving efficiency, effective and economy, which ultimately provides VFM to both public and private sectors. The study identified a set of indicators from five attributes that are *'the physical characteristics of projects', 'financing and marketing', 'innovation and learning', 'stakeholders',* and *'process'*.

Cheung (2009) carried out a questionnaire survey to investigate the measures that enhance VFM in PPP projects in Hong Kong. The study identified eighteen VFM measures in PPP projects: *'competitive tender', 'efficient risk allocation (allocating the risk to the party best able to manage it)', 'risk transfer (transferring a substantial amount of risk from the public to the private)', 'output based specification', 'long-term nature of contracts', 'improved and additional facilities to the public sector', 'private management skill', 'private sector technical innovation', 'optimal use of assets/facility and project efficiency', 'early project service delivery', 'low project service delivery', 'low project life cycle cost', 'low shadow tariffs/tolls', 'level of tangible and intangible benefits to the users', 'environmental consideration', 'profitability to the private sector', 'off the public sector balance sheet treatment', 'reduction in disputes, claims and litigation',* and *'nature of financial innovation'*. The results revealed that the top three VFM measures for PPP projects in Hong Kong are *'efficient risk allocation (allocating the risk to the party best able to manage it)', 'output based specification',* and *'competitive tender'*.

Using the same questionnaire instrument, Cheung et al. (2009) examined the VFM factors for PPP projects in three countries that are Hong Kong, Australia and the United Kingdom. Despite differences in the ranking of the factors for each country, the study reported that *'efficient risk allocation'* and *'output based specification'* are two factors that were ranked high in all the three countries.

In another study, Asenova et al. (2010) analyzed factors that hamper the achievement of VFM and Best Value from Private Finance Initiative (PFI) procurement. Based on 68 interviews with

representatives of the main stakeholders involved in PFI procurement in the UK, the results found that there is considerable disagreement between public and private sectors with regard to the sources of and solutions for current difficulties. Public sector respondents viewed that PFI procurement has to be standardised further in order to become more cost effective and to allow for easier manageability in order to achieve better VFM. On the other hand, private sector respondents emphasised on the need for clients to adopt a commercial ethos and to acquire a greater degree of expertise with regard to managing market-based solutions.

More recently, Ismail et al. (2011) examined perception of various PPP stakeholders on the importance of the evaluation criteria for VFM evaluation of PPP bids in Malaysia. Using a postal questionnaire technique, the results revealed that six out of 20 criteria were perceived as 'very critical' in the evaluation of VFM of PPP bids. The criteria include *'optimum whole life cost', 'innovation', 'fit for purpose', 'comprehensive specification', 'compliance on time', and 'appropriate risk allocation'.* Motivated from prior studies particularly studies that researched on VFM of PPP projects in Malaysia (i.e. Ismail et al., 2011), this present study aims to extend the prior research by not only assessing the factors enhancing VFM in general, but also intends to examine the differences in the perceptions of the two key players (i.e. public and private sector parties) on the drivers for VFM of PPP implementation in Malaysia.

METHODOLOGY

Research Instrument

The research adopted with permission, the questionnaire survey by Cheung (2009). The questionnaire comprises 20 measures that enhance the achievement of VFM in PPP projects as shown in Table 1. The rationale for adopting similar measures to those used in prior studies, particularly by Cheung (2009), is that the measures identified have received recognition by the industry (Cheung et al, 2009).

TABLE 1 is about here

Sample and Collection Procedures

A total of 250 questionnaires were distributed to the participants of the national seminar on Malaysian PPP Framework organized by the Public Private Partnership Unit, which was held on 24th February 2011. The respondents were politely approached by the researcher to request for their participation in the survey. Each potential respondent received a cover letter and a copy of the questionnaire. The cover letter explained the purpose of the study and assured the confidentiality of answers given by respondents. It took respondents, on average, 10 minutes to complete the questionnaire. The completed questionnaires were collected at the end of the seminar. A total of 185 respondents completed the questionnaire; however, six questionnaires were excluded as they were incomplete. Hence, there were a total of 179 usable questionnaires representing a usable response rate of approximately 71.6 per cent.

Data Analysis

The data were analysed using the Statistical Package for the Social Sciences (SPSS) software. Basically, the descriptive statistic of mean score was computed for the five-point Likert scale on the importance of each of the 20 measures. Then, based on the mean scores, the VFM measures were ranked according to the importance, as perceived by the overall respondents, as well as by the public and private sectors group independently. An independent sample t-test was carried out to statistically examine the differences in the perceptions of the two respondents' groups. In comparing the importance of the top five VFM measures for PPP in Malaysia with other countries, the rankings of the similar success factors for Hong Kong, Australia and the United Kingdom obtained from Li (2003) and Cheung (2009) were tabulated. Additionally, the top five VFM measures for each of the three countries were also considered.

FINDINGS AND DISCUSSION

Demographic Information

The total number of respondents were 179, with 71 (39.7 per cent) engaged in the public sector and 108 (60.3 per cent) engaged in the private sector. Table 2 illustrates that there are respondents from different levels of the government (i.e. federal, state and local government) and private sector companies with various backgrounds (i.e. financier, facilities management and construction company). The majority of the respondents are either attached to the public sector at the federal level (59 respondents) or serving the construction companies (58 respondents). This result is expected as most of the PPP projects in Malaysia are initiated at the federal level and construction companies are normally the key players in setting up the special purpose vehicles for the PPP projects.

TABLE 2 is about here

TABLE 3 is about here

The questionnaire respondents comprised experienced practitioners from the industry. As shown in Table 3, 73 per cent of the respondents possessed more than five years of working experience with 20 percent of respondents having over twenty-one years of industrial experience. In addition, approximately 68 percent of the respondents have participated in PPP projects before, with 21 per cent of the total respondents having previously been involved with at least five PPP projects.

FINDINGS AND DISCUSSION

TABLE 4 illustrates the mean scores and the rank of the relative importance of each of the eighteen VFM measures based on the overall respondents, as well as based on sector (i.e. public and private sectors).

TABLE 4 is about here

The results indicate that all 20 VFM measures are perceived by respondents as either 'most important' or 'important' in PPP projects implementation since the mean scores for the factors range from 1.61 to 2.59.

Overall Respondents' Perceptions Concerning the Importance of VFM Measures in PPP Projects

Based on the overall respondents' results as shown in Table 4 , the top five most important factors that enhancing the achievement of VFM for PPP implementation in Malaysia, in descending order of importance are: *1) competitive tender; 2) private sector technical innovation; 3) optimal use of asset/facility and project efficiency; 4) efficiency risk allocation (allocating the risk to the party best able to manage it);* and *5) performance-based payment mechanism.* The two factors that were ranked as least important for VFM measures are *commissioning programme* and *reduction in disputes, claims and litigation.*

'Competitive tender' was ranked first by the overall respondents. The result is consistent to prior study by Ismail et al (2011) who claimed that in order to achieve the best VFM from PPP projects, the selection of the private sector contractor to implementation the PPP project should be based on competition. This is because, in a more competitive environment, the private sectors will take the necessary efforts to improve performance in every aspect of their involvement in a PPP project which consequently increase the VFM achievement from the project (Cheung (2009).

The second factor as ranked by the respondent is *'private sector technical innovation'.* The importance of this factor is reflected in the characteristics of a PPP project as outlined by Ball et al. (2001) and Turner & Townsend Management Solutions (2002), that the private sector company needs to adopt innovation in coming up with a PPP design that meets the public sector client's requirements which subsequently leads to VFM optimisation. Furthermore, Hall (1998) claimed that private sector companies inherently are more efficient and innovative which therefore their involvement in delivering public infrastructure via PPP will result in VFM.

The factor *'optimal use of asset/facility and project efficiency'* was ranked third by the respondents. In order to enhance VFM from PPP projects, the asset or facilities provided via PPP needs

to be optimally or efficiently used. The optimal use of the facilities may refer to renting of the facilities when it is not fully occupied for some other purposes which will generate additional income to the private sector provider who will then utilise the income to maintain and improve the facilities and services provided to the public. The more efficient the projects, the higher VFM will be attained (European Bank for Reconstruction and Development, 2008; Ongolo, 2006).

The factor *'efficiency risk allocation (allocating the risk to the party best able to manage it)'* was ranked fourth by the respondents. The relationship between risk and VFM is that as risks are transferred to the private sector, VFM may rise until it reaches the optimum level, where any further risk transfer might cause a fall in the VFM. This is because risk transfer becomes inefficient since the private sector may be unable to absorb risk properly (Forshaw, 1999). The essential of optimal risk allocation between private and public sectors in ensuring VFM has been emphasized by a number of prior studies including Arthur Andersen and Enterprise LSE (2000) and Checherita and Gifford (2007) who discovered that risk allocation is the most important driver for VFM achievement of PPP projects in the United Kingdom.

The fifth VFM measure as ranked by the respondents is *'performance-based payment mechanism'.* This refers to the payment to the private consortium which is based on the extent that the required service is delivered and the client's standard performance requirements are met (Ismail, 2011). This is crucial as it motivates the private sector to deliver their best service to ensure that they will receive the payment accordingly. Ultimately, greater VFM is achieved from the PPP project.

Perceptions of Public and Private Sector Respondents Concerning the Importance of VFM Measures in PPP Projects

As illustrated in Table 4, the top five most critical factors, as perceived by the respondents from the public sector are: 1) *competitive tender; 2) private sector technical innovation; 3) efficiency risk allocation (allocating the risk to the party best able to manage it); 4) optimal use of asset/facility and project efficiency;* and 5) *output based specification.* Whilst, for the private sector, the top five most important VFM measures are *1) private sector technical innovation; 2)optimal use of asset/facility and project efficiency; 3)competitive tender; 4) efficiency risk allocation (allocating the risk to the party best able to manage it);* and 5) *performance-based payment mechanism.*

Based on the mean scores, for all VFM factors the public sector respondents rated them as more important than the private sector respondents, except for one factor that is *'government support'.* Having a closer look at each of the factors, it does make sense that the respondents from government group rated them as more important as the factors refer to the unique characteristics of PPP which the government is looking forward to achieve which are not currently available using the traditional method of public procurement.

In further investigating the differences in the perceptions of the public and private sectors regarding the importance of each of the eighteen factors that increase the VFM of PPP implementation, an independent t-test was conducted; the results are tabulated in Table 5 below.

TABLE 5 is about here

Based on the results in Table 5, the findings indicate that there are significant differences in the perceptions of public and private sectors pertaining to most of the factors at the maximum of 10 per cent significant level, except for six factors: *'private management skill', 'low project life cycle cost', 'profitability to the private sector', 'nature of financial innovation', 'government support', 'performance-based payment mechanism',* and *'bidding cost'.*

IMPLICATIONS, LIMITATIONS AND CONCLUSION

The present study examined factors that increase the VFM of PPP implementation in Malaysia. Generally, the results indicate that all VFM measures were rated as either important or most important and based on the results from the total respondents. Factor in the top rankings include *competitive tender, private sector technical innovation, optimal use of asset/facility and project efficiency, efficiency risk allocation (allocating the risk to the party best able to manage it),* and *performance-based payment mechanism.*
From the analysis of ranking based on public and private sector groups, the results are mixed. While the majority of the VFM measures were ranked differently by the two sectors, there were a few factors of similar ranking for both groups. The VFM measures were also significant difference in the

perceptions of public and private sectors except for six factors: *'private management skill', 'low project life cycle cost', 'profitability to the private sector', 'nature of financial innovation', 'government support', 'performance-based payment mechanism',* and *'bidding cost'.*

The significant differences in the perceptions of the two parties for most of the factors imply that there is inconsistency in the understanding of each party on the key drivers that enhance VFM from a PPP project implementation. More importantly, the differences in the perceptions of the two parties might be due to the different in the interpretation of the meaning of VFM. In ensuring optimal VFM from PPP implementation, both parties (i.e public and private sector) should have common understanding on the concept of PPP and the key drivers for VFM. Therefore, in order to bridge the gaps in the understanding of PPP concepts relevant authorities may want to organize more workshops, seminars and training sessions for parties involved in implementing PPP projects.

There are several limitations inherent in this study that should be pointed out in order to ensure a fair interpretation of the results. One of the limitations is that given the unique characteristics of PPP of a country mainly adopting VFM of other countries may not provide the exclusive list of VFM drivers for PPP implementation in Malaysia. Therefore, in future study may want to consider other factors that are relevant in the context of Malaysia by interviewing PPP experts in Malaysia both from the public and the private sectors. Another limitation is that with the unique nature of individual PPP projects, using questionnaire to identify the VFM measures for PPP projects in general may not be the best method. Hence, future research may want to investigate the VFM measures for a particular PPP project from a specific sector using case study approach. Despite its limitations, this present study offers some insights and useful information to the government and the private sector providers on the key VFM drivers for PPP implentation in Malaysia.

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TABLE 1: List of the Measures that Enhance the Achievement of VFM in PPP Projects

No.	Measures
1	Competitive tender
2	Efficiency risk allocation (allocating the risk to the party best able to manage it)
3	Risk transfer (transferring a substantial amount of risk from the public to the private)
4	Output based specification
5	Long-term nature of contracts
6	Improved and additional facilities to the public sector
7	Private management skill
8	Private sector technical innovation
9	Optimal use of asset/facility and project efficiency
10	Early project service delivery
11	Low project life cycle cost
12	Environmental consideration
13	Profitability to the private sector
14	"Off the public sector balance sheet" treatment
15	Reduction in disputes, claims and litigation
16	Nature of financial innovation
17	Government support
18	Performance-based payment mechanism
19	Bidding cost
20	Commissioning programme

TABLE 2: Distribution of Respondents

Roles of Respondents	Frequency	Percentage (%)	Total		
			Sector	Frequency	Percentage
Federal Government	59	33			
State Government	5	2.8	Public sector	71	39.7
Local Government	7	3.9			
Financier	14	7.8			
Facilities management	36	20.1	Private sector	108	60.3
Construction company	58	32.4			
Total	**179**	**100**		**179**	**100**

TABLE 3: Characteristics of Respondents

Survey Respondents' Characteristics	Frequency	Percentage
Years of experience		
Less than 5 years	49	27.4
6-10 years	32	17.9
11-15 years	32	17.9
16-20 years	31	17.3
21 years above	35	19.6
Number of PPP projects		
None	57	31.8
1	36	20.1
2	31	17.3
3	12	6.7
4	5	2.8
5 and above	38	21.2

TABLE 4: Perception of Survey Respondents Concerning the Relative Importance of VFM Measures
in PPP Projects

No.	Measures	Public Sector		Private Sector		Overall	
		Mean	Rank	Mean	Rank	Mean	Rank
1	Competitive tender	1.61	1	1.86	3	1.76	1
2	Efficiency risk allocation (allocating the risk to the party best able to manage it)	1.63	3	1.88	4	1.78	4
3	Risk transfer (transferring a substantial amount of risk from the public to the private)	1.75	7	2.21	12	2.03	10
4	Output based specification	1.66	5	1.98	7	1.85	6
5	Long-term nature of contracts	1.87	10	2.19	11	2.06	11
6	Improved and additional facilities to the public sector	1.75	8	2.15	10	1.99	9
7	Private management skill	1.86	9	2.00	8	1.94	7
8	Private sector technical innovation	1.62	2	1.85	1	1.76	2
9	Optimal use of asset/facility and project efficiency	1.65	4	1.85	2	1.77	3
10	Early project service delivery	1.87	11	2.31	14	2.14	14
11	Low project life cycle cost	2.08	16	2.31	15	2.22	16
12	Environmental consideration	1.93	12	2.37	17	2.20	15
13	Profitability to the private sector	2.04	15	2.11	9	2.08	12
14	"Off the public sector balance sheet" treatment	2.13	19	2.55	19	2.38	18
15	Reduction in disputes, claims and litigation	2.23	20	2.59	20	2.45	20
16	Nature of financial innovation	1.99	13	2.21	13	2.12	13
17	Government support	2.01	14	1.94	6	1.97	8
18	Performance-based payment mechanism	1.68	6	1.89	5	1.80	5

19	Bidding cost	2.11	18	2.34	16	2.25	17
20	Commissioning programme	2.10	17	2.50	18	2.40	19

TABLE 5: Summary of the Independent *t*-test Results

No	VFM Measures	F	t	Significance
1	Competitive tender	0.036	-1.988	0.049**
2	Efficiency risk allocation (allocating the risk to the party best able to manage it)	0.268	-2.006	0.046**
3	Risk transfer (transferring a substantial amount of risk from the public to the private)	0.010	-3.653	0.000***
4	Output based specification	0.657	-2.442	0.016**
5	Long-term nature of contracts	0.265	-2.262	0.025**
6	Improved and additional facilities to the public sector	0.180	-3.319	0.001***
7	Private management skill	0.107	-1.211	0.228
8	Private sector technical innovation	0.232	-2.081	0.039**
9	Optimal use of asset/facility and project efficiency	1.387	1.917	0.057*
10	Early project service delivery	0.645	-3.191	0.002***
11	Low project life cycle cost	1.160	-1.591	0.113
12	Environmental consideration	0.312	-3.115	0.002***
13	Profitability to the private sector	0.097	0.535	0.593
14	"Off the public sector balance sheet" treatment	1.391	-2.997	0.003***
15	Reduction in disputes, claims and litigation	0.024	-2.619	0.010**
16	Nature of financial innovation	0.241	-1.797	0.740
17	Government support	1.943	0.481	0.631
18	Performance-based payment mechanism	0.829	-1.749	0.082*
19	Bidding cost	0.277	-1.596	0.112
20	Commissioning programme	0.023	-3.530	0.001***

***significant at 1% , **significant at 5%, *significant at 10%