CHAPTER ONE

INTRODUCTION

1.1 Introduction

The last two decades have witnessed a progressive growth in professional sports entertainment in Europe and football has gained impetus in most part of the world. Teams with immense economic potentials are found in America, United Kingdom and other European countries, but the English Premier League (EPL) is no doubt the most affluent league with many financially powerful clubs concentrated in the twenty-team league (Deloitte and Touché, 2008).

A critique of issues about measuring performance and efficiency of sports resource to justify ranking in the EPL is presented in this study. This thesis addressed the changing focus in football management and many unresolved questions relating to Performance and Efficiency Measurement (PEM) of a team-based organisation like a Football Club (FC). At a certain point, every organisation needs to evaluate its operation in accordance with its specific objectives to assess its performance; measure the efficiency of its operation and determine if there is any need for corrective actions. Performance and efficiency measures are tools that enhance our understanding of processes that lead to the achievement of specific goals. These tools assist in determining how well an organisation is doing, whether goals and objectives are met, whether owners and other stakeholders are satisfied and areas where improvements are necessary.

Evidence from English clubs in terms of performances at both National League and the European competitions between 2005 and 2016 might suggest that many questions such as whether league or national champion is usually the best club; if the league ranking considers efficient use of sports resource; if financial success always leads to sports success. Moreover, which stakeholder is the most important? These and many other questions have not been adequately resolved in relation to performance and efficiency measurement of EPL football clubs to justify clubs' ranking (Barros, Peypoch and Tainsky, 2014). Otherwise, English clubs probably could not have waited till 2018; since 2013 to progress to the last stages of the Champions League (UCL) like other clubs in other countries such as Spain, Italy and Germany. Managers who had won honours at National and European Leagues (Champions League,

Europa Cup and so on), have managed and still managing Premier League Clubs which reduced the focus of this study to the efficient use of sports resource and clubs' ranking.

Though indicators of performance and efficiency are easy to identify and measure in uni-variant operations using traditional accounting ratios but are more difficult when it involves multi-variant analysis (Cordero et al., 2015). While modelling football contest as a production process, empirical studies use Balance Score Card (BSC), logits and more recently Data Envelopment Analysis (DEA) as tools capable of analysing operations involving multiple inputs and outputs to carry out performance analysis and evaluation (Kadarova, Mihok and Turisova, 2013). Gonzalez-Gomez and Picazo-Tadeo, (2010); Rosca, (2011) and Kern, Schwarzmann and Wiedenegger, (2012) opined that the process of converting individual talents into team wins could be described as a production process. Sports resources (playing talents, wages & salaries and other tangible assets) are converted into outputs (wins, turnovers, points and so on). Thus, presenting several performance indicators from which analysts and researchers chose to suit the objectives of their studies and thereby made performance assessments and comparisons among such organisations difficult. Adopting holistic performance indicators as suggested by Substance, (2010) and experimented by Plumley, Wilson and Ramchandani, (2014) investigated the extent to which efficient use of sports resource influences financial, sportive and social or community value of football clubs and its implication on assessing clubs' performances for ranking.

A more holistic assessment of performance and efficiency of football clubs that featured on EPL between 2004/05 and 2015/16 was analysed in this study using a multifaceted approach. The approach employed both qualitative and quantitative methods to incorporate the views of the nexus of stakeholders while measuring clubs' Efficiency Scores (ES), compares ES with the EPL ranking to assess their level of correlation, identifies efficient clubs and where necessary recommend improvement measures for the inefficient clubs. The period 2004/05 to 2015/16 had been selected in the case study chapter being the period of *changing-focus* in football management in England.

This chapter provides the background and significance of the study with a view to establishing gaps in the existing literature and sets out the research problems which the study addresses. It

explains the research methodology and framework adopted to investigate, analyse and interpret performance and efficiency of EPL football clubs for ranking and management purposes. The chapter then enumerates the contributions to the existing knowledge and concludes with a summary of the chapter.

1.2 Background and Significance of the Study

Sports performance can better be understood when expressed in terms of resource used. However, the effects of change in football managerial focus might have affected pitch performance as noticed especially on the performances of English teams in the European competitions between 2004/05 and 2015/16 seasons. Existing studies show that increasing use of organisational measurement systems is changing the way managers run their companies (Lacerda, Ensslin and Ensslin, 2014). The effect of World Economic Forum on Digital Transformation of Industries: Media, Entertainment and Information of January 2016 could also be observed on the performance and efficiency of football clubs (Lardo et al., 2017). What used to be a traditional entertainment organisation has moved towards business orientation and value creation. For example, before 2013, say between 2007 and 2009, when English clubs' dominant on UEFA Champions competition was at its best. The Premier League had 75% (9 out of 12) of the semi-finalists, 67% (4 out of 6) of the finalist, 100% (3 out of 3) of the runners-up and only 33% (1 out of 3) of the winners (Manchester United in 2008). At its peak in 2008, none of the four English clubs representing England was eliminated by any other club except another English club (Uefa.com, 2013).

To this extent, the focus has been on the traditional entertainment. Evidence from the relatively slight increase in turnover (about £630m) between 2001 and 2011 compared to the increase of over £1.3bn between 2011 and 2013 (Premierleague.com, 2017) confirms that traditional entertainment has begun to fade away and business orientation and value creation gradually gaining ground. Hence, the English clubs' dominants could not last between 2010 and 2013 as the Premier League only managed two semi-finalists, i.e. Manchester United in 2011 and Chelsea FC in 2012. Eventually, Manchester United was the runner-up in 2011 and Chelsea won the championship in 2012.

By 2013 changing focus became conspicuous on the performances of the English clubs, no English Premier League club reached the last eight of UEFA Champion's League for the first time since 1996; when EPL was entitled to one representative compared to four today. Though Manchester United, Arsenal and the duo of Manchester City and Leicester City were the English clubs that made it to the last 16 since 2013, only Leicester City in 2017 made it to the last eight since 2013. Chelsea became the first defending champion to be eliminated at the group stage; being third in the group could only earn Chelsea qualification for Europa League which it eventually won in 2013. One might assert that the traditional entertainment has finally been buried beneath business orientation and value creation considering about £500m increase in EPL's turnover in 2014 alone, bringing it to £3bn at the end of 2013/14 season.

EPL clubs enjoy a dominant position in the global market for football talents (Barros and Leach, 2006a). Thus, the EPL is tagged *a transnational football league* because of increasing global mobility of overseas players, managers and coaches attracted to this lucrative transnational space (Millward, 2013). Going by the Premier League's Television (TV) deal which hit a record of £3bn in 2013/14 season and over the next three years, about 71% increase from a previous year. Why most world football players aspire to play in EPL could not be far-fetched as it has the most lucrative TV broadcasting deal and consequently positioned itself as the *global market* for the world-class football talents than any other league in the world **(**Hamil and Walters, 2010).

However, a detailed projection made by English clubs for the 2016/17 season highlights what English football clubs set to enjoy in terms of cash injections. Clubs that previously received about £60.9 million from TV revenue and the Premier League's central commercial contract now receive almost £96m commencing 2016/17 season. EPL champions receive around £37.75m for finishing first; an increase from last season's £24.9m while the club finishing 20th earns approximately £14m with each place above worth an additional £1.25m (Olley, 2016). These confirm that the industry has been fully commercialised. The qualification for UEFA Champions' League and other European competitions that used to be the focus of many EPL clubs have changed since 2013. These could necessitate an investigation into the process of selecting clubs that represent England and other supposed cause(s) of poor performances which might not be unconnected to clubs' business orientations in the recent times. Perhaps, its recent

commercialisation resulting from the change in managerial focus might have affected sports performance.

Millward, (2013) argued that the business principles that the new directors brought to football have not extended to a lowering of players' wages, which have continued to grow beyond increases in revenues flowing into football. Therefore, one might conclude that today's commercialisation of football clubs; which arises from its business orientation and the value creation management perspectives have great implications for sports performance and efficient use of clubs' resource. Thus, made the evaluation of performance and efficiency of football clubs more difficult. The connection between escalated elite players' wages and clubs running on debt capital made the then UK's minister for sport; Hugh Robertson, to announce that *without a shadow of a doubt, football is the worst-governed sport in the country* (Gibson, 2011). Likewise, Bose, (2010) opined that had *normal* business practices applied, most EPL clubs would be technically insolvent.

The concern is that, should this change in managerial focus continues, traditional football entertainment might be a forgotten issue and commercialisation becomes the order of the day. Theoretically, this may gradually intensify poor sports performance of English clubs in both national and international competitions thus, deprive the EPL of its current entitlement of four representatives in the Champions' League; some slots, it has been enjoying since 2005. Fourth place in the table is awarded three Champions' League slots and Italy is mightily close to overtaking England, who dropped to third place in UEFA's rankings in 2014/15 season (Tweedale, 2015). The recent trend in sports management especially football as evidenced by EPL clubs might necessitate a change or improvements on the current EPL performance measurement system which determines the four clubs to represent England in the UEFA Champions' League or to refocus the activities of football clubs and its management. Therefore, the current study is more relevant to this period.

Prominent studies on sports performance of football clubs have argued that football club pursuit both sporting and financial objectives (Carlsson-Wall, Kraus and Messner, 2016); Sports managers and Football Clubs (FCs) are believing to be profit maximisers (Barros and Leach, 2006a; Oberstone, 2009). These studies argue that professional sports are profit-driven

institutions in an intensely competitive entertainment. Gonzalez-Gomez and Picazo-Tadeo, (2010) while modelling football contest as a production process, opine that football clubs create values measured by the differences in fans' expectations at the beginning and end of the season. Kern, Schwarzmann and Wiedenegger, (2012) on the other hand postulated that the act of converting players' talents into team wins might be considered a production process in which the inputs; players' athletic skills contribute the club's winning strategy. One could, therefore, conclude that performance and efficiency of football clubs depend on the availability and use of clubs' resource (Financial and Human), including managers' skills or experience; as demonstrated in the transfer market patronage and the quality of playing talents acquired and the impact of the game on society.

Many studies in extant literature adopted different and specific objectives to assess FC operations. These include the works of Dimitropoulor, (2010); Guzman, (2010); Carmichael, McHale and Dennis, (2011); Soleimani-Damaneh, Hamidi and Sajadi, (2011); Kern, Schwarzmann and Wiedenegger, (2012); Kulikova and Goshunova, (2013); Rossi, Thrassou and Vrontis, (2013); Barros, Peypoch and Tainsky, (2014); Liu et al., (2015) and Zambom-Farraresi et al., (2015). The studies measure clubs' performance and efficiency from different perspectives depend on their specific objectives. It could be inferred that the existing studies have so far agreed that sports managers jointly maximise profit and create utility (sportive performance). Hence they seem to have seen performance as the extent to which pre-set objectives are achieved. However, they do not consider the efficiency of the process of achieving these objectives in terms of resource utilisation and the contributions of the fans, the sponsors and other stakeholders in the local communities. These may mean relating values alleged to have been created by football clubs (Gonzalez-Gomez and Picazo-Tadeo, 2010) in their production process to how these groups of stakeholders' view clubs' performance and how they impact on clubs' performances.

Though EPL may be adjudged as having clubs with immense economic power whose turnover has persistently been increasing from £570m in 2001/02 season to about £1.202bn at the end of 2010/11 league season and by 2012/13 season it stood at an unrivalled £2.525bn (Premierleague.com, 2017). Clubs in football industry are constituted as limited liability companies and thus operate within the same legal or corporate governance framework as other

entities in the world commerce. Nevertheless, football clubs are unique businesses, sometimes driven by emotion devoid of business logic. Usually, a healthy relationship does exist between the club and stakeholders like its *fan base* and community, which are represented by loyalty, identity and belonging. These relationships can have effects on the business or managerial behaviour which may lead to a conflict of objectives, for example, the financial success of the club as a business, its' *on-the-pitch* success and the social benefits expected by the community. These factors are expected to impact differently on clubs' performance and ranking, thus, the problem faced when assessing the performance of these unusual businesses in today's world commerce. However, Substance, (2010) argued that football clubs should not be assessed on pitch and balance sheet performances alone and that the impact of the game on local community need be included. He, therefore, suggests holistic performance indicators that include measures of clubs' social objectives. Thus, the current study adopts overall performance measure combining entertainment, value creation and business orientation of clubs' management rather than performance based on a specific objective.

Meanwhile, how to measure or account for the social and community value of football remain an issue in clubs' performance management and efficiency measurements. Substance, (2010) affirms that clubs' involvement in Corporate Social Responsibilities (CSR) might be a yardstick for assessing social performance by the community. Substance proposed the need to assess football impact on the local communities in a more holistic way rather than performance on the pitch and the balance sheet alone. Hence, Mackenzie and Cushion, (2013) opined that future research should pay attention to the social and cultural influences that impact football performance analysis delivery. Thus, CSR is adopted as a measure of clubs' social objective in this study.

Considering the nexus of stakeholders; how to align their various interests when evaluating performance constitute a problem. Thus, a univariate measure like the traditional accounting ratio may be inappropriate to measure the performance and efficiency of a multivariate operation like football clubs. The ways these groups of stakeholders perceive clubs' performance and their assessments of football clubs' performance have not been properly documented. How to incorporate stakeholders' views in the decision process to improve the performance of football clubs remain an issue in today's football management. The focus on

stakeholders' accountability to enhance the mechanism for evaluating performance and efficiency of football clubs forms the stimulant to undertaking this study using a mixed methodology with theoretical underpinning. Substance, (2010) declared that stakeholders' voices were never heard when making decisions and suggested that further research on how to align various stakeholders' interests when evaluating performance and efficiency of a football club is necessary. Thus, the reason for expressing the concern of stakeholders in this study.

Assessing the holistic performance of football clubs rather than efficiency based on the specific objective of the clubs could arguably consider how different stakeholders, some of which are neither interested in clubs' financial nor sports success (Sponsors, local community and regulatory authorities). Perhaps they are interested in how performances of these clubs could impact on the achievement of their own goals. Sponsors may be interested in how clubs' performances increase their share of market and profitability (Naidenova, Parshakov and Chmykhov, 2016). Communities, on the other hand, might be interested in what the football clubs would give back to the community in which they operate in return for fans loyalty and patronage. Substance, (2010) asserted that it would have been useful to have obtained further views from different individuals to gain more insight and idea on resource intensive and impacts of a participatory approach to CSR programmes on the assessment of football clubs' performance. This study, therefore, considered the impact of social and community value of football as expressed by various groups of stakeholders in terms of CSR on their assessments of clubs' performance.

However, the growing popularity of football industry and the volume of resource invested (financial and otherwise) may mean that the economic survival of football clubs has become increasingly important which might have responsible for the new orientation towards engaging more commercial activities. Today, football has been globally commercialised; a phenomenon likely to force football clubs to be mindful of prices paid to acquire playing talents (make or buy decision), improve revenue drive from sports and commercial activities and how they manage their resources (Van den Berg, 2011). Although football is ubiquitous, it is an economic empire in England (Oberstone, 2011). Playing in the EPL seems to be the ultimate aspiration of most world football players. They believe that EPL has high sporting qualities, the most lucrative business and sponsorship deals, high league revenue turnover, high resource utilisation

capacity, increasing TV rights and the most followed national football league in the world (Deloitte and Touché, 2015). These factors might have responsible for the aspiration to play in the EPL.

Arguably, EPL could be referred to as one of the national leagues with high wages and salaries payout to football players, the highest quality league in Europe in terms of the quality of football and the most excitingly attractive in terms of the number of celebrity players worldwide (Oberstone, 2011). Hence it may be fair to refer to England as a place of pilgrimage for football talents. Millward, (2013) declared that at the start of 2011/2012 season, over half of the EPL member clubs have significant shareholders from overseas. While focusing on the EPL football clubs during the period researched, this study examines the impact of football managerial transformation on sports performance in recent times. It suffices to suggest that the current EPL ranking system which selects football clubs to represent England in international competitions might need to revisit its assessment/selection criteria. Perhaps, there could be alternative performance and efficiency evaluation model to improve club performances in the national league and the international competitions. This study, therefore, investigates whether there is any relationship between the EPL ranking system and the overall performance measured by efficiency scores.

To the best of the researcher's knowledge, this study is the second in recent time to have used a broader time horizon (12 seasons) on EPL after Gerrard, (2010) evaluated efficiency and performance of EPL football clubs up to 2007 with data from 12 seasons. Recently, Carmichael, Thomas and Rossi, (2014) also estimated Italian League production function and the relative efficiency of its clubs using data from 10 seasons (2000-2010) but not EPL. Hence, only Gerrard, (2010) has ever analysed the sporting efficiency of EPL clubs for 12 seasons using simple, standardised Win-Cost methodology. However, things had changed from what it used to be in 2007 when Gerrard investigated EPL. For example, he submitted that there are five tiers of clubs on EPL with clubs like Arsenal, Chelsea, Liverpool and Manchester United (The Big Four) in tier 1 while those in tier 2 according to Gerrard have continuous participation in the premier league. These teams include Aston Villa, Everton, Newcastle United and Tottenham Hotspur. Other tiers identified include those with up to 75% Premier league participation (Tier 3), those with up to 50% Premier league participation (Tier 4) and teams with up to 25%

participation on Premier league (Tier 5). Surprisingly, Manchester City with 80% (20 out of 25) participation on EPL since inception was classified as a tier 4 team which reflected the state of performance on EPL as at 2007. Therefore, to offer more conclusive policy prescriptions and better managerial policies, Kern, Schwarzmann and Wiedenegger, (2012) and Barros, Peypoch and Tainsky, (2014) suggested the use of large dataset. Thus, motivated this empirical study to investigate what might have changed after Gerrard, (2010) analysed the performance and efficiency of EPL football clubs reflecting the state of art of English football as at 2007.

Kulikova and Goshunova, (2014) examined how players' registration, club size and capital structure influence efficiency of football clubs. Although they found that player's registration influenced the efficiency of football clubs and agreed that player's registration is not as crucial as the club size and its capital structure. They, however, submitted that absolute efficiency is not the privilege of the football giants like Manchester United, Chelsea, Liverpool and Arsenal. They opine that maximising revenue and ranking in the national championship is driven by the size of the club and that many big football clubs that lead national championships are said to be economically inefficient. It, therefore, necessary to examine the trade-off between clubs' financial success and sports success; thereby confirm or refute the assertion that leading football national champions are economically inefficient.

The conventionalised facts observed on the EPL where some clubs spend heavily with the intention to realise sporting success, but ultimately failed and others spend moderately to attain sporting success triggers an investigation into what might probably be the cause and why some clubs are efficient and others are not. Could it be the result of differences in playing talents; coaching experience; uneven playing field or environmental factors such as the population of *fan base* or what? Also, it could be argued that failure to attain sporting success by heavily spent clubs might be because of technical inefficiency due to lack of appropriate knowledge as to whom to buy or may require a superior managerial capability to blend and utilise players more efficiently to attain sporting success.

While analysing the correlation between EPL clubs' ranking and efficiency scores, Haas, (2003a) submitted that clubs' ranking is not significantly correlated to efficiency scores and that inefficient operation is the main reason for overall inefficiencies. Recently, Zambom-Ferraresi

et al., (2015) confirmed the existence of a correlation between the efficiency scores and club rankings, they declare that in some cases clubs might achieve good sports results but waste resources. Considering the current performance of English football clubs; the need for knowledge on how efficient a club uses its resources is important to evaluate clubs' sports performance (Zambom-Ferraresi et al., 2015).

Guzman and Morrow, (2007) applied DEA-Canonical Correlation Analysis to evaluate the performance of English Premier League clubs for six seasons (1997/98 to 2002/03). They found clubs' performances deteriorating over the period. However, they concluded that clubs performed near efficiency frontier but exhibited limited technological progress. Since their study and few others do not support the inclusion of Director's remuneration as a variable, therefore, they argue that it could not be ascertained to be meant for football related activity alone. This study believes that Director's boardroom decision on playing talents to buy or sell at transfer market; whom to employ as coach; budgeting policies and so on could impact on the overall team performance. It, therefore, seeks to establish factors considered by EPL in evaluating clubs' performance and whether EPL ranking evaluates clubs' aggregate efficiency.

Many studies have evaluated performance in professional team sports such as baseball, basketball and even football through different approaches. Each approach gives a different perspective of the attribute that defines *efficient* performance (Guzman and Morrow, 2007). A good performance measurement system could be argued not only to give an accurate assessment of how well a firm, club or organisation performs but also provides information on how operations can be improved. Information on how factor inputs (resources) are linked to the resultant (outputs or services) is used to identify what drives results (Guzman, 2006).

The quest for a reliable and effective measure of performance and efficiency of football clubs, the availability of unambiguous and trustworthy data concerning sporting success, coupled with the fact that financial success is embedded in the clubs' balance sheet motivated this empirical study to investigate what might have changed since 2007 that Gerrard analysed the performance and efficiency of EPL. Szymanski, (2010) asserted that pitch success entails financial success; Kulikova and Goshunova, (2013) submitted that financial efficiency of the football clubs depend mainly on the sports efficiency. It, therefore, worth investigating if pitch success always

translates into financial success (Barros and Leach, 2006a). Whether differences in team performance is because of managers' technical inefficiency and if there is any correlation between efficiency score and the ranking of football clubs on English Premier League (Zambom-Ferraresi et al., 2015).

To justify or refute the present *reward system* adopted by the Football Association (FA) as a performance management strategy based on points attained (sporting success) and to make contributions to the existing knowledge in the areas of performance and efficiency of EPL football clubs, this study applies a large dataset of 12 years up to 2015/16 season to verify the findings of the previous studies. Currently, EPL rewards performers by presenting them for international competition and punishes the weaker teams or less effective clubs with relegation to the lower and less lucrative league.

While contributing to efficiency and performance literature, this study used Data Envelopment Analysis (DEA) which has been applied theoretically and empirically for evaluating and comparing performance and efficiency of football teams. However, this study is distinct in the combination of DEA with Naturalistic Approach (NA) thereby seeks the views of the participants to triangulate the results of DEA on English Premier Football clubs between 2004/05 to 2015/16 season, in relation to their objectives. Remarkably, the 20-team league continues to attract high income and extensive interest from the academic community, which is why EPL is the case study here.

1.3 Research Questions

Apart from Gerrard, (2010) that grouped EPL football clubs into Tiers and named Arsenal, Chelsea, Liverpool and Manchester United as the *Big Four* in Tier 1, his study and others refuse to identify the most efficient club(s) on EPL for their respective research periods. Looking at the performance of EPL clubs in European competitions in recent times, no previous study investigates the reason for the deteriorating performance of English clubs in international competitions like UEFA Champions league. Perhaps, the efficiency or the effectiveness of the selection process which picked the clubs to represent England in European competition needs proper attention to reflect recent transformations within football industry. Performance and efficiency of professional team sports have attracted lots of empirical studies in recent times.

For example, Barros, Peypoch and Tainsky, (2014); Kulikova and Goshunova, (2014); Carmicheal, Thomas and Rossi, (2014); Liu et al. (2015), Barros, Figueiredo and Dumbo, (2015) and Zambom-Ferraresi et al., (2015). A review of these literature suggest that effects of heterogeneity on clubs' performance need be investigated (Barros, Figueiredo and Dumbo, 2015). Zambom-Ferraresi et al., (2015) though submitted that it was impossible for any football club to maintain technical efficiency (TE) for the duration of their study. They, however, suggest that the focus of future research need be directed at whether clubs could maintain TE over a relatively large period which this study is investigating with EPL clubs for the period of 12 seasons.

Thus, the principal research question of how to assess a more holistic performance and efficiency score in a team-based organisation like Football Club has raised a few related sub-questions as follows:

i. Which EPL club(s) could be regarded as the most efficient using the research methodology?

ii. To what extent does EPL ranking evaluate efficient performance and what factors responsible for such outcomes?

ii. Could it be argued that the existing methodologies in ranking EPL football clubs need modifications to align with the recent transformation in managerial focus within football industry?

iv. How does the social value of football clubs' impact on the stakeholders' assessments of clubs' performance and efficiency?

v. How can the current method of assessing teams' performance be improved?

1.4 Research Aim and Specific Objectives

The aim of this research work is to provide possible solutions to the research questions such as how clubs are evaluated for ranking on EPL, factors affecting sports performances of EPL clubs and what could be done to improve the present performance and efficiency of EPL clubs. In the process of finding adequate answers to these research problems, the study focused on the following specific objectives:

i. To identify efficient football clubs and deduce how efficient clubs utilise their inputs to produce effective outcomes.
ii. To evaluate the effects of management policies on overall performance using both quantitative and qualitative data.
iii. To investigate how football stakeholders evaluate the performance and efficiency of their clubs.
iv. To explore how EPL clubs are ranked and thus identify factors that contribute to effective club performance.

1.5 Methodology

Existing studies on modelling football production process have assessed performance and efficiency of football clubs with the two known methodologies in literature. These include the parametric or econometric Stochastic Frontier Analysis (SFA) (Aglietta, Andreff and Drut, 2010; Carmichael, McHale and Dennis, 2011; Kokolakakis, Lera-Lopez and Panagouleas, 2012; Barros, Peypoch and Tainsky, 2014). The deterministic or non-parametric frontier methodology of which Data Envelopment Analysis (DEA) is the most popular (Espitia-Escuer and Garcia-Cebrian, 2010; Collier, Johnson and Ruggiero, 2011; Torres-Davila and Garcia-Cebrian, 2012; Halkos and Tzeremes, 2013 and Zambom-Ferraresi et al., 2015). These studies applied different variations or combinations of methodologies to produce quantifiable facts, none seems to consider integrating the views of social actors (nexus of stakeholders) using Naturalistic Approach (NA) either by itself or with other methodology to enhance research validation and generalisation on how the nexus of stakeholders perceive clubs' performance and efficiency. This study, therefore, adopted a mixed methodological approach combining both qualitative and quantitative methods in an evaluative case study research, triangulating DEA with text analysis in NVivo using NA as suggested by Paradi and Zhu, (2013) and Substance, (2010). The inclusion of non-playing staff in Haas, (2003a) showed that management and other ground staffs have impacts on overall performance, the study, however, used proxy measures for playing talents which undermined the validity of the study. Perhaps, the use of naturalistic approach might alleviate this limitation and validate or refute the submission that absolute efficiency is not the privilege of the football giants (Kulikova and Goshunova, 2014) and that board decision greatly impacts on performance.

While analysing the economic efficiency of football clubs, Barros, Peypoch and Tainsky, (2014) emphasised the need for a larger dataset to offer a more conclusive policy prescription for football management. They submitted that additional research is needed with a large dataset to confirm the findings of the previous studies including theirs, as well as to clarify efficiency as related to team-based organisations. They concluded that future research on sports league like EPL should consider the presence of heterogeneity; which might be explained in terms of club location; clubs' specific objective; unequal resource (some owned stadium) and so on. Perhaps the use of more recent datasets (12 seasons of EPL) could enhance the quality and validity of the research in the current field as suggested by (Oberstone, 2009; Kern, Schwarzmann and Wiedenegger, 2012 and Barros, Peypoch and Tainsky, 2014). This study has taken up this challenge to build on the assertions of Mackenzie and Cushion, (2013). They opine that a widening of data collection approach to include more naturalistic and qualitative methods such as case studies, ethnography, interviews and mixed methods approaches may be beneficial in developing new knowledge and understanding of football performance and efficiency measure.

Though in-depth description and justification for the chosen research methodology are discussed later in this thesis, the topic of the investigation and research problems to be solved dictate the research methodology and approach selected. The urge to contribute to the developing nature of research in sports performance and efficiency field provoked the current study to be mostly exploratory, dictating a case study approach as being appropriate (Nelson and Groom, 2011). A case study approach is particularly necessary given the complexity and the dynamic nature of variables (inputs and outputs) analysed. Therefore, central to this study is a naturalistic method of enquiry (e.g. case study application, questionnaire/mini-interview, observation) which encourages obtaining first-hand knowledge of the subject under investigation.

1.5.1 Approach

This study adopted a research approach that combined a case study analysis with a survey using questionnaire/mini-interview. A case study of EPL is used to develop analytical generalizability about professional football leagues comparing the present ranking system with the efficiency scores calculated using an appropriate analytical tool. Given the exploratory nature of this

research and lack of consensus in the existing literature over the choice of inputs and outputs to be considered in measuring club performance and efficiency, both case study and survey analysis were used as data collection techniques during the study.

Studies like Carmichael, McHale and Dennis, (2011); Soleimani-Damaneh, Hamidi and Sajadi, (2011); Halkos and Tzeremes, (2011); Kulikova and Goshunava, (2014) and Zambom-Ferraresi et al., (2015) considered variables such as wages and salaries, turnover, points per league and total attendance among others. On the other hand, Aglietta, Andreff and Drut, (2010); Baur and Mckeating, (2009); Barros, Assaf and De Araujo, (2011); Barros, Peypoch and Tainsky, (2014) and Beck and Meyer, (2012) are among the studies that used variables like TV right revenue, league ranking, hometown population, points per game, size of the club, size of the league and host of others. One may conclude that previous studies have selected variables based on what they supposed was the objective of the entity whose performance and efficiency is to be measured. While some studies looked at either *financial success* (Barros, Peypoch and Tainsky, 2014) or *sportive success* (Zambom-Ferraresi et al., 2015) of football clubs', others considered both objectives (Kokolakakis, Lera-Lopez and Panagouleas, 2012) and this dictates their research variables.

This study, like previous ones, adopts inputs and outputs as the research variables but move a step further by involving the nexus of stakeholders to validate the research variables. The input variables consider are the total wages and salaries, assets consumed (comprises of depreciation on fixed assets, players' amortisation and other impairments) and number of the employees. Variables that measure the outputs are turnover, points attained per season and the Games' Rate of Attraction (GROA).

While variables such as wages and salaries, assets consumed and turnover are indicators of financial objectives, points attained per season and the number of employees measure the sportive objective. The games' rate of attraction; an indicator of social value from the fans point of view, measures the rate at which fans are attracted to football match either being physically present at games venue or attracted to any form of media in which the match is relayed. Both assets consumed and game's rates of attractions are variables introduced by this study to mitigate the effect of heterogeneity on performance among EPL clubs.

1.5.2 Data Source

While estimating the efficiency scores and assessing the performance of EPL clubs, this research adopted the use of a panel data on EPL (The focus of the study) over twelve seasons between 2005 and 2016 as obtained from Barclays Premier league site https://www.premierleague.com/tables, Orbits and Econlits databases. It is necessary to mention that the research gathered the data for all clubs that participated in EPL (i.e. 20 clubs each season) for the periods analysed and due to the promotion and relegation system of the FA, it yielded an unbalanced panel dataset. Data gathered from these sources were tagged as secondary data which this study collected, collated and analysed in chapter six to solve some of the research problems.

The primary data were sourced using survey techniques. These include the use of questionnaire or mini-interview individually carried out among the different stakeholders as the fundamental technique to gather qualitative exploratory data that supplements documentary evidence. Since the study assesses overall performance and efficiency rather than specific financial or sports success, both quantitative and qualitative data became relevant to analyse the research problems effectively.

A case study methodology seems appropriate based on interpretive epistemological stance, recognising the human role and social constructs of knowledge (Ahamat and Chong, 2015). The approach equally considers the shortcomings of a positivist position, where an objective and mechanistic event-based approach does not allow for complex stakeholders' interaction embedded in this research topic (Tsang, 2013).

1.5.3 Dataset

A population of 240 Decision-Making Units (DMUs) consisting of 37 EPL Clubs; whose financial statements were examined to obtain both quantitative and qualitative data within the research period.

Other research instruments from which data were sourced include articles in academic journals, textbooks, newspaper, television, internet and other databases such as Orbits and Econlits.

Primary data were obtained through a survey using semi-structured questionnaires or mini-interviews among nexus of stakeholders.

The secondary data were sourced from published Annual Financial Report of English Premier Football Clubs, Articles in journals, Textbooks and other publications from newspaper, television and internet (Orbits and Econlits databases). It includes 'statista'; a statistics portal where total population of the United Kingdom (UK) from 2004 to 2015 were sourced. The chapter on methodology throws more lights on various sources of data used in this research.

Meanwhile, this study adopts an Analytical Hierarchy Process (AHP) to facilitate the choice of variables to be included in the research, structure the research variables into a hierarchy, prioritise the variables using pair-wise comparison matrix and determine the overall value for ranking the variables as in Soleimani-Damaneh, Hamidi and Sajadi, (2011).

As established in the existing literature, the two variables considered in this study are the inputs and the outputs. These variables are readily adapted to evaluate the efficiency of resource utilisation within football industry and thus measures the performance of football clubs in the English Premier League.

1.5.4 Data Analysis

An iterative theory building approach is used in analysing existing literature and the empirical data, which allows for the conceptual contribution of the work. The approach, therefore, combine both inductive and deductive research approaches otherwise referred to as *abductive* approach (Eaves and Walton, 2013), emphasising systematic combinations of theories and empirical data. As part of the abductive approach, this study adopted discourse analysis in NVivo to analyse the qualitative data gathered through a survey. A key part of the methodology is the use of data triangulation to ensure reliability and validity of the research.

Data Envelopment Analysis (DEA) - a non-parametric approach to measuring performance based on mathematical programming that uses observed data on inputs and outputs of decision-making units. The DEA is used to calculate efficiency scores where the analysis involves multiple inputs and outputs and to enhance the robustness of this method, DEA is combined with the naturalistic approach as a triangulation method.

Although alternative techniques such as Econometric Analysis and Stochastic Frontier Analysis (SFA) could be used, DEA's distinct advantage lies in the ability to accommodate a multiplicity of inputs and outputs, filters data` and allows the researcher to make units active or inactive in the analysis. DEA provides improvement recommendations for inefficient units relative to the efficient ones. Hence, it ensures smooth experimentation with units and variables (inputs or outputs) in the analysis. Though model specification and inclusion/exclusion of variables in DEA may affect the efficiency results (Berg, 2010), DEA frontier analyst indicates how resources can be re-allocated more effectively to improve or increase efficiency which is why DEA is more appropriate for this study. SFA uses the tools and concept of regression analysis, e.g. Barros, Assaf and Sa-Earp, (2009); McNamara, Peck and Sasson, (2011); Beck and Meyer, (2012) and Belotti et al., (2013). While DEA builds on the axiomatic properties and techniques of mathematical programming (Alirezaee and Boloori, 2012; Kuosmanen and Johnson, 2017).

DEA in its various modifications has been used extensively in measuring performance and efficiency of sports teams. These include DEA bootstrapping methodology as in Barros, Assaf and Sa-Earp, (2010); Barros and Garcia-del-barrio, (2011); Halkos and Tzeremes, (2013); Zambom-Ferraresi et al., (2015) and Zambom-Ferraresi et al., (2017). Some studies sometimes combine DEA with correlation or regression analysis, e.g. Guzman and Morrow, (2007); Barros and Garcia-del-Barrio, (2008). Malmquist index (Barros and Douvis, 2009), Analytical Hierarchy Process (Soleimani-Damaneh, Hamidi and Sajadi, 2011) and host of other methods including traditional accounting ratios (Kulikova and Goshunova, 2014). To the best of the researcher's knowledge, no study on sports performance has ever combined DEA with a naturalistic approach using a survey like a questionnaire or an interview as a triangulation method to validate the finding of DEA methodology, which is one area that differentiates the present study from the existing ones.

Guzman and Morrow, (2007) while measuring efficiency and productivity in professional football teams; evidence from the EPL for six seasons between 1998 and 2003 suggested that further DEA models that simultaneously consider different economic and technical variables may better evaluate the performance of professional football clubs. Unlike previous studies that used traditional DEA, the current study uses the modified DEA software (Version 4.2.0) which

incorporates extra features like correlation, regression analysis and filters that allow more experimentation with the research variables.

1.6 The Contributions to the Existing Knowledge

It is significant to mention that this research provided specific indicators of performance evaluation for the football league and other team sports, thus, contribute to the issues pertinent to performance and efficiency measurements of the football clubs.

The study also made some timely conceptual contributions to the literature by providing a broad theoretical understanding of sports holistic performance and efficiency measure which integrates football social and community values with both on the pitch and balance sheet performances for effective sports management and efficient ranking. The researcher believes that the findings therein are likely to enhance the empirical understanding of football performance in relation to its success or failure and assist policymakers in identifying the direction to concentrate their efforts to improve performance.

More importantly, the researcher's home country is expected to benefit tremendously from this study by gearing up both sports and academic leaders in recognising the fact that sports management courses are pivotal to sports development and should be integrated into the educational programme of Nigerian higher institutions including universities.

Having discussed the research problems; research aim and specific objectives; methodology and approach; and contributions to the existing knowledge, next is to illustrate the structure of the rest of the thesis.

1.7 Chapters Layout of the Remaining Parts of the Thesis

The rest of the thesis is structured as follows:

Chapter two reviewed existing literature on performance management, the relevant theories regarding performance and efficiency measurements on which the study is based and empirical evidence to substantiate issues relating to these theories. It also addressed gaps identified in the existing studies and concluded with a summary of the chapter.

Chapter three presented the methodological framework appropriate for the study given its multidisciplinary approach arising from the research questions which linked research objectives through gaps identified and suggestions put forward in the existing literature with the methodological approach adopted in this study.

Chapter four discussed the nature and structure of football industry in England and explored issues relevant to current study using case materials to illuminate performance and efficiency from the social actors (stakeholders' group) as well as using available materials from the clubs.

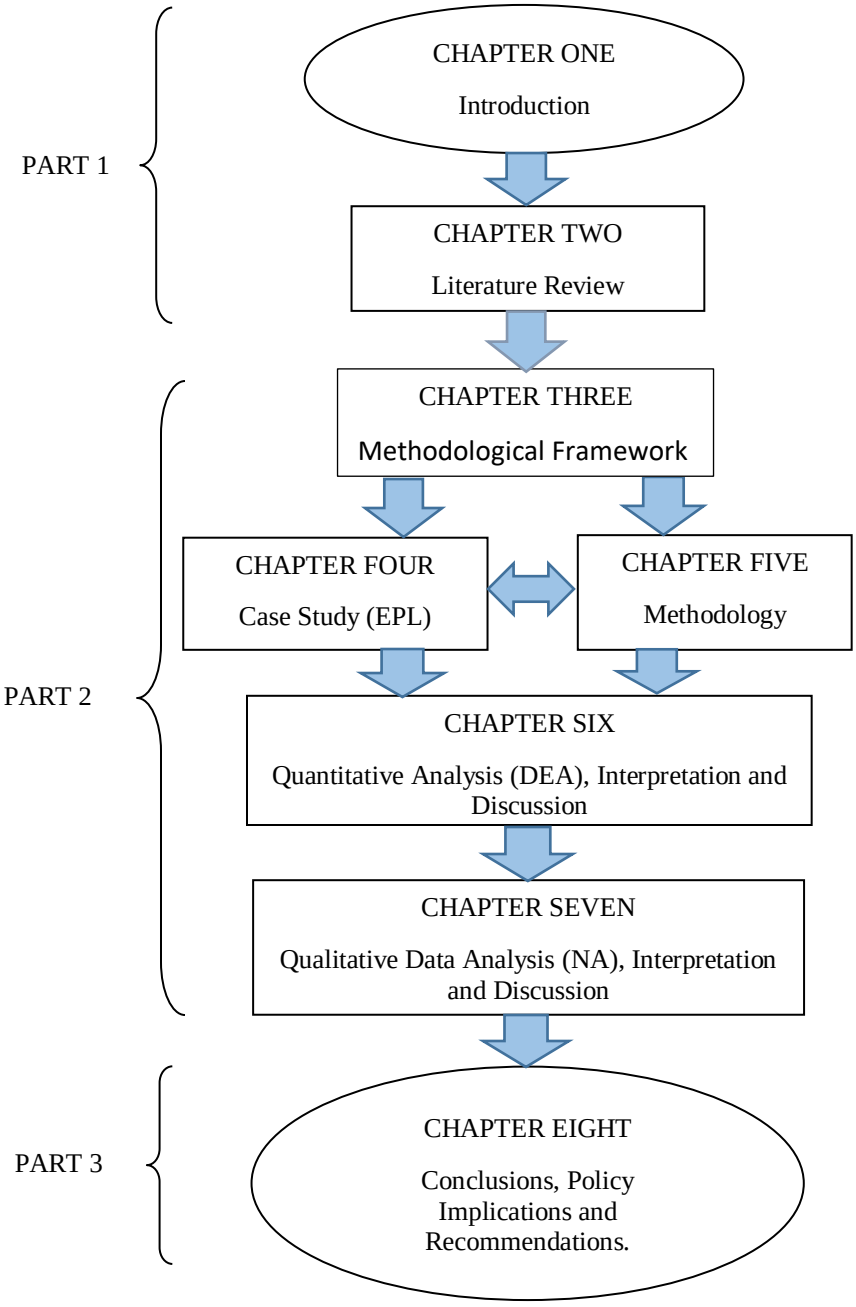
In chapter five, the methodology adopted for the data collection, dataset and analysis were discussed. It includes the justifications for using both qualitative and quantitative approaches, the use of questionnaires/mini-interviews as well as Data Enveloped Analysis (DEA) which is a multivariate analysis.

Chapter six presented the data panel in DEA analysis, interpretation and discussion on the performance of English Premier League Clubs.

Qualitative data analysis, interpretation and discussion of results from the stakeholders' point of view were explored in chapter seven.

Chapter eight summarised the research, discussed the extent to which the study's aim and specific objectives were achieved as well as the study's contributions to knowledge. The chapter concluded with a delineation of its implications for the management of football clubs or any other DMUs. It also covered the limitations and future research directions.

Figure 1.1 Flowchart of the Chapters



Source: Created by the author.

This thesis consists of three parts and eight chapters. The illustration in Figure 1.1 shows the critical connections between the parts and chapters as part of the iterative approach. Part one entails the overview of the research, thereby introduces the thesis, critically reviewing the existing literature that led to the development of the research problems. Part two relates to the

methodological framework, case study selection, research process and data analysis; describing and justifying the selected methodology of data gathering, presentation, and analyses. The final part discusses the empirical findings regarding existing research in the extant literature, revising the conceptual framework. This final part concludes by revisiting the research problems; describing and reflecting on the contributions and limitations of the study with implications for future research.

1.8 Conclusion

This chapter provided the background to the current study touching on the issues relating to performance and efficiency measurements, thereby illustrates the subject and context of the inquiry leading to the statements of research problems and development of the central aim of the research. An overview of the research methodology and approach coupled with a structure of the thesis contribute to an outline of the whole study. The research was inspired by the changing nature and focus of sports management over the recent years and how to improve performance and efficient use of resources within professional sports, particularly in football and how national leagues rank their respective football clubs.

A case of EPL was appropriate for the investigation to establish why English clubs are performing poorly in recent times regarding European competitions like Champions' cup, Europa league and so on. The chapter identified important issues from the existing studies with a view to taking these research issues forward to make contributions to the existing knowledge in the areas of investigation.

The next chapter analysed the extant literature using relevant theories with supporting empirical evidence on the key issues relevant to this investigation.

CHAPTER TWO

REVIEW OF THE LITERATURE ON PERFORMANCE AND EFFICIENCY MEASUREMENT

2.1 Introduction

This chapter presents a review of the literature on performance and efficiency in team-based organisations with emphasis placed on issues central to the measurement and management of organisation performance. Issues relating to measuring the performance of the business and other organisations are of great concern to managers and management accounting researchers (Chepkwei, 2014). It assists managers in seeking actions that will create the most value for the organisational stakeholders and enhances their marketability, while the management accounting researchers see the concept as terrain with lots of potentialities to explore regarding operational performance.

Although management accounting seems to restrict itself to considering only financial performance measures using theories drawn from disciplines such as economics and operation research, this study opines that exploring both financial and non-financial measures might enhance the chosen evaluation method (Allen, Plunkett and Attner, 2013). Many studies have observed that management accounting has long been incorporated into the economic valuation approach through the development of agency theory (Lukka and Vinnari, 2014). Interestingly, the agency theory and by extension, the stakeholders' theory have not been thoroughly examined in relation to professional sports management such as football.

This study, therefore, straddles between operational research and management accounting, which is why the study is adopting a multidisciplinary approach. Thus, the extant literature on performance and efficiency measures relating to football management was critically examined in this chapter. The rest of this chapter discussed the relevant theories regarding different issues central to the current study and empirical evidence to substantiate issues relating to these theories. It also identified gaps in the existing studies and concluded with a summary of the chapter.

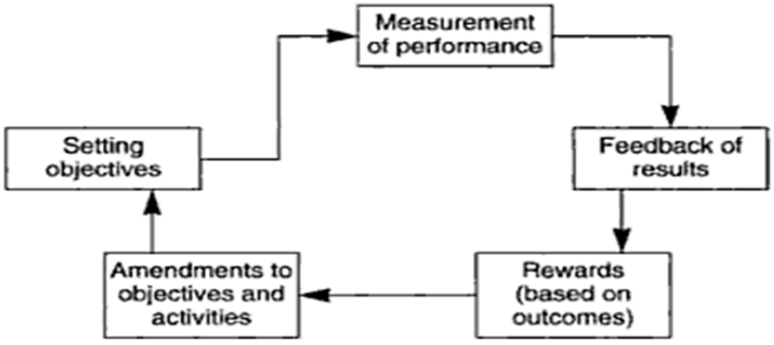
2.2 Relevant Theories Regarding Performance and Efficiency Measurements

Efficiency theory stipulates that managers witness a negative correlation between resources (inputs) and the resultant output as against stardom theory which lean more on positive correlation as evidenced by the relationship between sporting success and team wages (Hoegele, Schmidt and Torgler, 2014).

Professional team sports, of which football is the taste of the majority, use multiple inputs to produce multiple outputs. How efficient a club is utilising these resources could be the club's strength to achieving competitive advantage and therefore set the benchmark for others. The concepts of performance management and efficiency measurements are common features in the field of human resource management. They entail a continuous process of identifying, measuring and developing the performance of an entity, aligning performance with strategic goals and available resources within such entity (Mlambo, 2010). Although efficiency measurement exists within performance appraisal, both concepts are tools used in performance management system. Therefore, a tremendous conscious is required in order not to mistake one for another.

Many studies have explained the concept of performance management in different ways, signifying that there is no single universally accepted model of performance management. Frangopol, (2011) in his *Life-cycle performance management and optimisation of structural systems under uncertainty, accomplishments and challenges* built on Mabey, Salaman and Storey, (1999) *performance management cycle* to establish that performance management system should be implemented in an organization to include objectives setting, performance measuring or appraising, feedback of performance results, reward based on performance outcomes and objectives or activities amendments. The figure 2.1 below depicts what Mabey and his colleague refer to as performance management cycle.

Figure 2.1 Performance Management Cycle



Source: Adapted from Armstrong, (1999) Human resource management practice. *London: Kogan Page*, pp. 337

Theories have been identified in literature underlying the concept of performance management system. These range from contingency theory of management to include the theory of quality management; management theory; efficiency theory; stakeholders' theory and much more. What seems to be the consolidated bedrock and cut across these theories are the concepts of *goal-setting* and *expectancy*. These two concepts led to the choice of theoretical framework adopted in this study looking at performance and efficiency of football clubs from the management and stakeholders' point of view.

Management establishes individual goals not only to form a benchmark against which performance may be measured but also play an essential role in motivating one for superior performance. Often we keep following our goals and whenever these goals are not achieved, we either improve our performance or modify the goals to make them more realistic and attainable. Where the performance improves, this may lead to the achievement of the organisational goal and subsequently form part of the Performance Management System (Yadav and Dabhade, 2013). Expectancy concept, on the other hand, is based on the hypothesis that individuals adjust their behaviour to a setting according to their anticipated satisfaction of valued goals set by them. Stakeholders could be argued as being behaving in a way which is most likely to lead them to achieve expected goals. These two concepts of performance management theories believe that performance is influenced by the consumers' expectations of future outcome (Nthambi, 2014).

In the light of these, performance measurement and management studies using such theories as stakeholders' theory, efficiency theory and much more may be appropriate for research in sports management field.

2.2.1 Theory of Performance

Theory of Performance (ToP) informs learning from both traditional and non-traditional context. Traditional context is where a performer; an individual, a team or group of people and an organisation engaged in a collaborative effort within classrooms, workshops or other venues that are traditionally associated with learning. These may include a tennis court, track, pool, stage and field or pitch and so on when considering sports. Otherwise, it is non-traditional. A non-traditional may include learning through organisations, professional groups, committees and research teams by examining the level of performance attained. The non-traditional context is also known as *work-based learning approach* (Mckendry et al., 2012).

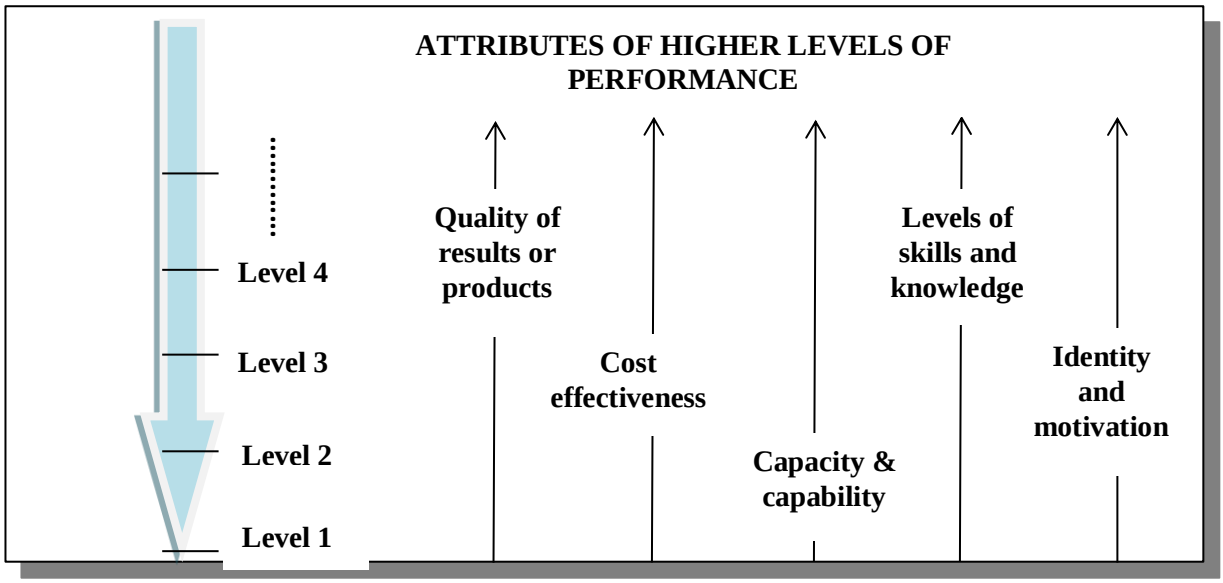
The word *Performance* connotes varying meanings depending on the context of its use. Whichever way it is being used, it portrays a complex series of actions that integrate skills and knowledge to produce a valuable result. How successful an act is performed or done could depend holistically on the following components: use of knowledge, skills, identity, personal and fixed factors and context as distinguished from mere possession (Elger, 2007). Inferred from the above, performance includes any recognised accomplishment or achievement. It is the process or manner of functioning or operating. A manager advances in his performance level provided he can organise people and resources more effectively and to achieve higher quality results with minimal resource. A player improves his level of performance if he can quickly learn parts, plays more varied roles, produces a deeper and more meaningful impact on the club's performance and audience satisfaction (Elger, 2007).

Umasankar and Shani, (2012) described the performance as a task being carried out and the outcome is measured against a known standard to explain how successful the act is performed relative to a benchmark. Performance, therefore, is a decisive factor that influences organisation sustainability since it is the result of a series of activities undertaken by the members of the organisation (Kamya, 2012). As performance is vital to the individual, it is equally essential to

the team or organisation in accomplishing tasks. Performing at a high level might be a source of satisfaction, with feelings of mastery and pride (Sulaiman, Almsafir and Ahmad, 2013).

Elger, (2007) proposed three axioms for improving effective performance; these include the performer's mindset, immersion in an enriching environment and engagement in reflective practice. He submitted that performing at higher level produces a result that increased product or service quality, increase capability and capacity, increases skills and knowledge, increases identity and motivation and reduces cost. Invariably, it enhances efficiency. Perhaps, performance evaluators might explain why organisations perform differently even when operating under the same situation by exploring theories of performance. Again, it could be argued that performance measurement and performance management have a clear significant impact on organisational performance (Ferkins and Shilbury, 2010; Hoye and Doherty, 2011 and O'Boyle and Bradbury, 2013). ToP depicts performance advances through levels as shown in figure 2.2 below. Each level characterises the effectiveness or quality of performance.

Figure 2.2 Components of Performance



Source: Elger, (2007). Theory of Performance Faculty Development Series Lisle, Illinois: Pacific Crest.

Building performance capabilities is a central theme in task planning (Elger, 2007). It, therefore, suggests that performance management precedes performance measurements. Performance management involves actions of planning and controlling organisational performance. The

theory describes how organisations are continually focusing on measuring performance, managing performance improvement and investigating drivers of performance (Brudan, 2010).

Performance management involves planning and controlling processes such as resource management, goal setting, performance evaluation and feedback (Frangopol, 2011). Extant literature shows that there is a lack of conceptual clarity regarding the term *performance measurement* and *performance management*. When explaining the concept of performance measurement, the term performance management is also found among a well-dispersed group of researchers. Although the term has been used loosely without conceptualised, it is often not distinguishable from performance measurement, indeed few studies distinguish between the terms, others, therefore, use the two interchangeably (Keong, 2013). Performance theory uses the term *combined systems* to include both performance measurement and performance management. It is otherwise referred to as Performance Management System (PMS) (Yawar and Seuring, 2017). Meadows and Pike, (2010) while describing performance management theory, they said;

> *"…a broader and more meaningful concept than simple performance measurement"*.

Grafton, Lillis and Widener, (2010) further listed processes constituting broader performance management to include attending to stakeholders' interest, handling human behavioural factors and environmental issues. Performance management theory also highlighted feedback as a critical performance management process. Succinctly, a performance management system involves the gathering of data, analysis of results, identifying corrective actions and feedback the information in appraisal system.

Theory of performance measurement explains the metric used to quantify the efficiency and effectiveness of an action or process. This framework views the measure and the process of measurement in a variety of philosophical viewpoints range from natural science to social science. These include how non-financial measures drive financial performance measures. For example, relating customers' satisfaction to return on investment or to other financial measures like market values and revenue growth (Jacobs, Singhal and Subramanian, 2010).

From the literature, broader classifications of performance measurements were observed, mostly distinguishable as quantitative and qualitative performance measurements.

Computational techniques usually lead to quantitative value, for example, the stock turnover rate has been 24 times per year, whereas assessment methods result in a qualitative indication of the metric value, such as stock turnover period has been satisfactory or inadequate. Quantitative measures are often divided into financial and non-financial measures.

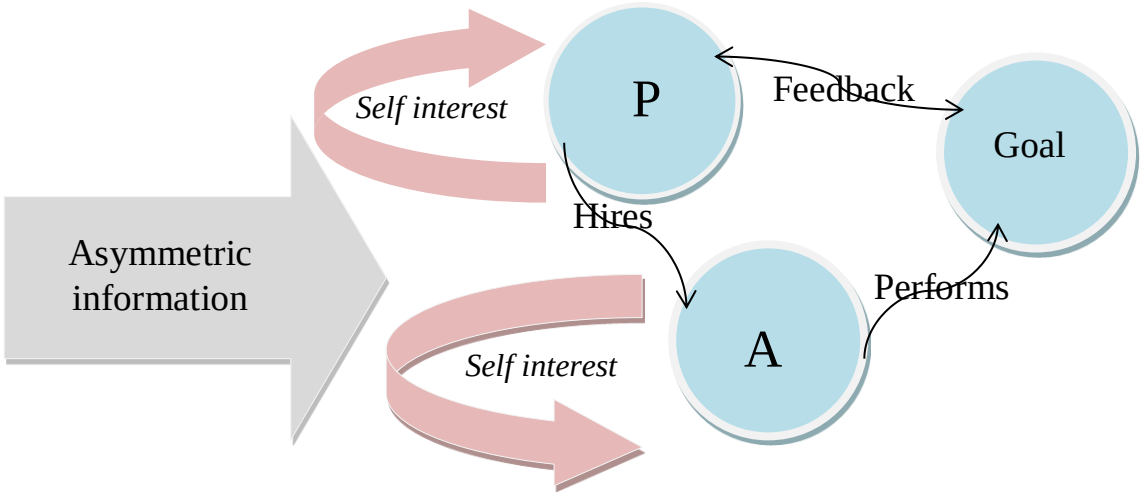
Bento, Mertins and White, (2016) observed that Balanced Score Card (BSC) still prevails as the dominant performance measurement system. Because factors such as quality, customer satisfaction and employee motivation cannot be adequately reflected in financial measurements alone, the BSC was developed to balance the financial perspective with the perspective of customers, innovation and learning and internal business processes. Performance Management System (PMS), therefore, monitors how well a process operates and intervenes in a timely manner rather than implementing only the correct processes as suggested by Mealiea and Baltazar, (2005).

2.2.2 Agency Theory

Relevant to this study is agency theory, which postulates the need for governance in any situation where the owner of an asset (the principal), delegates its use or exploitation to another (the agent) whose performance can merely be observed by the principal (Buchanan, Heesang-Chia and Deakni, 2014). In the words of Bansal, (2013) the theory *asserts that principals (owners) must monitor and control agents (managers) to protect the owners' residual claims from the excesses of self-interested agents*. Agency theory attempts to proffer contextual solution on how to align the goals of the principal so that they do not conflict and that the principal and the agent reconcile different tolerances for risk.

In this relationship, the principal delegates or hires an agent to perform a specific task depends on the context that defines the task. It is well established in the corporate governance literature to relate to the shareholders as (principals) and the managers as their (agents), this concept are arguably concealing a more fluid and complex set of relations, either legally structured or otherwise (Stout, 2012). Figure 2.3 below depicts the Agency theory relation.

Figure 2.3 Principal-Agent-Relations



Created by: Author's Summary of Agency Theory

This theory is directed towards the ubiquitous agency relationship whereby one party (The principal) delegates duty and responsibility to another (The agent) who performs the task. The existence of potential conflicts might have resulted from such factors as self-interest, incentive and reward to management, risk attitudes of management and shareholders. Attitude to make or buy decision by management, merger or takeover decisions by management, the time horizon of management and perhaps the cultural background of the shareholders may bring about conflicts (Buchanan, Heesang-Chia and Deakni, 2014). Hence, the need to employ one (agent) knowledgeable and experience in harnessing all these conflicts towards the ultimate target set by the employer (principal). The feedback in figure 2.3 above reflects performance evaluation and corrective actions where applicable.

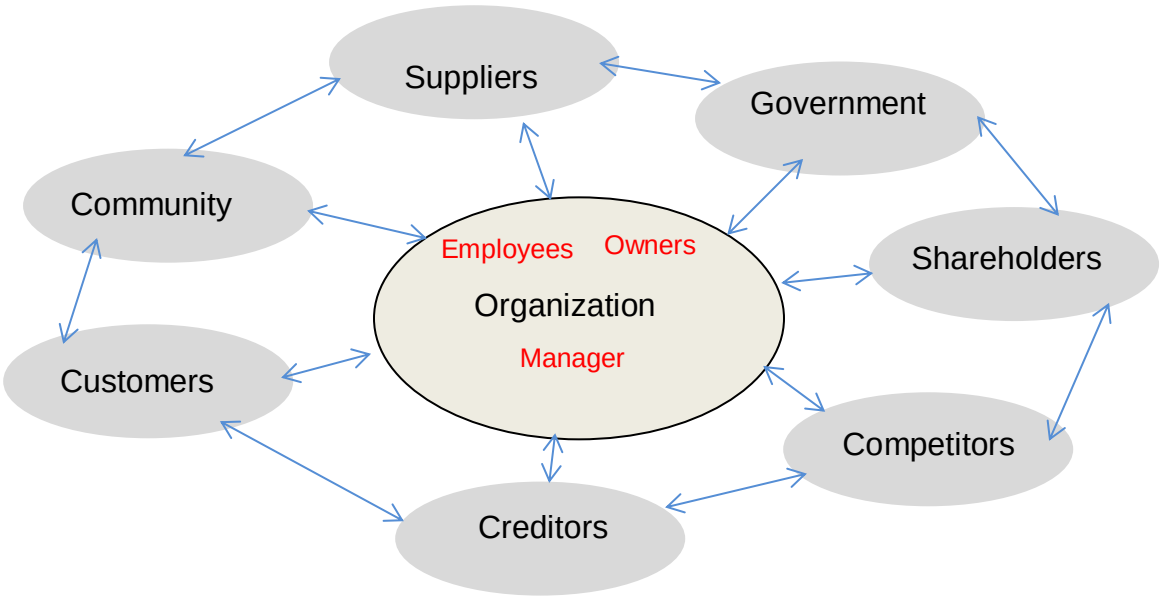
2.2.3 Stakeholder Theory

Central to this study is the stakeholder theory which informs organisational management and ethics, it addresses morals and values explicitly as features central to managing organisations (Solomom, 2010). The practice is based on argument other than shareholders; affiliated constituents that are affected by the organisational activity by having a *stake* in the organisation. These may include employees, customers, fans, the society, creditors, suppliers, clients and so on. The most difficult task of the strategic decision process is the interface between various competing demands of different stakeholders in relation to an organisation's strategic goals. Therefore, who stakeholders are, is related to the diverse nature of demands they can make on

the organisation. However, the ambiguous conceptualisation of stakeholders which occur across most of the extant literature implies that stakeholders are managed by the whole organisation, rather than a specific group of managers which is contrary to the principle of agency theory. In short, it could be argued that Top Management Team (TMT) would manage their stakeholders more effectively to realise their strategic goals. The specificity of an organisation's context and its goals allows managers to identify critical stakeholders and be clear about their significance on the future of the organisation.

Stakeholders' theory is another conceptualised framework in performance management system, designed to identify who the stakeholders are in the specific situation rather than relying on generic stakeholders list, to develop management strategies, and explore the impact of stakeholder dynamics (Ackermann and Eden, 2011). The structure of stakeholders in a typical organisation may be presented as shown in figure 2.4 below. Stakeholders could be those identified within the organisation as they are referred to as *Internal Stakeholders*; they include employees, manager and other participatory stake owners. Those that are not within the organisation and not independent of organisation's activity are known as *External Stakeholders*. This group includes Suppliers; Government (including regulatory association); Shareholders (non-participatory); Community or Society; Customers; Creditors; Competitors and so on.

Figure 2.4 Structures of Stakeholders



Created by: Author's Summary of the Nexus of Stakeholders

Managing for stakeholders' entails attending to more than just maximising shareholders' wealth, it includes the interests and well-being of those that assist or hinder the achievement of the organisational objectives. Smerdon, (2010) perceives stakeholders' theory as being conceived in terms that are explicitly and unabashedly moral. As a rule, to be successful in any business, it must create value for employees, customers, suppliers, community and other people highlighted in figure 2.4 above because they have stake in the organisation.

Although the interests of the stakeholders may differ, managers or entrepreneurs need to annexe them for the business to be successful. No stakeholder should be treated in isolation to avoid conflict of interests. The primary concern emanating from this theory is; how important is each of these stakeholders for the business to be successful. Recently, the inclusion of CSR reports in organisations' financial statements further, stresses the importance of the local community as a stakeholder of an organisation operating within such community. However, the impact of this group of stakeholders on organisational performance has not been fully studied (Rosca, 2011).

2.2.4 Theory of Efficiency

The efficiency theory delineates the relationship between inputs and outputs which exposes the effectiveness or efficiency of such operation. Efficiency framework leans more towards input/output conversion process rather than output meeting customers' specification. Most studies used efficiency and effectiveness interchangeably while referring to a measure of performance, but both terminologies differ in practice. Efficiency denotes the comparison of outputs with inputs, with the aim of maximising output relative to inputs or minimising inputs relative to outputs (Tone and Tsutsui, 2010).

According to Wamalwa, Onkware and Musiega, (2014) efficiency denotes *the outcome of a business' programs in relation to the resources employed*. Proposing return on investment (ROI) as a measure, efficiency is simply put as *doing things right* (Drucker, 1963). It is therefore evidenced that managers witness a negative correlation between resources (inputs) and the resultant (outputs) adjudged performance since fewer resources should be better at any output level (O'Donnell and Duffy, 2005).

Where multiple resources and multiple outputs are involved in any process, assessing efficiency, become more complicated, but when measured against a yardstick, its effectiveness and or efficiency are ascertained (Umasankar and Shani, 2012).

Several interpretations of efficiency and effectiveness exist in the literature in relation to performance measurement (Fugate, Mentzer and Stank, 2010; Epstein and McFarlan, 2011 and Umasankar and Shani, 2012). Tajeddini, Elg and Trueman, (2013) argued that effectiveness refers to the extent at which customers' requirements are met, while efficiency measures how economical the firm's resources are used while providing a given level of customer satisfaction. An activity according to this framework transforms resource (input) to output under the directions of a goal or constraint (Daraio et al., 2016). Efficiency is often expressed as a ratio, thus, more straightforward to measure than effectiveness, whether it is based on time, money or any other dimension (Daraio et al., 2016).

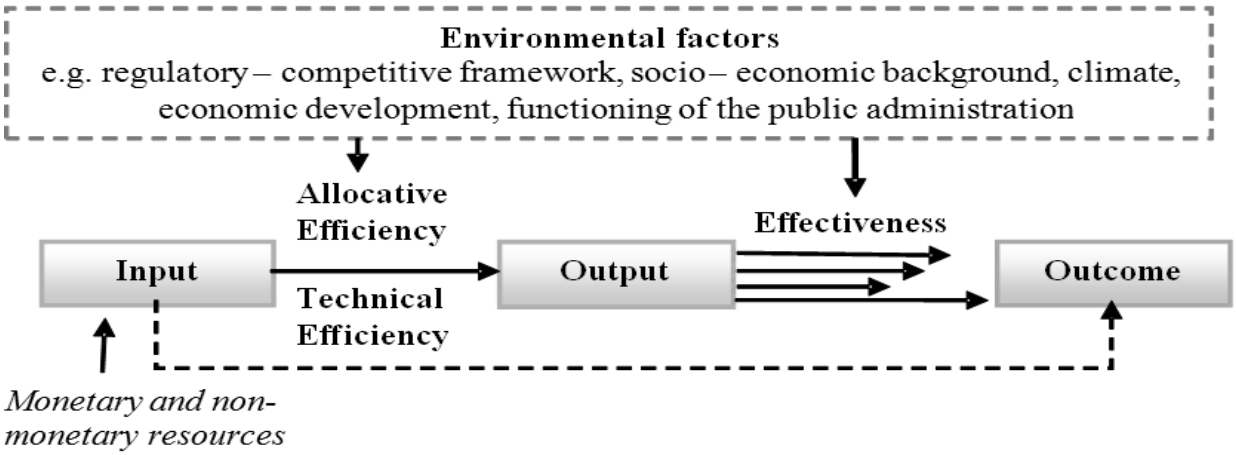
However, effectiveness indicates that any performance measure should integrate the aims of the decision maker (Taysir and Taysir, 2012) thus, complying with a rational firm theory which states that an organisation's principle is to accomplish some set of goals. The referent for a measure of effectiveness is, therefore, a target instead of the output referent as postulated by efficiency (Cedergren, 2011).

Efficiency, in the economic sense, is defined as:

$$Efficiency = \frac{Output}{Input}\ X\ 100\%$$

Inputs refer to resources such as Man, Materials and Money (3Ms). Outputs are items produced from these inputs because of the transformation process that occurs within the Decision-Making Unit (DMU) and may include products or services. The efficiency as defined by economists become more complicated in a more realistic scenario where measuring multiple inputs and outputs exist. Within this scenario, efficiency is understood as the weighted sum of output divided by the weighted sum of input. The relationship between effectiveness and efficiency can be summarised as shown in figure 2.5 below.

Figure 2.5 Relationship Between Efficiency and Effectiveness



Source: Kadarova, Mihok and Turisova, (2013) the Conceptual framework of efficiency and effectiveness.

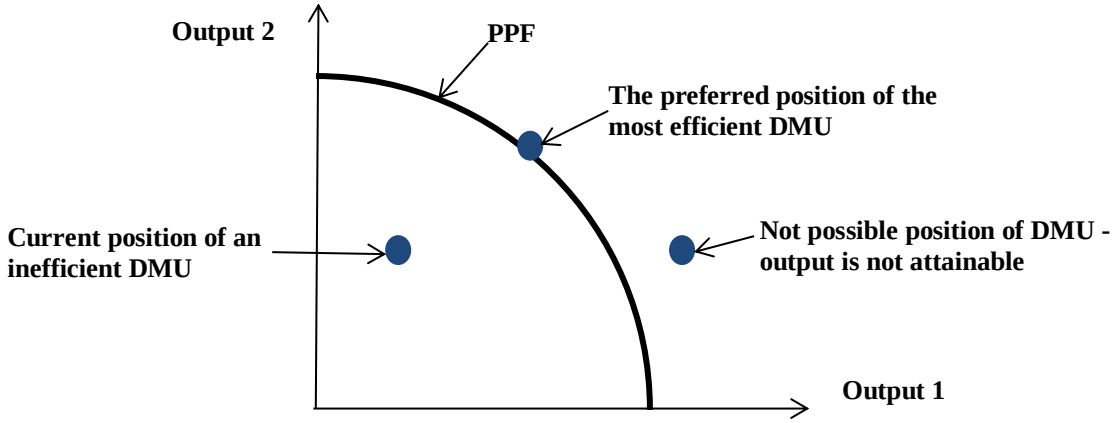
Figure 2.5 shows that the conversion of input into output by any DMU reflects the degree of efficiency of the process, while the extent at which the outputs meet the expectation or target of the final consumers measures the effectiveness of the operation that produced the output. The figure further emphasised that DMUs do not operate in a vacuum. Thus its operational efficiency or effectiveness is affected by other factors within the environment in which it operates. Such factors may include; Regulatory framework; competitors; Location; Climate; Socio-economic background and so on. They are beyond management controls and must be considered in the production process otherwise the whole process may come to a halt.

To enhance efficiency and effectiveness, the effects of *external* factors which affect operational processes but are beyond the management control, should be adjusted. These external factors are classified and named environmental factors. From extant literature, there are mainly two types of environmental factors and from management's point of view, they are general or industry-specific and corporate-specific factors. Industry-specific include those peculiar and affects the specific industry in general, examples may include the regulatory framework, industry norms and ethics and competitive framework. Sometimes corporate-specific such as location, climate and socio-economic background. Though they may look general but are presumed to affect organisations differently (Fethi and Pasiouras, 2010). It is pertinent to state here that an organisation may be effective in its operation but not necessarily efficient. Relating inputs to outputs may reveal the degree of efficiency rather than to relate output to the extent to which final consumers' expectations are met.

> "*Technical efficiency looks at the level of inputs or outputs. Being technically efficient means to minimise inputs at a given level of outputs or maximise outputs at a given level of inputs*" (Banxia.com, 2013).

Measuring the efficiency of production units and identifying the source of their inefficiency is a precondition to improving the performance of any productive unit within a competitive environment. A DMU engages in a transformation process when producing outputs (goods or services) from inputs (resources). Efficiency theory constructs a best practice empirical frontier from the available inputs/outputs data combinations, to which each inefficient DMU is compared. The model is known as economists' Production Possibility Frontier (PPF) which assumes that all inputs are used efficiently. Therefore, the most efficient DMU is always found on the production possibility frontier as shown in figure 2.6 below.

Figure 2.6 Illustration of the Possible Location of DMUs



Created by: Author using economists' illustration of Production Possibility Frontier.

Carmichael, Thomas and Rossi, (2014) opined that understanding production function might provide formal assistance to stakeholders (owners, managers and coaches) on issues such as the estimation of the key determinants of success and the contribution of individual resource to organisational success. It might provide support for team selection and preparation ahead of the operation, as well as enhances tactical decisions and reorganisation during an operation. They stressed further that production function also serves as a basis for identifying those areas in which an organisation's opportunities for future improvement lie, e.g. the type of player acquisitions required to strengthen the team, as well as determining players' salaries.

The concept of efficiency has pulled significant attention in the economics of team sports and production function analysis forms the basis of clubs' comparison and impacts differently on the individual club's performance and efficiency, identifying key factors contributing to the club's holistic success (sporting, social and financial success). Regarding cost/revenue analysis, attendance and membership figure enhance revenue associated with the brand image and sponsorship. Thus, analysis of production function become a crucial tool in sports organisational structure and managerial decision making. The estimation of club's production function in any competing sport contributes to the management understanding of the critical features for an attractive and successful product as reflected in media coverage, broadcasting revenues and lucrative sponsorship deals (Carmichael, Thomas and Rossi, 2014).

Efficiency studies are seen across team sports with Einolf, (2004) examining American football; Jane, (2010) investigated baseball efficiency; while Molik et al., (2012) observed teams' efficiency as related to hockey. In the case of football or soccer teams or football managers, efficiency has been analysed across many European leading football leagues. Carmichael, Thomas and Rossi, (2014) estimated a production function for the Italian league and the relative efficiency of Serie A clubs using a panel data set comprising 36 aggregated match statistics for ten seasons from 2000 to 2010. Bosca et al., (2009) for example, examined the extent to which technical efficiency of both Spanish and Italian football clubs influence sports performance over three seasons. Barros and Leach, (2006a) and Haas, (2003a) analysed the efficiency of English football teams; Espitia-Escuer and Garcia-Cebrian, (2008) analysed Spanish soccer league while Kern and Sussmuth, (2005) concentrated on German league. Empirical evidence of football clubs' efficiency is presented later in section 2.3.5.

2.2.5 Stardom Theory

When establishing the link between talents and success in sports, it could be argued that higher wage costs are partly due to the location and the quality of the talent holder. Stardom theory informs comparative organisational advantage. For an instant, it establishes the link between star talents and success in football clubs' performance (Cattani et al., 2013). The theory might explain the relationship between sporting success and financial success of football clubs. It may mean that clubs' output is concentrated on just a few players or coaches. Concentration in this context usually raises the question of efficiency. Stardom might be argued as a source of

inefficiency not only because it raises the cost of operation, but because it also deprives others of the opportunity to perform. Players or coaches who do not play or perform lose psychic income which cannot be transferred from one to another and loss of this income may be a source of inefficiency. A star player improves his level of performance since he can learn quicker, plays more varied roles and produces a more profound and more meaningful impact on the team performance and audience satisfaction (Ngan, Prendergast and Tsang, 2011). Therefore, stars in the sport, are individuals who attain significant prominence and success in their field and whose earnings, as a result, are considerably higher than the earnings of their competitors.

Conversely, star-coaching ability might impact on the outcome of the individual match, season outcomes and tournament results through decisions regarding team selection, tactics, substitutions made during the game, squads' compositions, as well as developing team cohesiveness and morale (Hoegele, Schmidt and Torgler, 2014; Choi and Rifon, 2012). Stardom in sports may be due to two factors; hierarchy of talent and the perfection of reproducibility of art (Franck and Nuesch, 2012). Higher wages, better performance and fame may be argued as some of the consequences of a star player (Coates, Frick and Jewell, 2016). In this study, stardom attributes are mnemonically put as *FAMEST*C* and include; Flexibility; Agility; Muscular Strength; Endurance; Skills; Tactical knowledge; *Integration/Coordination and Cardiovascular fitness (Health fitness).

In football, stars arise from a chance event; consumers/fans select a player(s) at random whenever they add new game(s) to their consumption basket. It is by simple, pure chance that any of these players end up with more patrons than others. This probable advantage makes the star player the most acceptable and consumers'/fans' preference. Thus, other consumers might switch to the star player as well thereby snowballs into stardom (Ngan, Prendergast and Tsang, 2011).

2.2.6 Theory of Performance in Relation to Football Management

Performance management theory as related to a professional sports team and most importantly football connotes strategies of achieving overall success by the football club. It involves setting the team's objectives and mapping out the process of meeting the target. These include planning and controlling the club's 3Ms (Man-Machine-Money) to achieve the best possible

performance. The achievement attained is then evaluated against the target to measure the club's effectiveness in their competitive environment. The theory describes how football clubs are continually focusing on measuring performance, managing performance improvement and investigating drivers of performance within football industry.

Gravina and Siers, (2011) argued that the principles of performance management are required, whenever organisation regardless of its type interacts with its environment to produce desired results. A football club produces and markets its products through interaction with the environment; its strategic goal must be in alignment with the interest of its external stakeholders to manage performance effectively. Gravina and Siers, (2011) further assert that performance management should serve all the following functions:

> *"…linking work behaviours to the organisation's strategic purposes, serving as a basis for administrative decisions, communicating performance standards and performance feedback to employees, establishing developmental objectives for training and coaching activities, providing data for organisation-wide maintenance and interventions and documenting performance records for organisational and legal purposes"* (p. 279)

In the light of this, perhaps it might be appropriate for a football club to set its objective prior to commencement of the season, communicate same to the stakeholders, plan the strategies towards the attainment of the goal, evaluate the performance at the end of the season and feedback information to appraise the effectiveness of the performance. Information communication about football players and coaches regarding their forms, abilities, experience, health condition and so on may be essential for the management decision on which player to bid for or acquire in the transfer market. Consequently, coaches' experience and ability to manage diverse resources most especially human resource could be a critical factor in club success.

2.3 Empirical Evidence on Different Theories Discussed Above

Different research findings are critically analysed here to support or refute above theories. Some of these findings are discussed below to enable us to know the current state of the art and to identify issues that are paramount to the current investigation.

Like the objectives of football clubs, performance and efficiency of football clubs have also been assessed from different points of view. The extant literature showed that two different approaches were feasible regarding the efficiency of professional football clubs. The sporting efficiency and the financial efficiency. Empirical evidence on the ability of clubs to generate income, maximise profits or minimise costs as indicators of effective operation could be noted in the works of Barros, Assaf and DeAraujo, (2011); Carmichael, McHale and Dennis, (2011); McNamara, Peck and Sasson, (2011); Aglietta, Andreff and Drut, (2010); Jardin, (2009); Barros and Garcia-del-Barrio, (2008) and Guzman and Morrow, (2007). These studies used indicators such as players' wages, coaches' wages, clubs' turnover, the share of TV rights and gate takings among others.

On sporting performance, measures of performance indicator in existing studies include; goals scored, the number of points attained per season, the number of trophies won in the international competition, percentage of games won and goal difference among other. Studies worth of being mentioned and analysed are those of Zambom-Ferraresi et al., (2015); Beck and Meyer, (2012); McNamara, Peck and Sasson, (2011); Soleimani-Damaneh, Hamidi and Sajadi, (2011); Halkos and Tzeremes, (2011); Yamamura, (2015); Jardin, (2009); Barros and Douvis, (2009); Baur and McKeating, (2009); Karaca, (2008); Guzman and Morrow, (2007); Frick and Simmons, (2007) and Garcia-Sanchez, (2007).

The current study considers social implications that are emanating from stakeholders who might neither be interested in the financial nor sporting success of the football clubs. Instead, may be more concerned about what is given back to the community in which the clubs operate and how much utility the clubs have been able to create by their performances (Social value of football clubs). The achievement of this type of objective is measured in terms of benefits accrue to the community through the commercial and sports operations of the football clubs.

How effective a football club engages in corporate social responsibilities might be an indicator of the social value of the club, on which its performance is socially assessed. The more reason why this study engages stakeholders' approach to capturing how the nexus of stakeholder assesses efficiency and performance. This study presumes that joint assessment of football clubs' efficiency from financial, sports and social points of view (Multiple objectives) will allow for

a better estimation of general clubs' performance (Carrillo and Jorge, 2016) and enhance clubs' ability to optimise community acceptability and loyalty in business and on the field. Although not many studies could be found in the extant literature regarding the social efficiency of football clubs, notable are the works of Rosca, (2011); Rosca, (2010); Walker and Kent, (2009); Godfrey, (2009); Briebarth and Harris, (2008) and Substance, (2010).

2.3.1 Empirical Evidence on Performance (Financial and Operational Aspects of Performance)

Looking at organisational performance from the financial and operational perspectives, Bull, (2007) investigated the value or success of an organisation in terms of efficiency, effectiveness, and efficacy, focusing attention on operational as well as financial perspectives. He noted the growing interest among researchers in the performance field and suggested that research might need to progress from concentrating solely on financial performance using a single measure, to studying the broader concept of performance by including operational aspects of performance through many measures. Sainaghi, Phillips and Corti, (2013) asserted that the BSC has been a key to this development and was designed with the realisation that sole use of traditional financial accounting measures of the industrial era is often unsuitable for contemporary organisations, where processes such as innovation occur. The basic elements of the BSC are its balance of measures from different aspects of performance, multiple stakeholders' perspective including other organisations and the way it encourages goal setting for performance measures.

Some empirical studies were carried out on the relationships between operational performance and financial success of football clubs. The studies either used tournament outcomes or match results such as win rates, points achieved, and goal scored or goal difference and league position to buttress performance (Beck and Meyer, 2012; Halkos and Tzeremes, 2011; McNamara, Peck and Sasson, 2011; Soleimani-Damaneh, Hamidi and Sajadi, 2011; Yamamura, 2015; Barros and Douvis, 2009; Baur and Mckeating, 2009; Jardin, 2009; Karaca, 2008; Garcia-Sanchez, 2007; Frick and Simmons, 2007 and Guzman and Morrow, 2007). These studies propose that clubs' sportive success is driven by indicators like players' skills and abilities, age and experience, squad size and managerial skills. On the other hand, some empirical studies also explore the relationship between wage and salary expenditure and sporting success in attempt to identify any causal link between club revenue disparities and salary inequalities as pivotal of clubs'

productivity and performance (Barros, Assaf and DeAraujo, 2011; Carmicheal, McHale and Dennis, 2011; McNamara, Peck and Sasson, 2011 and Aglietta, Andreff and Drut, 2010).

However, links between operational success and financial measures have not been fully explored in the productivity and efficiency literature. Although few studies could be spotted, such includes Aglietta, Andreff and Drut, (2010); Barros and Garcia-Del-Barrio, (2008) and Gerrard, (2010) who examines links between the win–wage relationship and a vector of players' characteristics like age and experience. Gerrard attempts to develop and explicitly bridge the gaps between the two streams of research by using a dataset that contains both financial measures and operational indicators of club performance.

Kulikova and Goshunova, (2013) while measuring the efficiency of professional football clubs in contemporary research, stated that performance of clubs might be argued in terms of sports results and as business units. Club seeks to maximise revenue to maintain its financial stability and solvency and maximise the market value of its shares or income from market transactions with securities. Regarding sporting, they considered the number of points attained in the season, goal difference, goals scored, the number of trophies won in international tournaments and much more as indicators of on-field performance. They, therefore, submitted that sporting success of football clubs depend on players' talent to provide qualitative game and the coach's ability to put together a team of talents to provide the needed success on the pitch.

In this case, a worthy reward for the efforts of the players and coaches could be argued to stimulate achieving further success on the pitch as well as financial success. The financial success of the club seems to have resulted from sporting success. Many operationally successful football clubs which take leading positions in the Football Leagues could be economically inefficient if small returns are generated from significant investments (Kulikova and Goshunova, 2013). From this point of view, small clubs might have a significant advantage if the reverse is the case. Sports successes may result in clubs' higher league rank that allows participation in the international tournaments and getting more attracted to new markets inform of TV broadcasting rights, sponsors' contracts and sales of clubs' symbols such as star players. Perhaps, investors evaluate the investment attractiveness of football club in terms of its current and expected wins since the relationship between indicators of operational and financial success is

undeniable. Therefore, whether a sporting success always transforms into financial success or not, or whether football club could be financially successful and fail in sporting operation or vice-versa is one of the issues paramount to this study.

While Bresciani, Thrassou and Vrontis, (2012) and Rossi, Vrontis and Thrassou, (2012) reveal the significance of sponsorship in measuring the performance of football clubs, it was asserted that many companies would associate their brand names with a successful football club to enhance their market base and customer awareness. Both studies indicate that revenues from merchandising of branded shirts, scarves and many other products carrying the logo of a football club including *pay-tv* and *pay-per-view* broadcasting may significantly impact on the performance of football clubs. The questions thus are: Is sporting performance correlated with financial performance and does the EPL clubs' ranking reflect the clubs' overall performance? How do different stakeholders evaluate clubs' performance and how does it impact on clubs' efficiency?

Notable studies on performance measurement and performance management found in the extant literature using specific traditional financial indicators such as total revenue; Guzman and Morrow, (2007) and Soleimani-Damaneh, Hamidi and Sajadi, (2011). Sales; Barros and Douvis, (2009) and Jardin, (2009). TV rights revenue; Aglietta, Andreff and Drut, (2010), Cash flows; Forker, (2005). Operating cost; Barros and Garcia-Del-Barrio, (2008). Operating profit before depreciation and amortisation; Forker, (2005) and Gross wages; Aglietta, Andreff and Drut, (2010). Other performance measurement and performance management studies used the turnover: an indicator of the financial efficiency of football clubs; the points attained in the EPL which characterise the quality of team created by the management and reflects the efficiency of its sports activity and the rate of Attraction - an indicator of social efficiency. It measures the rate at which the community and fans, are attracted to the sports activity either by physically present at games' venues or watched through TV broadcast or any other media.

Villa and Lozano, (2016) while assessing the scoring efficiency of football teams opined that the more goals a team scored, the more interesting the match becomes typically, indicating that more fans may be attracted to a team because of the team's goal-scoring ability. Using team value as a surrogate for team quality, they concluded that scoring efficiency is not an absolute

privilege of big teams or national champions as smaller teams may generate more returns in term of the goal scored on little investment (team value) than big teams. However, a winning team only need to score at least a goal above or more than its opponent at every match, but this does not guarantee scoring efficiency except it relates to the resource used to produce the goals.

From the above studies, performance has been measured based on metrics such as the number of the trophy won, goals scored, the share of champions league revenue distribution, games won, the number of games played, points attained and so on.

2.3.2 Empirical Evidence on Agency Theory

If in decision-making, power is entrusted unto an agent (e.g. government) by the principal (e.g. the citizens); there must be a mechanism in place to control and hold the agent accountable for its decisions and tools for sanction (Biela and Papadopoulos, 2014). Bakre, Lauwo and McCartney, (2017) asserted that accountability is an obligation of persons or entities entrusted with responsibilities and to be answerable for the totality of the responsibilities that have been conferred on them and to report to those that have conferred these responsibilities.

Accountability has been used in different aspects of life with different definitions all to suit the context in which it is used. The expanded use of this notion provoked Bovens, (2010) to study the distinction between its normative and descriptive contexts. He argued that to some scholars, being accountable has become a kind of virtue of organisations. In the agency context, it is more common to treat accountability as a descriptive mechanism and confer to a restricted definition of accountability that focuses on the mechanisms with which agents are held accountable to the principal (Schillemans, 2011). In this regard, accountability implies a social relation between principal and an agent who involves an obligation to explain and justify the conduct (Bovens, 2010).

Agency theory conceived different forms of concerted economic activity, of which the company limited by share capital is a part. In this case, capital may be provided by external investors in return for derivatives with a range of values, voting and control rights. As a standard practice in the corporate governance, the shareholders are being referred to as principals and the managers as their agents. This conceptualisation arguably conceals a complex set of legal and structured relations (Stout, 2012). In economics, finance and management, it has not only influenced

the shaping of business organisations but also ordains the meanings attributed by practitioners to shareholders' value and even corporate governance (McNulty, Zattoni and Douglas, 2013). Agency framework is linked with the idea and practice of shareholders' primacy; this theoretical perspective though does not strictly depend on characterising shareholders as owners of the entity; an idea that corporate law scholar (Robe, 2011) and practitioners (American Bar Association, 2009) recognise to be inaccurate and imprecise.

In professional sports like football, the managers are being referred to as the agent whose responsibilities include the attainment of the overall interest of all internal and external stakeholders. In practice, agency theory is assumed as a subset of stakeholders' theory as the latter is not just the relationship with shareholders (principal) but include others that have a stake in the business. The general practice in England and every other part of the world is that the head coach or manager is the agent that runs or manages the daily activities of the football club on behave of the Board of Directors (BoD) whom themselves are agents of the clubs' shareholders. Team managers are therefore sub-agents to the shareholders. It could be emphasised here that agents are more concerned with managing the interest of the principals which might include nexus of stakeholders with varying stakes. Agents ensure the different interests do not conflict with the overall organisational goal. The daily operations of EPL football clubs are therefore entrusted solely on the clubs' managers such as Arsene Wenger, Mauricio Pochettino, Jurgen Klopp, Jose Mourinho and so on, who manage the clubs' sports resource to achieve the clubs' goal. However, sports performance and efficiency measure extend beyond only sportive goal but includes both financial and social goals.

2.3.3 Empirical Evidence on Stakeholder Theory

Scholars in the field of sports management are increasingly interested in how stakeholder impact on the management of sports organisations (Leopkey and Parent, 2009). Previous studies applied the descriptive approach to stakeholder theory when identifying the stakeholders of sports organisations (Parent, 2008; Parent and Deephouse, 2007). This method uses an endless list of stakeholders rather than considering the strategic goal of the organisation and selects the stakeholders that most influence the context that defines the organisation. In the light of this, recent studies have increasingly focused on how stakeholders' views might influence strategic

activities such as risk management (Leopkey and Parent, 2009). From the extant literature, it seems that research on roles and impact of stakeholders in sports organisations, especially on efficiency and performance management, is still developing and need further investigation. Thus, the more reason why this research is timely and relevant.

Stakeholders' literature particularly the aspect relating to performance management, traditionally focus on the endless list of stakeholders, only in recent times, researchers realised that stakeholders' theoretical framework is contextual and that stakeholders should be identified before analysing the relationship and its effect on performance management (Waldman and Balven, 2014). Leading academics in performance management emphasise the exceptional focus on issues relating to stakeholders' claims in the development and implementation of performance evaluation systems. Scholars explore a broader set of relationships to embrace the primary agents involved with the organisation (employees, management, suppliers, shareholders) and the stakeholders served or affected by the organisation (customers and local communities). Again, the question arises: Who are the stakeholders that add value to organisational performance and how can the values be measured (Reverte, Gomez-Melero and Wan Fadzilah, 2016)?

With the professional football clubs, the problem becomes more pronounced because of the uncertainty about what constitutes the objective of such organisation or how to establish the objective hierarchy among the financial objectives, the sporting and recently social performances (Capasso and Rossi, 2013). Thiela and Jochen, (2009) considered sports clubs as non-profit organisations and that such organisations lean on the support of their members whose membership is assumed to be voluntary. They believe that sports clubs are oriented towards fulfilling the interests of their members; that they are independent of third parties and only sustained by membership quotas. Nowadays, most importantly in UK, Spain, Italy, Germany and other European countries, sports clubs especially football has been commercialised. Hence, the stakeholders' list is an umbrella term that describes a great variety of bodies. This consist of the individual, corporate bodies and huge national and international sports associations. Because of these ties, football clubs cannot be completely independent of third parties. Hence, they need a financial resource to refine their activities and incorporate their stakeholders' interest as the key to success. The management of multiple stakeholder relationships is a key aspect

of club's strategy and measures must be put in place by the football clubs to consider the needs and interests of different football *communities* (Parent, 2015).

Smudde and Courtright, (2011) opined that all the stakeholders identified in figure 2.4 are essential to the value creation process and that it is management's job to keep these stakeholders' interests all moving in the same direction. Anagnostopoulos, (2011) identified the stakeholders as the focus group directly influencing the performance of sports clubs and whose contributions and concerns are paramount to performance improvement. He, however, confirms the popularity of stakeholders' approach and recommends it as an overwhelming approach to evaluate organisational performance.

As in Anagnostopoulos' view, it may be fair to conclude that the stakeholders' claims are the foundations at which nexus of stakeholders based their evaluations of clubs' performance and efficiency. Vrontis and Thrassou, (2007) and Thrassou and Vrontis, (2009) postulated that the elements shaping football organisation, its consumer-spectator-fan relationship are gradually but significantly changing to fit the context of the times. Inferred from Freeman, (2010) and within the professional sports team, the key stakeholders are the corporate owners; the board of directors; the senior management team; the playing and coaching staff; the fans and the entire community. The stakeholders' theory brought about the specific organisational and managerial model resulting from historical, cultural and managerial attitudes of the professional clubs (Capasso and Rossi, 2013). Capasso and Rossi serve as an eye opener that the culture and history of a region could influence the managerial attitude of football organisation of such region. Since all the national leagues are part of a wider complex Federation, all the African national federations are associates of Confederation of African Football (CAF), while all the European national federations are also associates of the Union of European Football Association (UEFA) and so on. Invariably, all the six continental associations that administer, organise and control football organisation in their respective continents are in turn associates of the International Federation of Football Association (FIFA). By and large, all these governing bodies are stakeholders in the football industry. Specific organisational and managerial model, therefore, characterises each league.

Looking at the UK model, the English Premier League is an international benchmark for professional clubs in terms of capability to achieve both sporting success and excellent financial

performance (Rossi, Thrassou and Vrontis, 2013). They observe that besides the fact that nearly all the top clubs own their stadium, the stadia are not only venues for football matches; they are social epic-centres with shops, museums, pubs and restaurants. From their study, it is evidenced that a professional football club management requires good sporting performance to achieve better financial status, but whether the robust financial capability is always translated to higher sporting success is not yet ascertained. Marcello Lippi; a former Italian professional football player expresses concern about the recent Chinese approach to football. He was quoted to have said, *Spending lots of money on great players is not the way to reach the top, you need to work from a solid base of home-grown players. Otherwise, there is no sense of belonging* (Collomosse, 2016). While it is delusive to assume that shareholders' value maximisation is the utmost goal of an organisation, some significant stakeholders such as players, managers, creditors and so on will share part of the organisation's non-replicable resources. Therefore, they benefit a riskless guaranteed income by their contractual agreements with the club in exchange for their professional capabilities. They are residual claimants on the club since their economic advantages depend on the clubs' successful performance.

Rosca, (2011) carried out descriptive research on the kind of Corporate Social Responsibility (CSR) activities English football clubs are implementing with a sample of twenty clubs playing in the 2010-2011 season of the Premier League. He submitted that football clubs are not only interested in the sporting and financial outcomes, but they are also aware of their social status. He then suggested that future academic researchers should be encouraged to research more upon the use of CSR in professional sports, as there are few kinds of literature regarding this topic which informs this current study at this point. This study, therefore, proposes a social objective (Social Value) to complement the much debated financial and sporting objectives of football clubs while assessing performance and efficiency of football clubs through evaluating the effectiveness of what football clubs give back to the communities in which they operate.

The European Commission describes CSR as *A concept whereby companies integrate social and environmental concerns in their business operations and their interaction with their stakeholders on a voluntary basis* (Rahman, 2011). This description could be related to the academics' view of CSR which defines CSR as *the responsibility of an organisation to be ethical and accountable to the needs of the society as well as their stakeholders* (Bradish and

Cronin, 2009). However, these definitions are upheld by theories and supporting concepts, with the term responsibility at the centre of observations and descriptive words such as social, ethical, stakeholders and society in a broader sense.

With the conceptual development and broader acceptance of CSR principles, the European Commission has recently published action agenda to encourage business organisations to meet their social responsibilities by integrating social, environmental, ethical, human rights and consumer concerns into their core business operations and strategies (European Commission, 2011). In collaboration with the organisation's key stakeholders, this agenda encourages the integration process to be undertaken with decision makers aiming to maximise the creation of shared value for their owners, broader stakeholders, and society at large. Integrating CSR arguably offers a distinct measure of efficiency among other variety of benefits to organisations, for example, improved reputation, risk management and community relations.

A major impetus for the growing focus on sports' broader social role might be explained by the concept of Corporate Social Responsibility (CSR). Regarding clubs' social performances, community and fans loyalty could be argued to contribute to peace-building, crime reduction, community building and development, health promotion, education and training, gender empowerment, and assisting those with disabilities (Coalter, 2007). Extant literature tends to look at responsibilities from three main streams. First, it relates to what is required by capitalist economics as the basic economic imperative is to be profitable. Within sports industry as well as other sectors of the economy, CSR could be argued as a marketing strategy aiming at improving the revenue drive of such organisation. In professional football league as EPL, CSR tends to improve fan loyalty and community acceptability of the clubs that engage in such activities. Perhaps, it is the societal way of assessing club's performance.

Second, from the agency and stakeholders' theories as explained earlier in this study, CSR might be doing what is expected by global stakeholders, thereby confirming that there is a legal responsibility between agents (Managers) and principal (Stakeholders). This study acknowledges that economic profitability is fundamental to social responsibility, but managers must conform to ethical rules of business in their environment.

Third, and at the apex of the pyramid is the philanthropical responsibility of being good. The clubs need to pay attention to groups it affected or groups that could affect its operations. In line with stakeholders' approach, football clubs should be particularly attentive with regards to their stakeholders (Blumrodt, Desbordes and Bodin, 2013).

The principles of CSR could be implemented in sports to account for the social value of professional clubs and initiatives such as financial aspects, marketing concerns and product branding might be regarded as indicators of community acceptability (Blumrodt, Desbordes and Bodin, 2013). The importance of CSR and its' impact on product branding, especially professional football performance has become apparent with the sports manufacturers like Nike, Adidas, Reebok and other partnership with NGOs, sports federations and governmental organisations to finance or to resource sport-based projects (Giulianotti, 2011). *If the global brand had a good CSR image, it could avoid adverse publicity, boycotts and media exposes that would negatively impact sales* (Lim and Phillips, 2008).

Nevertheless, it is recently that professional sports especially football started to embrace the concept of CSR for specific purposes (Breitbarth, Hovemann and Walzel, 2011). Triggered primarily by the immense commercialisation experienced over the last two decades, English football is today thought of as part of the broader entertainment sector and might even be an industry (Chadwick, 2009). It could be argued that sport is a unique socio-economic phenomenon that requires special treatment because of the way it touches people's everyday lives (Chadwick, 2009).

With high professional sports leagues' profile, football clubs are of no different from conventional medium-sized and multinational companies which consist of tangible, financial and intangible assets that are professionally managed and marketed (Yang and Somnez, 2005). In 2004, Sir Roy Gardner's statement to stakeholders of Manchester United football club was titled *Running a football club as a business* this confirms the growing need for clubs to engage in stakeholders' management and dialogue to demonstrate sound governance and strategic orientation (Breitbarth and Rieth, 2012). Bradish and Cronin, (2009) therefore conclude that *sport is unique for being both social and economic institution, and as such, it is well suited ... to be interpreted by the business principles and practices of CSR*. It means that the concept of CSR

could be a better way for the society to measure sports clubs' social objectives and how well they perform among their peers.

If football clubs indeed create economic value as postulated by previous studies, then, the problem lies in the distribution of the value among the multiple stakeholders. If a player performs individually well, many competing clubs will be willing to hire his serves which increase his economic value and his agent might get relative salary increase notwithstanding the existing contract. Whereas, if a well paid player or coach performs poorly, his contractual salary cannot be reduced by the club's management. Hence, risk allocation is not symmetric (Bof, Montanari and Baglioni, 2007; Capasso and Rossi, 2013).

Many football clubs have a brand image that could be compared to a mega brand like Nike. Football clubs not only satisfy local as well as international requirements, but they must also meet the expectations of different stakeholders. Clubs, however, are seemingly concerned with the sole criterion of the quality of their primary product and the competition on the playing field. Are sporting results the centre of spectators' interest in football? It is not. Thus, football clubs are multi-objectives (sportive, financial and social) and stakeholders have different stakes in their chosen clubs which inform clubs engaging in social and community activities. Perhaps, one may assert that football clubs manage and communicate with stakeholders through their engagements in CSR, thereby identify stakeholders' power on the club and where their powers lie (Francois and Bayle, 2015).

These might, therefore, influence the clubs' strategies. The CSR initiatives certainly have dual purposes; an instrument focused on improving corporate performance and a normative justification that corporate entity can make good the social contract with the local community (Panton, 2012). Sports management have recently realised the potential in the use of CSR for the betterment of their organisations and have become aware of the nature of sport being uniquely positioned to influence societal and community judgment of club performance.

Naidenova, Parshakov and Chmykhov, (2016) investigated if football sponsorship would lead to increase in company performance. They opined that football sponsorship is more charity than a commercial investment to the sponsoring company and that clubs with higher performance are more likely to be sponsored than clubs with lower performance. While they believe that

football sponsorship is not effective marketing technique to the sponsoring company as it increases its cash outflows and decreases the company's market capitalisation, however, it is of significant growth to the sponsored football club's inflows. Even though it is not a productive investment from the sponsoring shareholders' point of view, companies continue to sponsor sports teams and sports events. Biscaia et al., (2013) while analysing the relationship among team loyalty, sponsorship awareness, attitude towards the sponsor and purchase intentions submitted that sponsorship stimulate consumers to purchase intention which explains why companies continue to sponsor football clubs and sports events.

2.3.4 Empirical Evidence on Management Efficiency

Nowadays, football is in an era of massive turnover despite the economic downturn, revenues for top-flight clubs increases by about 6.6% in 2010 through to reach a record of €12.8bn in 2013 (Uefa.com, 2013). Economists and financial analysts investigate the productive efficiency of football industry to discover a structural disequilibrium between costs and revenues. Although clubs are perceived as firms capable of maximising cash flows generation and sustaining minimal labour costs like any other corporate organisation, net losses are recurring in their income statements. Notwithstanding the leniency accorded spending regulation within European football (soccer), the relative performance of various clubs may be related to the efficient use of their available resources (Coates and Humphreys, 2011). Studies that have adopted known frameworks to investigate efficiency within football industry and worth examined include Haas, (2003a); Haas, (2003b); Guzman and Morrow, (2007); Bosca et al. (2009); Sala-Garrido et al. (2009); Kern, Schwarzmann and Wiedenegger, (2012); Gutierrez and Lozano (2012); Kokolakakis, Lera-Lopez and Panagouleas, (2012); Barros, Peypoch and Tainsky, (2014) and Wyszynski, (2016).

Haas, (2003a) evaluated the productive efficiency of English football clubs using Data Envelopment Analysis (DEA) approach and found that inefficiency can be decomposed into technical inefficiency and scale inefficiency by relating constant return to scale efficiency scores (CRS) to variable return to scale efficiency scores (VRS). He, thus, found that clubs' scales of production were almost optimal and that the inefficient operation caused their relatively high global inefficiency. In measuring the efficiency of German football, Haas, Kocher and Sutter, (2004)

adopt as inputs, the wages of players and the salaries of the coaches, while they selected the output variables based on the club's primary objectives. These include economic objective measured by the total revenue, athletic objective determined by accumulated points and the average stadium utilisation.

Empirically, they found that league ranking and efficiency scores are not correlated as relatively smaller sized clubs perform better than the prominent clubs. Haas, Kocher and Sutter, (2004) thereby kick-started the investigation into whether there are links between efficiency scores and the final league ranking of football clubs. Both studies used fewer data sets in their analysis, while Haas, (2003a) measured efficiency in one season (2000/01), Haas, Kocher and Sutter, (2004) assessed the efficiency of German football clubs in 1999/2000. This study is remarkably different as it investigates an extended dataset of 12 seasons of English football clubs between 2004/05 to 2015/16 to enhance the validity of the research result for more generalisation and acceptability. Critical investigations reveal that more substantial production cost relates to the salaries of football players, managers and coaching crew; these labour costs grew in recent years at a rate higher than the percentage increase in revenues (Booth, Brooks and Diamond, 2012). It could be opined that human resource is a crucial determinant of football clubs' performance.

Wyszynski, (2016) evaluated the efficiency of football clubs in Poland and found that efficiency among clubs varies widely, many inefficient clubs used too high salaries and wages in relation to their achieved outputs. As in Naidenova, Parshakov and Chmykhov, (2016) the study agreed that efficiency was not the absolute privilege of national league champions or big clubs when they submitted that perfectly efficient clubs do not always occupy the highest places in the national league table. Although the study analysed a football season (2014/15), he submitted that more extensive dataset would enrich the analysis of sports club efficiency and therefore, suggested extensive dataset for future studies.

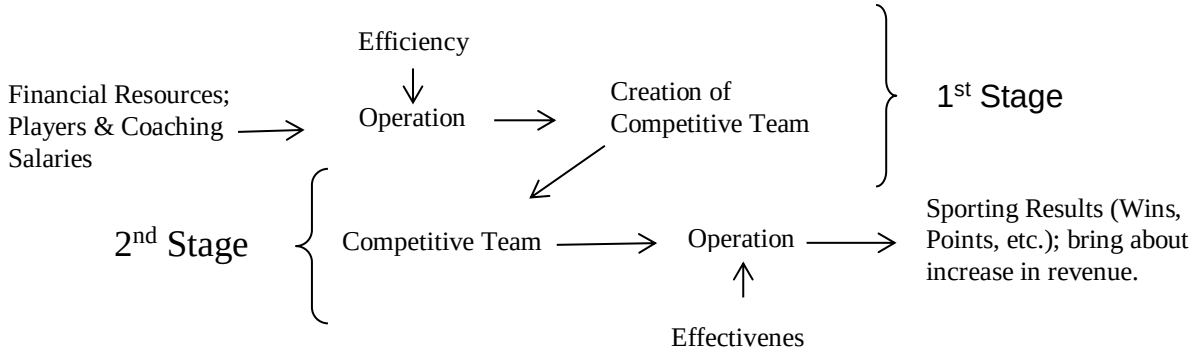
Booth, Brooks and Diamond, (2012) identified typical production costs in football industry as wages and salaries, assets depreciation, players' amortisation, financial costs, and other production costs. The study also categorised revenues as income from tickets and ticket-season, sponsorships, merchandising, stadium management, broadcasting revenues and other revenue. It worth emphasising that measures of output in football industry not be limited to income-

profit-turnover alone. It, therefore, evokes the use of Analytical Hierarchy Process (AHP) to structure all identifiable measures of outputs and inputs as observed in literature to fit the context of the current research.

High club performance, however, depends not only on the club's resource endowment but also on the efficiency with which the resource endowment is used (Gerrard, 2005). Gerrard used resource utilisation model to analyse how clubs in professional sports optimise the stock of their athletic resources (playing talents), subject to own preferences for sporting over financial performance. The study identified the driven factors influencing clubs' performance while evaluating the efficiency of clubs' resource utilisation of both athletic and allegiance (fan base) resources at achieving sporting and financial success. His resource-based view (RBV) approach differentiates general resources available to all clubs in the industry from the specific resources that are unique to individual clubs and that these specific resources are imperfectly replicable by other competing clubs. The study concludes that quantity and quality of a club's specific resource endowment contribute to high team performance. Based on the Gerrard's RBV, this study seems to identify some possible resource endowment available to specific clubs in English football industry and examines how they drive efficient performance of English football clubs. According to Michael Leeds and Peter von Allmen in Brook, (2005) they define output and mention that; it depends on the focus of the market. Therefore, what constitutes football output in this study is analysed in the next chapter.

Shilbury and Moore, (2006) conducted an empirical study of the efficiency of 28 Australian National Olympic Sporting Organisations using the competing values approach. First, they noted the ambiguity in the clarification between efficiency and effectiveness but did little to clarify the issue. Second, they equally noted that the focus on efficiency was mostly driven by increasing government funding and the implied requirements for accountability. Their findings indicated that flexibility is essential for the determination of effectiveness. They submitted that organisational processes through goal rational and open systems quadrants with the factors contained therein are important factors for organisational efficiency. However, the performance measures used were again compromised through lack of objectively derived data. The current study classifies the ambiguity between efficiency and effectiveness in football operation by separating football production process into two stages as shown in figure 2.7 below.

Figure 2.7 Two-Stage Football Production Process



Source: Adapted from Kern, Schwarzmann and Wiedenegger, (2012) "Measuring the efficiency of English Premier League football: A two-stage data envelopment analysis approach".

The 1st stage involves the respective football management through boardroom decision and subjects to financial constraint; assembling a formidable competitive team as output. According to Kern, Schwarzmann and Wiedenegger, (2012) this signifies the efficient use of financial resources. The competitive team, therefore, becomes the input of the 2nd stage, which invariably produced outputs targeting stakeholders' expectations (Sporting results) in the form of Wins, Points and Increase in Revenue, demonstrating the effectiveness of the process adopted by the manager and the coaching crew.

Guzman and Morrow, (2007) measured the efficiency and productivity in the EPL and the authors equally consider as outputs; the number of league points won and the total revenue of the club for six seasons. Guzman and Morrow incorporate various expenses of the football club in the selection of their inputs. They selected total staff cost which includes wages and salaries of all the staff, directors' remuneration since their decision affect the team success as well as other expenses like training ground cost, rental and lease charges. The inclusion of these expenses differentiates their study from that of Haas, (2003b). They, therefore, concluded that there is limited technological progress in the clubs' operation in terms of variations in the technological frontier during the researched period. Although they found that the clubs perform near efficiency frontier, the catching-up variable displayed a kind of negative trend which shows that the overall performance of clubs relative to their efficiency frontier deteriorates. This triggers the current investigation into the performance of English football clubs for the period between 2004/05 and 2015/16 seasons. It, therefore, measures the performance of EPL clubs over time to determine variations in their efficiencies and productivities.

Bosca et al., (2009) researched both Spanish and Italian football over three seasons to examine the extent at which clubs' technical efficiency influence sports performance under different situations, such as home and away matches using different operations like offensive and defensive. They, therefore, analysed offensive efficiency by using shots-on-goal, kicks towards opponents' goal area, possession time and attack moves as offensive inputs. The defensive inputs considered include the inverse of opponent's shots-on-goal, the inverse of opponent's ball possession, the inverse of attacking moves made towards the opponent goal area and the inverse of passes by opponent towards their goal area, while output selected, include accumulated points won and the total goal scored. Their study revealed that the Spanish League is more competitive and homogenous than the Italian League. They also found that Italian League ranking needs to improve its defensive efficiency and that the Spanish League requires enhancement of its attacking/offensive efficiency for improvements to take place. Although both offensive and defensive are components of the game, the use of opponent's inverse as inputs and outputs in their study signifies that two opposing football clubs jointly produce games.

Sala-Garrido et al. (2009) while analysing the evolution of efficiency in the Spanish Soccer League between (2000/01) and (2007/08) submitted that offensive and defensive scores hold a significant relationship with the final league classification per season, being the indicators of the overall performance of a team. The study, therefore, supports the view that final ranking based on points scored is the best indicator of whether efficiency index accurately represents a club's performance. The study opined that clubs in the bottom half of the table usually have a less financial resource available to them. Hence, they conform to players from their youth/feeder teams or from clubs in lower divisions with the two-fold objective of avoiding relegation by gaining enough points and ensure transferring their better players to the most powerful clubs to obtain additional income. What is interesting is whether there is any relationship between the efficiency scores and the points attained at the end of the season, which of course determines the final classification of the league. Their study also ascertained the vital aspect of the game in which clubs need to reinforce their squads accordingly to achieve better results in the subsequent seasons.

Kern, Schwarzmann and Wiedenegger, (2012) also measured the efficiency of English Premier League football using a two-stage Data Envelopment Analysis approach and proposed that there

are two different approaches to describing the business model within football industry. The first being the development of theoretical frameworks to cover the value creation process from a slightly broader perspective (Dolles and Soderman, 2012). Second, they see production process for modelling a football club as a circle which consists of five factors (Baroncelli and Lago, 2006) - *financial resources*; *players' salaries*; *creation of competitive teams*; *sporting results* and *increase in revenue*. Using DEA two stages, first, DMU is assuming to use the financial resource in the form of player salaries to acquire potential, which is then converted into sporting success. They identified the fact that a club may be inefficient in either or at both stages. Suggesting that inefficiency in the first stage means management acquires relatively lower potential in relation to the expenses made. The inefficiency of the second stage, however, shows that the club's potential is not optimally transformed into sporting success. Though their study looks like the current study, they, however, used fewer data panel and failed to measure clubs' efficiency over a range of time as done in this study.

According to Baroncelli and Lago, (2006) efficiency measurement of football clubs requires a detailed understanding of the production process. While examining the Italian football league; a similar League to that of English Premier League if compared in size, sportive competitiveness and economic wise, they developed *The Virtuous Circle between Sporting Results and Economic Gain*. Kern, Schwarzmann and Wiedenegger, (2012) on the other hand, put off-field operations (First stage) as the management controls on the football clubs. They manage the financial resources to produce a competitive team relevant to the financial limitations of the specific football club through boardroom decisions. Thus, the on-field operations (Second stage) is mainly attributed to the coaching crew which includes other ground staff. Their task is to exploit the club's potentials as assembled by the management to produce sporting success. The success achieved by the coach and his team forms the basis of future revenue which further influences the club's future financial resources and thus complete the circle.

Interestingly, their study identifies several inputs and outputs as previously mentioned in efficiency studies of professional football clubs but distinct at establishing a competitive team as an intermediate product of the first stage which serves as input for the second stage. The study, therefore, confirms that football organisation pursuits more than one objective, being different objectives at every production stages. While management through cost efficiency seeks

economic gains in financial success, coaching crew, on the other hand, ensures maximum sporting success. The study perceives management as having a significant influence on the overall performance of a football club.

In support of managerial influence on sporting efficiency, Kartakoullis et al., (2012) while analysing the strategic resource planning for football clubs, proposed a value-based system that unifies resource and holistically evaluates in terms of the value they offer in a multi-dimensional and a multi-directional way rather than viewing individual components in isolation. The study submitted that stadium operation and stadium management impact on clubs' financial success in Great Britain, though only a relatively small number of clubs own and operate the stadium and derive economic benefits from these structures daily, not just on match days alone. It could be assumed that the development of football stadia could be a giant step in implementing an effective business model in the sporting industry. Though this poses a limitation on the chosen method of analysis as Data Envelopment Analysis (DEA) relies on homogeneity relationship among decision-making units. Since a limited number of EPL clubs have a stadium which threatens clubs' homogeneity, the use of accounting matching concept in selecting what constitutes relevant income and expense further stresses the concept of homogeneity among clubs analysed.

Barros, Peypoch and Tainsky, (2014) analysed cost efficiency of French soccer league clubs and submitted that there are two groups of the French soccer clubs, both following entirely different *technologies* to obtain league points. The main limitation of their study stems from the dataset since the available data span was relatively short. Therefore to offer better conclusive policy prescriptions, a broader dataset was suggested for new research which informs the current study. Although a football club satisfies numerous stakeholders, three different needs can be defined while measuring efficiency: athletic output (Sportive success); economic output (Total revenue) and social output (Attendance).

Without a doubt, the central objective in sports is winning. Consequently one of the output variables needs representing the overall sportive success of the investigated football clubs. Jardin, (2009) considered sportive success as a suitable output variable and use average points won within one season to measure it. The current study follows the same trend as Jardin, (2009) but

adopts the total points achieved by each EPL club per season. Aside from athletic output, football clubs also try to maximise their commercial output. Total revenue as an appropriate indicator of economic output includes match day receipts; TV rights sales, sponsorship and advertising revenue, as well as revenue generated from participating in international competitions (Guzman and Morrow, 2007).

In addition to maximising athletic and commercial output, a football club also aims to increase its social output per the need of its various stakeholders inclusive of the community in which it operates. While Haas, (2003b) and Haas, Kocher and Sutter, (2004) used the stadium utilisation as an indicator of club's sportive output. Walters and Tacon, (2011) opined that stadium developments stimulate economic growth and activity. It increases the demand for services and creates employment benefits that are then said to *trickle down* to the community. From economists' point of view, the *multiplier effect* considers stadium developments as part of the needed infrastructure for the community to expand its economic activities into new and vibrant sectors which bring about a new image.

This study uses the gross number of spectators a club attracts to its game rather than the population of fans at a games venue. The reason is to maintain consistency on one hand since none of the variables mentioned above is used in relation to any other size. On the other hand, using the stadium utilisation in relation to gross spectators managed by each club would privilege the smaller clubs, as they usually do not have the same stadium capacity as the bigger football clubs if at all they have one. Stadium developments could also be argued to deliver social benefits through cooperation with the community, whereby the stadium becomes a central *focal point* in the community. It may bring about regeneration and development, healthcare, training and educational services. These constitute some of the social outputs emanated from club activities which need to be incorporated as part of a club's strategic plan. Chapter four critically examined whether any of the above input and output indicators qualify as inputs and outputs of football industry in the real sense.

2.3.5 Empirical Findings on Performance in Relation to Football Management

Over the years, studies on football clubs' management have featured prominently in the economics of sports. From the evaluation of the comparative performance of baseball players in

the USA to the estimation of efficiency of college basketball coaches and the assessments of productivity in the organisational sports training courses. Einolf, (2004) estimated payroll efficiency in the National Football League (NFL) and Major League Baseball (MLB) using DEA. While investigating performance management of football clubs, Haas, Kocher and Sutter, (2004) researched German's football clubs and Bosca et al., (2009) carried out cross-border analysis of both Spanish and Italian football clubs. The current study builds on Guzman and Morrow, (2007) study as it examines the current field of organisational performance; by assessing the overall performance of clubs on English premier football league between 2004/05 and 2015/16 season, in relation to their financial and operational success using frontier methodologies, particularly DEA approach. Therefore, studies such as Haas, Kocher and Sutter, (2004); Guzman and Morrow, (2007) and Bosca et al., (2009) worth being reviewed.

Examining production efficiency within English Premier League in terms of meeting the expectations of sponsors and supporters (stakeholders), Haas, (2003b) considered a proxy measure of the salary of head coach and a proxy measure of total wages and salaries excluding payments to the head coach as inputs. He, however, introduced the population of club's hometown as a non-discretionary variable that was beyond club management control. The sports outputs used according to Haas were league points won as a measure of playing success and the total revenue which measures the financial success. Haas concluded that only two clubs were efficient under all DEA versions. He found that these two clubs manage to achieve good results despite their average spend on players and coaches, while most big spend clubs were relatively inefficient even with their high financial status and that their wages and salaries were disproportional to their success. It then shows that clubs' financial success might not always translate into sporting success, confirming that spending lots of money on great players might not be the way to achieving sporting success.

In measuring the efficiency of German football, Haas, Kocher and Sutter, (2004) adopted wages and salaries of players' and coaches' as inputs, while they selected the output variables based on the club's primary objectives. These include financial objective measured by the total revenue, athletic objective determined by accumulated points and the average stadium utilisation. Empirically, they found that league ranking and efficiency scores are not correlated as relatively smaller sized clubs perform better than the prominent clubs. Haas, (2003b) thereby open-up the

investigation into whether there is any link between efficiency scores and the final league rank of football clubs playing in EPL.

Despite the EPL's continual revenue growth, few of the Premier League's clubs have reported a pre-tax profit in recent years (Jones, Rawnsley and Switzer, 2010), this is mostly due to the failure of clubs to control costs. The financial outlay on player registrations, player wages and stadia development are the principal foundations for this (Bell, Brooks and Markham, 2013). Recently, a recurrent prevalent cost for professional football clubs on EPL is the hiring and firing of club managers. However, acquiring the right manager to blend and make efficient use of club's resource is integral to club's on-field success was also confirmed by Brady, Bolchover and Sturgess, (2008). Without a doubt, the appointment and subsequent dismissal of wrong managers may be extremely costly for such clubs as managers are entitled to compensation should their contracts be terminated early (Bell, Brooks and Markham, 2013). In 2010, former Liverpool manager Rafael Benitez was paid £6 million compensation. Chelsea paid a *mouth-watering* amount worth £12.6 million to the former head coach; Luiz Felipe Scolari, following his dismissal in 2009. The same Chelsea gave the former manager Jose Mourinho £18 million compensation following his dismissal in 2007 (Herbert, 2010). Mourinho, however, signed a bumper £30m four-year deal before the start of the 2015/16 season, thus, securing his services until 2019 but was subsequently sacked just six months into his contract.

Although the Portuguese sportsman will not harvest a lucrative payoff from the Stamford Bridge club, instead, he will be netting his £250,000 weekly salary for the remaining of his three-and-a-half years' contract in west London until he gets another job. Should Jose Mourinho decide otherwise, Chelsea could end up paying a huge sum of £45.5million to Mourinho for doing nothing (Pettifor, 2015). It further confirms that huge investment in clubs' human resources (including playing talents) may not necessarily bring about the desired success and that *sacking a manager seems to be neither effective nor efficient in terms of improving clubs' performance* (Bell, Brooks and Markham, 2013).

The assertion that appointing a new manager has no effect or adversely affect club's performance is not universal. According to Bridgewater, (2009) *appointing a new manager will have a positive short-term effect on club results*. Bridgewater based his submission on the fact that

players may likely be out to impress the new manager to see them as being relevant and in high form to keep them in employment.

After that, say in 12 to 18 months, the impact of changing a manager disappears and club performance starts deteriorating. Thus, in the long run, managerial changes at football clubs do not improve performance (Hughes et al., 2010). Although football club could be argued to be a *results-driven business* where club's current performance matters, a club's performance might improve based on the *new culture* a manager introduces, an example could be seen in the case of Guus Hiddink and Chelsea FC at the 2015/16 EPL season.

2.4 Gaps Identified in the Extant Literature that Requires Further Investigation

The issue of football economy has become prominent in academic literature, with Britain being the most popular object of study. Perhaps this is due to high information transparency and the business activity of the English football clubs. The fact remains that the existing studies use shorter data sets. Barros, Peypoch and Tainsky, (2014) while analysing the cost efficiency of French soccer league identified the small dataset as the main limitation of their study and suggested relatively larger datasets for future studies to offer better conclusive policy prescriptions. Hence, the more reason for the current study.

It suffices to say that sports performance of football clubs depends primarily on the human capital (players and coaches) and other staff costs, the variety of studies on football league economic analysis provide the assessment of the club's efficiency from different points of view. This study considers the club's key objective as the pivots of its performance and therefore sees football clubs as being trading-off between financial objectives measured through wages and salaries, clubs' turnover and assets consumed per season (Barros and Garcia-del-Barrio, 2008; Samagaio, Couto and Caiadro, 2009; Aglietta, Andreff and Drut, 2010; Barros, Assaf and DeAraujo, 2011; Jorgensen, Moritzen and Stadtmann, 2012) and sporting objective measured by points attained which is a reflection of the games outcomes (games won, drew, or loss) per season (Frick & Simmons, 2007; Garcia-Sanchez, 2007; Yamamura, 2015; Halkos and Tzeremes, 2011; Beck and Meyer, 2012). Others combined both financial and sportive efficiencies to assess sports clubs' performance (Guzman and Morrow, 2007; Jardin, 2009; Carmichael, McHale and Dennis, 2011; McNamara, Peck and Sasson, 2011; Soleimani-Damaneh, Hamidi

and Sajadi, 2011). This study, therefore, introduces social objective measured by 'Rate of Attraction' (RoA) as a proxy to measure the social value of football club. Unlike the absolute attendance figure used by the existing studies, RoA measures the rate at which individual fan is attracted to a football game either by physical present at games venues or watch via media. RoA not only considers global soccer viewers or confirms the inclusion of TV rights income in clubs' turnovers; it also enhances the homogeneities among football clubs as required by DEA since English football clubs are from different geographical locations with varying population figure.

For the fans patronage, clubs reciprocate by giving back to their immediate environment in the form of Corporate Social Responsibility (CSR). It could be argued that CSR form the basis at which the society or the community assess the performance of football clubs in their various localities. This aspect remains sparsely investigated in the existing literature.

The present state of the art on the performance and efficiency analysis of English football clubs has been carried out either per league season, per game, or per competition. So far, only Gerrard, (2010) has evaluated efficiency and performance of EPL football clubs up to 2007 with 12 seasons' data but only revealed the state of arts as at 2007. Before Gerrard study, Haas, (2003a) observed only the 2000-2001 EPL season with a limited sample of 20 English clubs. Guzman and Morrow, (2007) on the other hand, measured performance of EPL clubs over six seasons (1997/98 – 2002/03). After Gerrard study, Barros, Peypoch and Tainsky, (2014) observed nine French soccer seasons between 2003 and 2011. Carmicheal, Thomas and Rossi, (2014) also estimated Italian League production function and the relative efficiency of its clubs using data for ten Italian seasons (2000-2010).

Looking at international competitions, Papahristodoulou, (2007) evaluated the performance of European Champions League (UCL) clubs for 2005/06 season, while Espitia-Escuer and Garcia-Cebrian, (2010) observed UCL clubs' performance for four seasons between 2003/04 and 2006/07. Meanwhile, Zambom-Ferraresi et al., (2017) had recently assessed the performance of UCL clubs over ten seasons (2004/05 – 2013/14), though unlike the current study, it aimed at assessing only the sportive efficiency of UCL clubs and not on EPL (National league). They submitted that only 10% of the clubs are efficient, indicating that there is a high level of inefficiency in UCL over the period studied. They concluded that many teams have problems in

managing their efficiency during the season and that two sources of inefficiency were identified; waste of sports resources and the selection of sporting tactics. However, things had changed from what it used to be in 2007 when Gerrard carried out the analysis.

Therefore, EPL is a dynamic league that requires a constant evaluation of performance and efficiency of its football clubs over a considerable period. This current study uses window analysis in DEA to assess the performance and efficiency of English Premier League football clubs over twelve (12) seasons between 2004/05 and 2015/16 season, thereby revealing the effect of seasonal factors on performance over a range of time. The outcome of this investigation may confirm or refute the submissions of Zambom-Ferraresi et al., (2017).

Though many types of research have applied DEA methodology in several ways, the uniqueness of this study is in the combination of DEA with Naturalistic Approach (NA) as no study in literature has combined the two methodologies in a study to incorporate the views of stakeholders in football management as suggested by Substance, (2010).

2.5 Conclusion

The goal of this chapter is in two folds, at an edge is to examine the existing literature in the field of performance and efficiency measurement as it relates to football clubs bringing out gaps while presenting the current state of the art in professional sports management. At the other edge is to examine how the application of different management theories (Performance theory, Stakeholders' theory, Agency theory, Efficiency theory and so on) could enhance productivity, efficiency and performance of sports team particularly football clubs.

It could be concluding to say this is a multidisciplinary study as it straddles among many disciplines notably, the operational management and management accounting. Across vast literature examined on football clubs' performance and efficiency, few studies (Walters and Tacon, 2010; Esteve et al., 2011; Ferkins and Shilbury, 2015) considered the impact of different stakeholders on clubs' performance. Thus, they were unable to identify the social value of football clubs as a strategic goal to enhance clubs' acceptability which informs the societal judgment of clubs' performance. Perhaps, involvement in CRS may impact on club performance.

Again, aside from Gerrard, (2010) who investigated EPL with data spanning across (1995-2007), no other study has ever used such large data panel on EPL. Meanwhile, Gerrard, (2010) portrayed the state of English football as at 2007 over ten years ago. Consequently, Barros, Peypoch and Tainsky, (2014) suggested that a relatively larger dataset be used in future research to offer better conclusive policy recommendations which inform the current study.

It could be inferred from the preceding that the duo of stakeholders' and agency theories are two inseparable tools that could enhance football management. Specific football stakeholders were identified and how different stakeholders perceived football clubs' performance could be deduced to have steered club management towards pursuing a universal goal that would broaden the club acceptability thus, increases its social value.

Football context has been described in this chapter as a production process involving multiple factor inputs (Wages and Salaries; Assets consumed; numbers of Employee; and so on) to produce multiple outputs (Turnover; Points attained per season; Games' Rate of attraction; and so on). It could be suggested that football production process entails dual stages. In the first stage, management assembles a formidable team by making a good signing of both players and manager that are technically sound based on available financial resource and second, manager coordinates production resources including Man, Material, and Money to achieve corporate goal. The formidable team thereby form the intermediate product and it subsequently goes into the second stage of the production process. With the manager's (Agent) technical skill, experience and knowledge of multitude stakeholders, he is entrusted to harmonise their different claims, coordinates and propels the second production process to achieve the unified goal. It, therefore, informs the application of economists' production possibility frontier as the basis of the chosen methodology (DEA) for an efficient measure of clubs' performances.

It might be argued that English football clubs need to recover their identity, be mindful of their spending, consider their socio-economic background and show more seriousness toward traditional entertainments rather than the business orientation to improve sports performances. Perhaps EPL fixtures may be more flexible and give international matches more priority where a club is confronted with EPL match and UCL or Europa matches within a short interval. More so, a mid-season break might be introduced to enhance English clubs' performance at the

international competitions such as UCL and Europa League. The next chapter presents the methodological framework adopted in this study.

CHAPTER THREE

METHODOLOGICAL FRAMEWORK

3.1 Introduction

Who owns a football club? Most economists, accountants and scholars today would say shareholders do. Contemporary discussions of stakeholders have been dominated by the view that football clubs are little more than bundles of assets collectively owned by shareholders (principals) who hire managers or coaches (agents) to manage those assets on their behalf. However, this principal-agent model gave rise to the two recurring themes in the literature: First, the establishment of what a football club stands to achieve by keeping managers faithful to stakeholders' interests and second, that the primary goal of a football club is or ought to be-maximising shareholders' wealth.

This study takes the prevailing issues of stakeholders' interests, the shareholders' wealth maximisation goal that underlies its establishment and the social impact of a football club on its immediate environment or community in which it operates to assess the club's performance and the efficient use of its available resource. While the principal-agent problem may be important in understanding the business of football clubs, the question whether it provides special insight into the methodological framework adopted in this study as it explores the alternative approach to the doctrines of performance and efficiency measurements of the football clubs and the unique role these entities have come to play in the socio-economic life of the communities.

In the economic literature, team production problems are said to arise in situations where a productive activity like footballing requires the combined investment and coordinated effort of two or more individuals or groups. These investments may be firm-specific and difficult to recover once committed to the project and the output from the activity is non-separable - i.e. difficult to attribute a portion of the joint output to any member's contribution. Therefore, how to measure the performance and efficient use of resource become a serious problem in team production. Hence, the need for a methodological framework that encompass holistic performance measures that require *knowledge-driven theory* – Theory of performance; *Problem-solving theory* – Efficiency Theory and *Social-interaction Theories* – Stakeholders' Theory,

Agency Theory, Stardom Theory and the concept of Corporate Social Responsibility among others. This methodological framework is to link the clubs' objectives - *Financial*, *Sportive* and *Social objectives* which are central to the research questions and emanated from gaps identified in the extant literature with the research method that is rooted in both positivist and interpretivism perspectives to include strategies like empiricism, narrative and case study analysis. Theories explained in the literature review have been grouped as impacted on football productions process, providing more insights into how holistic performance and efficiency measurements of clubs' operations could be assessed.

3.2 The Illumination of the Theories.

While reviewing different theories used in the immediate past chapter of this study to characterize insight, Hélie and Sun, (2010) opined that there are three main elements to be considered. First, illumination is a transition that has a significant impact on the problem solver's conception of the problem to be solved. Such conceptual mind as achieving pareto optimisation in a multi-inputs/outputs' operation like footballing (Efficiency concept). Second, insight often constitutes a quick transition from a state of unknown to a state of known. This knowledge-driven concept forms the bedrock of theory of performance critically reviewed in chapter two as it relates to football management. Third, insight leads to grasping the essential features of the problem that were not previously considered. Such features relating to performance and efficiency measures of football club have been identified in this study to include involvement of groups of different stakeholders in decision making regarding football management (Stakeholder and Agency theories); participation in Corporate Social Responsibility and its impact on the success and social value of football clubs and the relevant of star players/coaches towards the club's success (Social-interaction theory).

The growing interest among scholars in the performance field suggest that a broader concept of performance assessment would enrich our understanding of the operations of team-based organisations like football clubs. In recent past, much evaluative research in professional sports especially football could be found in the positivist framework producing quantifiable (Numeric) facts but was reticent about the social conditions (Non-numeric) that contribute to their existence (Zambom-Ferraresi et al., 2015; Estelle and Ruggiero, 2014; Barros, Peypoch and

Tainsky, 2014; Halkos and Tzeremes, 2013; Bosca et al., 2009; Barros and Garcia-del-Barrio, 2008; Hofler and Payne, 2006). Substance, (2010) argued that football clubs should not be assessed on pitch and balance sheet performances alone, but the impact of the game on local community need be included. Substance stated that such approaches often fail to state the ontological, epistemological assumptions which underpin an investigation.

Issues like social objectives of the clubs, clubs' involvements in Corporate Social Responsibility and stakeholders' accountability within which individual exist and construct competing meanings of performance and efficiency of football clubs are not usually taken into considerations. An alternative approach was called for, because of these criticisms (Substance, 2010). Hence, this thesis adopts an alternative framework which aligns the interest of various stakeholders and the impact of the game on the local community to provide a holistic performance indicator when evaluating performance and efficiency of a football club.

While investigating how Premier League evaluates the performance of football clubs and factors contributing to clubs' success using appropriate theories, it is pertinent to ensure that data is collected and interpreted systematically to arrive at a logical finding rather than a mere belief (Neale, 2016). Therefore, it is necessary to be specific on how the current study will collect, analyse and interpret data to provide a systematic evaluation of key issues (Performance and Efficiency) central to the current study.

In evaluative research such as assessing the performance and efficiency of EPL football clubs, Dahl, (2015) argued that evaluation means valuing and expressing opinions about a phenomenon being examined. This might be taken as a normative analysis of the content of a measure or action, including its result and how this was reached. However, evaluation need be systematic in its process of obtaining accurate data from which judgment is made while describing, mapping or measuring an action and stipulate the value of the phenomenon which demands assessment criteria or standards such as corporate goals of a club or norms and values that represent different stakeholders' groups. These criteria may be explicitly expressed and serve stakeholders' interests. Gill and Johnson, (2010) stated that methodology connotes the philosophical assumptions influencing a study, leading to the choice of techniques and processes in which data

are collected, analysed and interpreted to determine how research aims and objectives are achieved.

Arena and Lawson, (2015) simply put the nature of the social world (Ontology), as *science or study of being*. This concept seeks to describe our views about the nature of reality and whether what is claimed to be real is an objective reality or just a subjective creation of our minds. The two edges of ontological view relate to whether reality does exist through experience (constructionism) or is independent of its inhabitants (objectivism); whether reality is an internally unwritten fabrication of the actors or is external and independent of the social actors. Natural science considered objectivism ontological position as social phenomena describing external reality as being beyond the reach and influence of social actors (Martignani, 2016). Jussim et al., (2016) argued that data from an object that exist separately and independent of the social actors are less bias and therefore, more objective. Aliyu et al., (2014) on the other hand believed that constructivism ontological view holds that social order and their meanings come through the actions of the social actors.

These studies believe that social actors have a role to play in shaping social settings and that emergent reality is in a constant state of reconstruction by social actions. The philosophical assumptions of the social perspective of football clubs are believed to be shaping the societal view of clubs' performance and efficient use of resources. Social actors within football industry (stakeholders) perceive clubs' performance differently. Therefore, what seems to determine the internal reality when assessing clubs' performances and efficient measurement of clubs' resources is rooted in corporate objectives of the clubs which differs among football clubs, reflecting that the changing order is a product of the social actors themselves (Teece, 2010).

Firmly tied to the nature of reality (ontology) is what constitutes the knowledge of reality (epistemology). Like ontology, the epistemological philosophy presents positivism and interpretivism as the two strands of knowledge in studying social phenomena (Antwi and Hamza, 2015). Given the preceding philosophical deliberations, a *positivist* or *empiricist* approach to research is based on Knowledge gained from positive verification of observable experience rather than intuition (Antwi and Hamza, 2015). Generally, it involves hypothesis formulation and testing; proving or refuting a proposition. Antwi and Hamza, (2015) argued that positivist

epistemology relies on the presumptions that there is an objective reality; this reality is understandable and symbols can accurately describe and explain this objective reality.

The approach holds the belief that there are general patterns of cause and effect that can be used as a basis for predicting and controlling natural phenomenon, and that the totality of knowledge would not have grown very rapidly if we had to formulate our knowledge and understanding of the world by principles. Most times knowledge has been passed down to us from others such as parents, friends, educators or experts. However, we have come to realise that not everything expert told us is true and helpful; therefore, we have learnt to practice discernment. We realised that sometimes expert advice could be contradictory, while knowledge gained from others remains an important source of information about the world around us.

Contrary to the positivists' assertion that the valid ways to gain knowledge about the world around us are through observation, experiment and experience, the advocates of rationalism consider reasoning as the primary source of knowledge (Howarth, 2012). While the rationalists believe in the process of reasoning and thinking, it is possible to develop an understanding of a subject without observing the phenomenon. Supporting this view, the interpretive approach belief that reality is socially constructed and fluid. Craig, Zou and Curtis, (2016) argued that knowledge is negotiated within cultures, social settings and relationship with other people. Therefore, interpretivist seeks knowledge from expert opinion and reasoning. Thus, validity or truth cannot be found in objective reality. What is then considered to be true and valid depends on individual reasoning and interpretation. Hence, there can be multiple valid claims to knowledge. The interpretive approach, therefore, relies heavily on naturalistic methods such as interviewing, participatory observation and analysis of existing document (Gray and Jones, 2016). Heit and Rotello, (2010) provided that deductive and inductive reasoning are the main types of reasoning known, therefore, argued that the aspect of philosophy that looks at what knowledge is about, its nature, validity, and the source is called epistemology. *Methodology* whether described as qualitative or quantitative will refer to an epistemological position (Sparkes, 2015). Hence, this thesis adopts a mixed methodological approach combining both qualitative and quantitative methods in an evaluative case study research.

3.3 Conclusion

Having discuss the relevant of the theories used, the study now proceeds to the case study analysis that form part of the methodology which captures the existing data, develops the appropriate data collection methods that ensure consistency of the theories, allows for the applicability of the theories, and makes the research approach clear and unambiguous. The next chapter is exclusively devoted to English Premier Football League.

CHAPTER FOUR

CASE STUDY OF ENGLISH PREMIER LEAGUE EXPLORING PERFORMANCE AND EFFICIENCY MEASUREMENTS

4.1 Introduction

The focus of this chapter is to provide a case study analysis of the current field of organisational performance that could be mirrored within the professional football clubs, whose performance and efficiency value might be a benchmark for assessing the holistic performance of another professional sports team. This section looks at the general overview of the English Premier League (EPL), issues relating to the performance and efficiency measurement of its football clubs and examine the associations between sports behaviours and sports outcomes. It, therefore, observes how performance is measured and managed on EPL, the impact of stake-holders on the performance of EPL clubs and how the agency coupled with efficiency theories impact on football clubs in England. The chapter then concluded with a summary, while it introduces the research methodology to be discussed in next chapter.

4.2 Justification for Selecting EPL for the Investigation

Between 1996/97 and 2006/07, the English Premier League recorded an increase of 330% from €689m to €2273m; an increase of €1,584m **(**Hamil and Walters, 2010). The combined turnover for the 20 clubs when expressed in Euro for easy cross-border comparison with other European leagues postulates an important player in the economic field. It, therefore, explains why the English Premier League has been subjected to studies investigating the efficiency of football clubs (Haas, 2003b; Barros and Leach, 2006a; Barros and Leach, 2007; Gerrard, 2010 and Kern, Schwarzmann and Wiedenegger, 2012). Playing on EPL seems to be a lucrative business in terms of TV deals and commercials, yet EPL clubs report losses in recent years which is one of the reasons EPL is the case study.

In recent times, the performance of EPL clubs at European competitions (Champions League and Europa League) have been declining; a development that may be argued not to have justified the claim that EPL is the most competitive football league in the world (Harris, 2014). Though EPL propels the football leagues with highest total revenues and attendance in Europe,

the recent poor performances of English Football Clubs in the cross-border competition like UEFA Champions League (UCL) arguably questioned the adequacy of the current performance and efficiency measurement system adopted by EPL.

The English professional football is widely acclaimed as the definitive success story of European football and by extension, it has over the last decade referred to as the role model for other European leagues to emulate (Hamil and Walters, 2010; Oberstone, 2011). However, after Gerrard, (2010) analysed the state of English football as at 2007 with 12 seasons data, no study has ever used such large cross panel dataset (2004/05 to 2015/16) to analyse what might have changed in English football. Hence, to validate or refute findings of Gerrard, (2010) and other previous studies on issues relating to performance and efficiency measurement in the football industry, this study is necessary to enhance policy decisions as suggested by Barros, Peypoch and Tainsky, (2014).

The period (2004/05 to 2015/16) is referred to as the period of *change-focus* in English football management. The period saw English clubs appeared in almost all Champions League finals as it rises to its pick in 2007/08 season (all English final) but starts declining from 2009/10 season to the last four seasons (2012/13; 2013/14; 2014/15 and 2015/16 seasons). Thus, the performance of English clubs during this period suggest investigative research need to be carried out.

Focus on English Premier League for the period 2004/05 to 2015/16; the English football clubs could be argued to have moved in opposite direction between the traditional entertainment perspective and business-oriented focus. While the football management gradually increases focus towards business orientation as shown in the recent commercialisation of football sport, the traditional entertainment has drastically been eroded and swept beneath business orientation.

The 2013/14 season saw the English Premier League's TV deal hit a record of £3bn over the next three years, about 71% increase from a previous year. Each football club receives at least £14m per year. A bottom team in the EPL received more than £60.6m earned by Manchester City as champion in 2011/12 (Deloitte and Touché, 2013). Drawing on data from the Annual Review of Football Finance published by Deloitte and Touché, (2008-2010) many reasons were highlighted (Most highly paid league, most lucrative league in terms of TV deal and sponsorship and highly sought after football league by players and managers among others) to

support this assertion and certainly justify the choice of being the case study for this research work.

The Premier League arguably is the highest and most lucrative of the four division football leagues in England and next to it are the Championship, League One and League Two. A relegated EPL club will not only experience a dramatic decline in income resulting from league television revenue sharing, a drop-in club merchandise sale consequential to a dramatically lower attendance but also, an accompanying loss of star players whose salaries may no longer be affordable to the club (Oberstone, 2009 and 2011).

EPL clubs enjoy a dominant position in the global market for football players (Barros and Leach, 2006a). Most world football players aspire to play in EPL since it is perceived as being the highest quality league in Europe in terms of the quality of football and the most excitingly attractive in terms of revenue and the number of celebrity players worldwide. For example, Olley, (2016) reported that the Sky and BT Sport have agreed to pay a total of £5.14bn for the rights to show live EPL matches domestically during the three-year period beginning 2016/17 season; representing a staggering 71% increase on the previous deal. However, clubs previously receiving not less than £60.9 million from TV revenue and the Premier League's central commercial contract is expecting a rise to something in the region of £96m. In addition, the payment made to each club based on their final EPL position is also set to increase. The champion receives around £37.75m in 2016/17 season for finishing first; an increase from £24.9m. Club finishing 20th on EPL is set to earn approximately £14m with each place above worth an additional £1.25m. This extra income is supposed to be spent on hiring the best players to improve efficiency and performance of the team. It is obvious such spending has not been translated into efficiency in the past. Which explains why this investigation is necessary.

According to Zhao, (2013) a total of nine Japanese players were reported to have played in the top European league clubs which includes Arsenal and Manchester United among others in 2011/12 season. Meanwhile, Deloitte and Touché, (2014) while analysing International Live Audience Growth (ILAG) of EPL asserted that most football leagues worldwide mirrored the EPL. Because of this, EPL became more attractive to TV broadcasters, which is why the EPL has the most lucrative TV broadcasting deal and consequently positioned itself as the *global*

market for the greatest football players than any other league in the world (Hamil and Walters, 2010). These further suggest that EPL may be assumed as the most sought-after league in the world (Oberstone, 2011).

Across a range of key performance indicators (sporting, financial and social), it is, therefore, clear that English football merit the accolade of being delineated as Europe's most successful league. The EPL has the most profitable television broadcasting deal and derives the most income from sponsorship (Barros and Leach, 2006a). During 2013/14 season, the average stadium operation among EPL teams stood at about 96% capacity: a capacity utilisation rate most businesses would be highly pleased to attain. Total attendance for the season 2013/14 being over 13.9m, the highest in the history of the Premier League since 1992/1993 (Appendix III). Average match-day revenue per game attendee at EPL match in 2006/2007 stood at €61, being the highest in Europe and well above 74% if compared with La Liga figure of €35 in the same season. It again stresses the extraordinary commercial power and the depth of the performance of the English Premier League (Deloitte and Touché, 2008).

The availability of data concerning the EPL significantly influences the choice of English football clubs as the case study and aids the conduct of high level investigation on team performance. While studying how to measure performance and what factors drive performance of professional team sports, a survey of professional football clubs that featured on EPL from 2004/05 to 2015/16 was examined to identify not only those that performed efficiently but also to analyse the source of inefficiencies and recommend improvement for the under-performers.

Conclusively, not only that the number of clubs on EPL is limited and that data is coherent in nature which encourage smooth scrutinizing of clubs' efficiencies that motivated the choice of EPL, but today, the UK's top domestic league; the EPL is the most popular and the richest sports league in the world (Masters, 2014). It could have been very cumbersome and more expensive to have involved all football clubs in the world, Europe or England in this study, hence the justification for EPL as the case study.

4.3 General Overview of English Premier League

England; the birth-place of football founded her Football Association (The FA) in 1863 (oldest national governing body), became affiliated to The Federation Internationale de Football Association (FIFA) and The Union Europeenne de Football Association (UEFA) in 1905 and 1954 respectively. England has the first world's football club (Sheffield FC), as well as the world's oldest professional association football club (Notts County FC); the oldest national knockout competition (The FA Cup); the oldest national league (The Football League) and the first national team.

The FA regulates the Premier League, the Championship, League One, League Two, the Football Conference, County Football Associations and the Club Finder (Thefa.com, 2014). The EPL (The Premiership) replaced what was initially known as the top (First) division of the four divisions English Football League on 20th February 1992 granting the leading clubs commercial independence from the FA and the Football League (Premierleague.com, 2017). As at 2015/16, the Premier League has been contested for 24 seasons and in every season over the last two decades, the players, the managers, the clubs and the league have created brilliant moments and matches that tell the story of each season (Premierleague.com, 2017).

A football season on EPL commences in mid-August and ends in early May with each football team playing one another twice being both home and away for a total of 38 matches. This computational system provides that thirty-eight match weeks are played, with ten games per match week. Each football game ends with a final score, so that, at the end of a match week, there are ten final scores. These ten final scores present a dataset. The data must be processed to form the league table. A standing table containing the twenty teams is formed at the end of each week, with three points awarded for victory, one point for a draw and zero points for defeat (Carmichael, McHale and Dennis, 2011).

The sums of accumulated points from the outcomes of individual matches determine the teams' stand at the end of each season (Guzman and Morrow, 2007; Kern, Schwarzmann and Wiedenegger, 2012). The team that ends the season with the highest points not minding its financial and social success tops the league table and eventually crowned *The Champion* which automatically qualifies the team for the UEFA Champions' League in the following season.

Exactly twenty-two teams competed in the first Premier League season in 1992/93 and Sheffield United's Brian Deane scored the first goal of the Premiership on 15th August 1992, in a campaign won by Manchester United. At the point when the premier league's aggregate attendance stood at 9.75m with a turnover of £46m. Perhaps, the reduction of EPL clubs to twenty has affected the performance and efficiency of the football clubs; this could only be ascertained with a proper investigation.

According to Barclay's Premier League, Carling became the first league sponsor during 1993/94 season and the competition was titled *The Carling Premiership*. Manchester United won the title again for the second time. In 1994/95 season, the Premiership was won on the last day by a relatively unknown Blackburn Rovers managed by Kenny Dalglish. This season marks the end of a 22-team era with four clubs relegated to a lower division and only two clubs promoted from the Football League. A 20-team league commences during 1995/96 season and it remains so till date with Manchester United achieving its' 13th Premiership title in 2012/13 season. Chelsea FC won the title five times being 2004/05, 2005/06, 2009/10, 2014/15 and 2016/17 seasons. Arsenal FC, on the other hand, clinched the title thrice being the champion in 1997/98, 2001/02 and 2003/04. Manchester City FC was the title holder in 2011/12 and 2013/14 while Blackburn Rovers FC surprisingly won the title in 1994/95. In a similar manner, Leicester City FC clinched the title in 2015/16 season.

In 2001/02, Barclaycard became the new league sponsor after seven years Carling's sponsorship ended and as at the time the Premier League turnover stood at £570m against £46m of 1992/93 season. 2003/04 season saw Arsenal FC going through the entire season undefeated and thus earned the nickname *The Invincible*. By 2004/05 Barclays took over the sponsorship mantle and till 2007/08 when Premiership was dropped from the title, it since being referred to as Barclays Premier League (BPL). As at 2010/11 season, the Barclays Premier League attendance was 13.4m and its' turnover stood at £1.202bn. The collective BPL attendance eclipsed 250 million in the 2012/13 season. Currently, at the end of each season, the three bottom teams in the twenty-team Premier League are relegated to the less lucrative Championship (the highest division of the Football League) and replaced by three newly promoted Football League teams. Teams that are not threatened by relegation and are far from Premier League title are

incentivised to perform well as other highly placed teams also qualify for UEFA competitions (Carmichael, McHale and Dennis, 2011).

During the research period covering 2004/05 to 2015/16 seasons, Barclays has sponsored EPL for a 12-year continuous period. Deloitte and Touché, (2017) declared that the combined revenue for the 20-team grew by 9% to a record of £3.6bn in 2015/16 season. The 20 premier league clubs generated more than (£182m) on average. This is over what all the 22 top division clubs collectively generated (£170m) in 1991/92, the last season before the competition began and the commercial revenue exceeded £1bn for the first time in the history of the EPL. A new transfer window record of £1.165bn in 2017 summer; representing about 34% over the previous record of £1.045bn set in 2016 summer. As at the end of 2015/16 season, a total of 37 clubs have played in the EPL whose composition varied from season to season due to the system of promotion and relegation but limited to 20 clubs per season (Premierleague.com, 2017).

4.3.1 The Roles of the Football Governing Body in the Premier League

The Football Association (The FA) is the governing body for football in England and is a *non-profit* company limited by *non-tradable* shares. The FA regulates the Premier League among others and constitutes the Professional Game Board (PGB); an organ of the Football Association saddled with the responsibility to oversee the conduct of the Professional league on behalf of the FA. Within the present Football Association's constitution, shares can only be allotted to the Premier League; the Football League; a Member of the Council; a Full Member Club and a County Football Association or The Company Secretary. These shareholders are entitled to one share except for the County FAs and The Company Secretary which are allotted one share per every 50 affiliated clubs. The Company Secretary holds issued shares that are not yet assigned to other eligible shareholders and has no voting rights at general meetings (Thefa.com, 2014).

The FA Board is the central decision-making body within The FA and is responsible for all significant commercial and financial decisions central to the football administration. The FA Board comprises equal representation from the Professional and National Games, an independent Chairman and the General Secretary of the FA. There is an age limit of 70 applicable to the Directors of FA Board. The Chairman must be independent of the organisation, but within the football family as at the time of appointment and is recommended by the Nominations

Committee, endorsed by The FA Board and appointed by Council. The Chairman serves an initial 3-year term of office and may be reappointed for another term of 3 years. The Board has various sub-committees reporting to it; notable is the Professional Game Board (PGB) and the National Game Board (NGB). The PGB is responsible for the allocation of funds from The FA to the professional games through a variety of sub-committees. This Board also deals with various issues as they affect the interests of the professional games (Thefa.com, 2014).

The composition of The FA Council consists of The Leader of Council; The Chairman; 6 Vice Presidents; Life Vice Presidents; 10 Divisional representatives (elected from Full Member Clubs on a regional basis); County and other affiliated associations representatives; The Premier League; The Football League; The Football Conference; Northern Premier; Southern and Isthmian Leagues; The League Managers' Association and Professional Footballers' Association; Race Equality Advisory Group and Disability Advisory Group; Supporters' Representative and The General Secretary (http://www.thefa.com/about-football-association/history).

The Articles of Association clearly states the roles of the Council to primarily regulate football matters including disciplinary matters, referees and matches and competition sanctioning. The Council delegates many of these matters to various committees among which are: Referees, Protocol, Leagues, Membership, Sanctions and Registrations, Alliance, Women's Football, Youth, Representative Matches and Committees Appointment Panel. Reports from these Committees are received at each Council meeting and Council approves any recommendations contained therein (http://www.thefa.com/football-rules-governance).

However, the organisation further stretches its roles to include commercial activities such as selling broadcasting rights, developing football at the grassroots level and setting standards in areas such as coaching, financial management and anti-discrimination.

The summary of The FA's role and activities are presented here as details of the organisation's roles and activities may mean taking another research entirely (Thefa.com, 2011). The FA;

•Administers the top 20 clubs in The Premier League to improve the standards of football at the highest level and take the game into the highest height.

•Regulates the game on and off the playing field through the *Laws of the Game* and the *Rules of The Association*.

•Sanctions either directly or indirectly, all matches, leagues and competitions played in England.

•Oversees the administration of the disciplinary system applicable to all participants in the game (clubs, players, competitions, match officials and any other person involved in the game in England) and the administration of refereeing throughout the game.

•Organises several senior men's, youth and women's national competitions (notably The FA Challenge Cup) and the participation of England national representative teams (men's, youth and women's teams) in international matches like FIFA World Cup and the European Championship (UEFA) and friendly fixtures.

•The FA's other key role entail promoting the development of the game among all ages in terms of participation and quality. This involves promoting the availability of the sport to the highest possible number of people.

From the extant literature in chapter two it could be opined that most studies identified the business model within football industry and is regarded as a production process with Kern, Schwarzmann and Wiedenegger, (2012) explicitly put it as two-stage productivity, with each stage consisting of several factor inputs and factor outputs, making performance and efficiency evaluation of the stages becoming an issue. Grund, (2012) declared that performance and efficiency measures of football clubs require a detailed understanding of the production process. Clubs are said to make use of financial resource (wages and salaries, operating costs and so on); and human resource (Players, coaches, and other line staff) to assemble a competitive team (Intermediate product) which eventually produced sporting results (wins, points, qualification for international competitions and so on) and economic results (high turnover or revenue, maximizing profits and cost minimization).

Performance measurement and efficiency evaluation of football clubs were the core issues that ran through the literature reviewed in chapter two. How to measure the performance of EPL clubs given different stakeholders perspectives; whether the national league champions or big

clubs perform better than smaller clubs become more challenging to evaluate. To identify the most efficient club(s) on EPL in terms of inputs/outputs utilisation; to identify the club(s) that could maintain efficiency over the research period and ascertain if efficiency is an absolute privilege of national champions or big clubs equally become issues in the extant literature. However, the link between actual EPL ranking which is presumed to be based on field performance and efficiency scores which relate clubs' inputs to outputs needs be investigated to establish if there is any relationship between the performance measures and the impact of managerial capabilities, strategic goal setting and stakeholders' expectations.

4.4 Current Performance Measurement of the English Premier Football League

Empirical evidence on efficiency theory presented in chapter two argues that the performances of English Premier League teams ought to be based on overall success (Sports, financial and social success) rather than the field performance alone. A corresponding line of inquiry is to ask how efficient clubs utilise their available (man, money and material) resources. The efficiency of resource utilisation among English football clubs depends on how good clubs manage their complex and multidimensional objective function which is characterised with a potential trade-off between different dimensions of Football Clubs' (FC) successes (Gerrard, 2005).

Club's efficiency requires that the size and composition of the available resources be optimised relative to the club's outputs (allocative efficiency). Given the stock of EPL teams' resources, club's efficiency requires that the attainable performance level (outcome) be maximised (technical efficiency); a reflection of the quality of such resource endowment. Gerrard, (2005) in his Economics Based Approach (EBA) to resource utilisation also explains how the strategic decision of firms is primarily driven by competitive forces.

The English FA rewards performers with promotion to a higher and more lucrative league, while underperformers are relegated to a lower and less lucrative league. The appropriateness of this rewarding system vis-à-vis efficient use of available resources ignites research in performance evaluation of professional sports with an emphasis on English football clubs. Currently, clubs playing in EPL seems to be ranked only on points attained (sporting success) while the financial and social success of the teams were not so considered. It suffices to say that clubs

on EPL are currently assessed based on their operational effectiveness which is primarily sporting.

To improve the current performance measurement system within EPL, a holistic measure that incorporates all the identifiable (sporting, financial and social) objectives of a football club need to be considered as suggested by Substance, (2010). As a multi-objective organisation, different stakeholders are being satisfied differently thus, form the basis of their varying assessments. While fans are interested in sporting objectives, others such as management, sponsors, employees (including players and coaches) and government are either interested in financial and or sporting objective. Meanwhile, institutions (regulatory authorities) and society at large might be interested in the welfare and social value created by the football clubs. Appendix (vii) shows some of the welfare and social projects implemented by the Premier League Football Clubs in 2010/2011 season. It could be argued that society may base clubs' performances on the clubs' involvement in CSR Programs.

Meanwhile, the analysis of what constitutes the inputs and outputs of football clubs should be critically considered to measure clubs' efficiency effectively. Examination of how the nexus of stakeholders evaluate performance and efficiency of football clubs might be of immense help in arriving at a better measure.

4.4.1 Measures of Football Clubs' Inputs and Outputs.

Economists are mysteriously obscure as to what measures a football team inputs and outputs. The most common measure of output seen in the extant literature and on which EPL assess clubs' performances is the game won. Other attributes for measuring the output of sporting contest seen in the literature include winning percentage, attendance, the teams' scoring ratios per competition or league, revenue and trophies won. Economists defined output to include goods and services produced using factor inputs through a process called production (Stout and Blair, 2017).

Eckel and Neary, (2010), in their definition of output, mentioned that *Output can depend on the focus of the market*. This is a fact as an output of a production process may be input for another process. In this regard, do the metrics supplied above as in most other literature make sense

measuring what qualifies as input or output in football industry? For an instant, a football club employs capital both human and material (Stadium or ballpark, sporting equipment, players, coaches, trainers or managers, physicians and other front staff) to produce the sporting contest output. The neoclassical economic theory always relates inputs of a production unit to its outputs.

To effectively measure clubs' performance, it is pertinent to examine whether some of the metrics suggested earlier for measuring sporting contest output thus pass or fail the test of neoclassical economic theory and determine their appropriateness as measures of productivity in team sports like football. Interestingly, a traditional economist like Veblen, (1904) had a contrary opinion of the definition of output when stated that *Output is the product of a joint stock of knowledge*. Therefore, the individual productivity of Capital, Entrepreneur, Land and Labour (CELL) cannot be attributable to output.

Worthington, (2014) elaborated on the Veblen's idea in his discussion paper at Griffith Business School and stated that *economic science has no technique of independent measurement of any of these entities; utility, productivity and or value*. Welter and Smallbone, (2011) summed up the traditional theory of production when they opined that production process is defined by and implemented through the institutional structure of society. This study, therefore, esteems that, the output of a team sport (football) is a joint product resulting from the complementary efforts of factor inputs within the production unit and among the competitors. While the current study admits those factors input as identified in the extant literature, this section tries to test and justify the inclusion of some of the metrics suggested as the output of sporting contest (Attendance, winning percentage, revenue and so on) and their appropriateness for the research analysis.

Barros and Leach, (2006a) while examining the efficiency of soccer clubs in the EPL considered attendance as a measure of output. Barajas and Urrutia, (2007) in their Economic Impact of Support in Spanish Professional Football (EISSPF) observed that where the stadium is not at capacity, it could be argued that this measure would be misleading since a match watched by about 40,000 spectators requires few additional resources when compared to another match watched by less than 20,000 spectators. If then attendance is output, the sporting contest in

Emirate Stadium between Arsenal FC and Chelsea FC in early 2013 was more than two times the output of sporting contest played some few weeks later between the same two teams given the illustration by Barajas and Urrutia. The average EPL teams' attendance for 2013/14 and 2014/15 is given as 36,631 and 36,176 respectively (Worldfootball.net, 2014).

No doubt gate receipt (ticket revenue) from the sporting contest is higher with more attendance; this is a mere measure of revenue rather than a production measure. The inputs employed by the teams do not directly produce a sporting contest as postulated by the neoclassical theory of production if attendance is used as metric in measuring team sports output. The games rate of attraction which measures the extent at which fans are attracted to football game considers attendance to include a physical appearance at game venues and attraction to other media (Television, Radio and so on) where game commentaries are being relayed. This cannot be taken as a measure of sporting contest output since it has no direct bearing on the quantity of game produced by the contesting teams.

However, it worth mention that attendance figure is only an indicator of the aggregate demand for football. In sports, the aggregate demand would include those who watch football through the media in addition to those in attendance at the match venue. It might be argued that the increase in aggregate demand for football products and services in England is because of increasing popularity among the various stakeholders at a greater magnitude than attendance due to increasing media coverage.

Comparably, is the output of a professor in the classroom be taken as the number of students in attendance? Should assistant lecturer that have more students in attendance per module earn more than a tenure-track professor? If attendance is taken as output and wages or salaries are based on output, then lecturers with higher course enrolments should receive higher wages or salaries regardless of the status where students pay on average the same tuition fees independent of the course. One could ask if the classroom output has increased where more students arrived late for the lecture. This does not seem to be true.

Lecturing students, like viewing sporting events is *non-rivalry* in consumption. The consumption of *non-rivalry* goods and services do not increase or decrease with a change in the number of attendance or consumers. Higher fan attendance does impact on the teams' revenue stream,

but do not change the level of team production. What then is attendance if it is not a useful measure of teams' output? This study, therefore, sees attendance as a measure of fan social objective and a revenue measure impacting directly from both winning percentage and fan loyalty to the team. It is a measure of consumers' demand which is different from teams' supply in the sports market.

The most common measure of output used in sports economic research is winning percentage or wins. Berri, Leeds and Van Allmen, (2015) measured marginal productivity by estimating the relationship between players' inputs to the team's winning percentage or number of wins and submitted that ...*placing wins or winning percentage on the right-hand side of a revenue function, yields an estimate of marginal revenue of output*. This is inconsistent with the neoclassical production theory. Suppose Everton FC and Liverpool FC (EFC vs LFC) engage in a sporting contest and the score is 3-2. The team with more score (EFC) by implication is adjudged the winner (Villa and Lozano, 2016). Where output is defined as wins, then the team (EFC) produces one unit of output and the team (LFC) produces zero output. Will this be right? Team (LFC) consumes factor inputs and should at least produce a certain level of output. The fact that team (LFC) lost the game does not mean that all factor inputs (Man, Machine and Money) consumed in the production process is zero. In fact, wages are paid to players, coaching crew and other ground staffs regardless of the outcome of a sporting contest (win or lose).

No sports salary study has ever excluded wages paid for a team sports performance from games in which the team lost; only the winning bonus is excluded. Moreover, none of the major football leagues in England or anywhere pay athletes only if the team wins the game. Where a team is to maximise profits and team's output is winning, it therefore not profits maximising to pay wages if the team loses, suppose a losing team produces zero output. Logically, a team that lost all its 38 games in a league season has produced zero output for that season. If the total product at the end of the season is zero, marginal product is, therefore, zero. In terms of the labour market, the wages or salaries paid to players, coaches and managers should, therefore, be zero. This is far from the truth. Players, coaches and managers are being paid even if the team loses and if teams maximise profit, then wins, or winning percentage cannot be taken as teams' output. So, what then are wins or winning percentage? Barajas and Urrutia, (2007) expressed winning percentage as a measure of the quality of the output produced by the team. While team

performance tends to emphasise on quality rather than quantity, it could be argued that for the whole league or individual team quantity is constant. Even in the short run, quality varies, but the number of sporting contests does not.

Desbordes and Richelieu, (2012), made a strong argument in support of team's scoring ratio as a measure of teams' output. This metric as adopted by Desbordes and Richelieu simultaneously includes winning percentage in the output measure, thus, renders their arguments relatively porous. By implication, output (win/lose) is the ratio of points scored compare to points surrendered. It also measures the relative quality of the game which in turns depends on the quality of the opposing team. Villa and Lozano, (2016) postulated that a winning team only need to score a goal more than the opposing team. Although in a sporting contest as football the team may score or may not score, then the ratio of teams' scores as a measure of output reveals that the output may be defined as zero or undefined. Suppose in a sporting contest between (EFC and LFC), the scores are 0:0 and in their return or second leg between the same two teams (LFC and EFC), the scores are positive, regardless of win, draw or lose. In sports market, it would not present a reliable measure of output should one or both teams score zero during a contest. What then is a reliable measure of output in sports economics?

A game is not produced competitively but rather cooperatively in sports contests. According to Grow, (2015) and Scelles and Andreff, (2014), *the league is the firm and the league dictates the organisational structure such as the franchises (teams) who jointly produce the sporting contest output (games)*. Supporting this view nomenclature adjudged output in team sports when people say, *let's go watch the game* not *let's go watch the win, attendance, or teams' scores*. Resting on the above proposition, EPL might be a perfectly competitive market characterised by relatively small firms (football Clubs), identical products, perfect knowledge of the market but with controlled entry and exit of firms.

Each season of EPL produces a total output of 380 games, though 760 games ought to have been produced being 38 matches per club for a total of 20 clubs in a season. The game as a joint product between 2 clubs means two football teams jointly produced a game in any sporting contest. From the earlier discussion, ten scores are available every match week and a total of 38 weeks are in a season. These invariably means 380 scores are available per season from 380

games played. A total of 4,560 games were produced within the research period covering 2004/05 to 2015/16 seasons.

Therefore, all attributes mentioned above, are parameters for measuring the quality of games produced by football clubs and could be used to assess the efficiency and performance of the teams as exhibited in the extant literature.

4.4.2 Financial Efficiency of English Premier League Football Clubs

In a bid to improve the current performance measurement systems within team sports managerial practices, analysis of football clubs' cost efficiency could be of immense value to study clubs' operational performance when converting inputs into outputs. Extant economic literature propounds the estimation of technological frontiers. For example, the production and cost functions and the comparison of such frontiers with the performance of the football club allow for the evaluation of efficiency score. Barros, Peypoch and Tainsky, (2014) while investigating cost efficiency of French soccer league clubs by means of a cost frontier; they considered the existence of different technologies in their sample. The study found two groups of soccer clubs among the French clubs and that both groups adopted an entirely different *technology*. They postulated that should a club wish to follow a business strategy that is more appropriate to clubs in the other group; such club may incur a great deal of inefficiency.

The conventionalised facts observed about the English Premier League seems to show that there are two groups of football clubs on EPL. Those that spend heavily on sporting talents and other physical assets such as stadium to realise sporting success are the financially strong clubs which are known as *Big Clubs*. The second group is those that spend moderately on sporting talents and other physical or training assets but do not own any stadium are otherwise tagged as *Small Clubs*. According to Barros, Peypoch and Tainsky, (2014) where such small clubs ventured into a business strategy that is more appropriate to big clubs, such clubs may incur a great deal of inefficiency in term of cost/revenue.

Whether financial efficiency will always result in sporting efficiency is examine in a later section of this study. Although Barros, Peypoch and Tainsky, (2014) based their study on a relatively small data span (2002/03 to 2005/06) of French League, the current study expands the

scope to twelve seasons (2004/05 to 2015/16) of another European league (EPL) for generalisation of their findings. They concluded that there are two groups of the French soccer clubs and that these groups followed completely different *technologies* to obtain league points. Suggesting that business strategy needs to be adapted to the characteristics of the clubs to established further if financial efficiency will always result in sporting efficiency. The quest to establish this fact further encourage the shift to commercialisation and business orientation of professional sports.

To adequately analyse the Cost Efficiency of the English League Clubs, analysis of the source of revenue or income available to football clubs and what constitute their central expenditure could be of importance. Theoretically, EPL clubs compete on an equal footing but differ in levels of aspiration and performance capabilities which depend on individual financial strength, support base and in many cases, playing talents (Carmichael, McHale and Dennis, 2011).

To identify the link in clubs' revenue disparities within teams, wages inequalities and teams' productivity and performance (Andreff, 2011; and Carmichael, McHale and Dennis, 2011) - an obvious feature realised about EPL is that the sector is highly labour intensive like any other football leagues in the world. It is evidence in the relatively high ratio of wage expenditure to revenue earned. Premier League clubs' wages and salary costs continue to grow in 2015/16 season, reaching about £2.3bn; a growth of almost twice the rates witnessed in each of the previous two years in anticipation of extra revenue from the new TV rights commencing in 2016/17 season. In 2015/16, the wages/revenue ratio increased to 63% (Deloitte and Touché, 2017).

This study also links the competitive imbalance debate by relating wage expenditure and revenue to success. Available data from the EPL clubs' annual reports within the research period indicates a positive relationship between playing success and both wage expenditure and revenue. Although, 2015/16 saw Leicester City which was ranked 17th in wage costs outperformed their wages spending to an extent never achieved before in Premier League history (Deloitte and Touché, 2017). What then constitutes expenditure and income of a football team and how they impact on team success is further discussed below.

The generality of football funding, the source of income and type of expenditure prevalent in football industry may be considered a good starting point for clubs' cost-efficiency analysis. The structure and financial limitations of the football industry impact on the organisational objectives of football clubs and differ from one another. However, a questionnaire undertaken as part of this research methodology is designed to empirically capture clubs' objectives and how it impacts on performance, thereby adding knowledge to what constitutes teams' objective.

It should, therefore, be noted that sporting success is a term relative to each team. While some clubs aim to win the league each season, other clubs aim to avoid relegation to a lower and less lucrative league. However, recent structural changes and financial inflows among clubs have attempted to break the dependence of their financial fortunes on sporting success. Football clubs derive an increasing proportion of their income from commercial activities. Thus, they are less dependent upon direct fan contributions from tickets. This can be said to break down the stakeholder relationship between club and supporters. Though clubs are increasingly operating in a manner like the conventional organisations as implied by the practice of agency, they are still distinguished by their relationship with the community and supporters.

The success of the team is the basis of income streams generated by the organisation. Attempts have been made to diversify the economic base of football clubs and this increased merchandising operation and the availability of hospitality and restaurant facilities at club grounds. In 2011, Manchester United FC generated 33%, 36% and 31% of total revenue from matchday, broadcast and commercial activities respectively. It is rather important to mention that football clubs are not wholly consistent with one another in the way they classify revenue. The current study reviews the main sources of revenue generated by football companies in England and thus classify revenue into three categories namely: *match-day*, *media* and *commercial sources*. Match-day revenue is the aggregate revenue from gate receipts including seasonal tickets and membership. Media revenue largely includes revenue from television and radio on both domestic and international competitions. Commercial revenue comprises the sponsorship and merchandising revenues. The total Premier League revenue for 2012/13 season was £2.5bn; an increase of up to 7% of 2011/12 (Deloitte and Touché, 2013). The revenue stood at £1,932m in 2007/08 with the main source of the revenue being broadcasting contracts amounting to £931m. Match-day and commercial revenue amounted to £554m and £447m respectively.

Sponsorship and merchandising have always constituted the core commercial revenue. Football clubs such as Arsenal, Manchester United, Manchester City, Chelsea and Liverpool with large supports can secure significant sponsorship deals because the sponsors can command significant market share which increases awareness for direct marketing of their products or services. It also increases return on investment through increased sales. Most Premier League clubs have their specific primary sponsors. While Arsenal is primarily sponsored by Emirates; one of the leading global airlines, Samsung: an electronic goods manufacturer, sponsored Chelsea football club till 2014/2015 season. Chelsea FC is currently sponsored by a Japanese tyre manufacturer (YOKOHAMA) for the next five years. Manchester United, on the other hand, was sponsored by American International Group (AIG); an international insurance and financial services company till 2010 (Mnzava, 2013). Between 2010 and 2014 it was an American reinsurance company (AON) that sponsored Manchester United and currently the club is sponsor by General Motors (CHEVROLET).

In recent years, match-day revenue has continued to decline due to increased contribution from live match broadcast. This is evidenced by the International Live Audience Growth (ILAG) of EPL, in 2013/14 season, United States of America (115.5m); an increase of about 11.4% of 2012/13 season, Nigeria (89.6m); an increase of 39% above 2012/13 season, Hong Kong (17.4m); 78% increase over 2012/13 season, Malaysia and South Africa had (23.6m) and (43.9m) being 21% and 23% increase over 2012/13 season respectively (Deloitte and Touche, 2014). Both match-day and broadcast elements of football business are mutually dependent which indicate that increase in TV deals leads to decrease in match attendance at the game venue and consequently reduces overall match-day revenue.

In 2011, Arsenal FC and Manchester United had 36% and 33% respectively of their revenues accumulated from match-day. This entirely depends on stadium capacity, the rate of attendance and ticket prices. In 2007, Arsenal's match-day revenue grew with the relocation to Emirate stadium with larger capacity. Manchester United's revenue also increased with the expansion of its Old Trafford stadium capacity to 76,000 in 2006. The growth in the live broadcast audience of EPL has significantly affected match-day revenue negatively.

Broadcast revenue generated from television and radio coverage has been on the increase and this has been subjected to renegotiation over the years, mostly on every 3years. In 2008/09 season, it was estimated that Sky and Setanta paid a total of £1.7bn for domestic Premier League rights and £625m for overseas rights (Mnzava, 2011). In recent research conducted by Deloitte and Touché, (2016) and based on 2014/15 data, five EPL clubs featured among the top ten richest football clubs in the world (Statista.com, 2017). Manchester United with €519.5 million was third trailing behind Real Madrid that was named the wealthiest club in the world for the eleventh consecutive year and F. C. Barcelona with about €577 million and €560.8 million in revenue respectively. Other EPL clubs among the top ten wealthiest clubs in the world include Manchester City with €463.5m in the 6th position; Arsenal occupied the 7th position with €435.5m; Chelsea and Liverpool were 8th and 9th positions with €420m and €391.8m respectively.

However, match-day receipts contributed the least proportion of revenue according to Deloitte and Touché, ranging between 14% and 25% except for Arsenal FC where it contributed 33% is next to 41% generated from Broadcast revenue. Manchester United, Manchester City and Liverpool FC had the highest proportion of their revenue from commercial activities being 44%, 48%, and 41% respectively. Chelsea FC and Arsenal FC had highest contributions from Broadcast revenue being 43% and 41% respectively. EPL financial analysis shows that club wages and stadium development constitute the main operating expenditures of football business. While stadium development cost is peculiar to only clubs with such assets or intends to own one, wages cut across the clubs as the industry is labour intensive.

Financial losses in most clubs can be linked directly to the excessive wage spending, inflated players' transfer registration and contract payout resulting from disengaging managers' services before the end of their contracts. This is evidenced by wages as a proportion of turnover exhibited by the generality of EPL clubs. In 2012/13 Arsenal has 54%, Aston Villa 85.7%, Chelsea 69%, Everton 73%, Fulham 92%, Manchester City 86%, Manchester United 50%, and Liverpool 64% (Deloitte and Touché, 2014). In addition, a considerable amount has been expended on various stadia construction and expansion. Between 1998 and 2007 a total of £1,473m was involved following completion of Arsenal's Emirates stadium and extension of Manchester United's Old Trafford stadium (Deloitte and Touché, 2008). Perhaps if EPL clubs were ranked

on financial performance alone, going by Deloitte's research Manchester United, Manchester City, Arsenal FC, Chelsea FC and Liverpool FC would have ended up as 1st, 2nd, 3rd, 4th and 5th positions respectively on EPL table for 2014/15 season.

4.5 Understanding the Associations Between Sports Behaviours and Sports Outcomes

The scientific analysis of sports performance aims at enhancing the general knowledge of game behaviour with a view to improving future outcomes. McGarry, (2009) in his scientific issues and challenges as relating to sports performance suggested some issues for further research. First, he proposed that attention should be paid to further developing the understanding of associations between sports behaviour and sports outcomes. Second, that the interactions between opposing teams should be considered as a key for interpreting game behaviour and third, that behaviour of teams with or without possession of sports article need be considered for a complete assessment of game performance.

Finally, the context in which the sports behaviours are produced might offer some valuable information for the game analyst. For a better understanding of the associations between sports behaviours and sports outcomes, each of the above inter-linking challenges need be examined to analyse game behaviour with a view to improving future sports outcomes.

In sports performance analysis, the information provides the missing links between application and theory. Sporting organisations in a knowledge-based society must try to implement well-designed information systems to facilitate communication within the organisation and towards its exterior, so that sporting success and long-lasting development can be achieved (Rosca, 2011a). Sports managers must ensure that the future decisions and actions of their teams are shaped by information gathered from observations based on past performances. They should examine the interactions within their teams (Human relation) and how information resources impact on teams' performance through evaluation of complementarities and interdependence in the heterogeneous labour input from players and management, and how information communication influence team's performance.

In the words of Verboncu and Nicolescu, (2012), an information system is described as "the overall of data, information, informational flows and circuits, procedures and tools to treat

information, which is meant to contribute to the setting and to accomplish the objectives of an organisation". McGarry, (2009) observed that the failure of human observation as a recording instrument in sports practice when considering the importance of accurate information as a way of augmenting feedback for skills learning and sports management encouraged the systematic introduction of objective methods for documenting and quantifying sports performance.

The introduction and the ongoing advances in computer technology inciting the growth of computer-aided notation analysis systems for different sports established the basis for descriptive studies in a variety of sports. Nowadays, the scientific methods of analysing sports behaviour and other contributions from the sports science have enhanced sports practice for a few different sports. Examples are the 'goal-line' technology recently introduced for football and the computer-aided notation analysis used in tennis contentions. The aim is to obtain objective evidence of the documented behaviours with a view to improving future sports performance and providing accurate information to the sports practitioner.

Centralised final league results and updated standings serve to satisfy the stakeholders (players, fans, management, media, corporate sponsors and so on), who want to be up-to-date with the happenings in the premiership (Rosca, 2011). Information processed from the data collected at the end of each game regarding football matches is also crucial for the league management. Information about booked players is vital in organising the league. Where a player collects two yellow cards or is shown a red card, such player is suspended for the following game. Thus, having up-to-date information about the circumstance of booked players is significant for the league management. It is the responsibility of the "Refereeing and Laws of the Game departments" to timely inform the teams of the situation of their suspended players.

Extant literature show that sports behaviours are typically recorded in discrete but sequential manner with descriptive variables containing information such as; "Who"– the identity of the individual or team in possession of the sports article like the ball, bat, shuttlecock and so on; "What"– the behaviour and/or the outcome associated with the individual or the team in possession of the sports article like shoot, pass, point, goal scored and so on; "Where"– the location or the playing surface where the sporting behaviour and/or the outcome described took place, e.g. Emirates stadium, Wembley Stadium, Old Trafford, Stamford Bridge and so on; and

"When"– a given instant in time of the behaviour and/or the outcome in question. Although this approach to documenting sports behaviours has produced a wealth of objective data, from which useful inferences might be drawn from sports behaviour to sports outcome. Transforming match data into information play a role in marketing the league. Statistics can be formed to make the competition more interesting for the fans and other participants. A good example is the 'goal-scorers' standing, which has no direct influence on teams' standing. The team producing the top-scorer for a league season may not necessarily be the same team that wins the league. The teams' standing counts most because it provides the league champion. Then, why keeping a goal-scorers' standing? The answer is obvious: because in marketing terms, the top-scorer is an asset that may be used by the league in its promotional campaigns and has a direct effect on the marketability of the player.

It might be of great benefit to sports practice if actions (sports behaviours) are combined in meaningful ways with outcomes such as cost expended to revenue generated, point per goal scored, a game won to gameplay, point per cost expended and so on to enhance sports management and improve teams' performance. In order to advance our understanding of sports performance, the scientific method needs proceed from descriptive to explanatory by developing theories to assess the explanation generated using predictions (hypotheses) and subsequent data gathered to generate knowledge.

The use of *performance indicators* for evaluating sports behaviour is a reasonably substantive initiative within sports performance analysis and one problem with identifying valid metrics of sports performance is about the data relations between action (behaviour) and result (outcome) which are generally not well comprehended in scientific understanding (Nevill, Atkinson and Hughes, 2008). In football or soccer, ball possession is generally considered an essential lineament of sports performance, but its presumed correspondence to games' outcome remains unclear.

Theoretically, performance indicators ought to explain game outcomes if they are to provide a meaningful understanding of game behaviour. It follows the same trend in applied science that performance indicators should account for game outcomes if the measures are to be meaningful to sports practice. Taken from the earlier argument on what might be the outputs of a football

team, point or goal score; wins or win percentage; attendance or rate of attendance and even the turnovers might well be considered as quintessence performance indicators. To this end, further research on the associations between sports behaviours and sports outcomes is inevitable if accurate assessments of sports performance are to be established (Sarmento et al., 2014).

Assessing sports performance using appropriate metrics presents many challenges. In some instances, a given football team might be assessed on visual inspection as being portraying a good performance even if the game is lost. On the other hand, it might be an underperformance even if it wins the game. Whichever way, the team might have been adjudged as haven produced either a good or bad performance. It is unlikely that such judgments would be evidenced by performance indicators amidst other considerations such as the behaviours of the opponent team which greatly influenced sports outcomes as documented by performance indicators.

The fact here is that where indicators for a specific team show strong data pointing at efficient performance, then the chances are that the indicators for the other team show weak data thereby suggesting inefficient performance. As earlier pointed out in the example of sports article possession in football, measures assigned to a team tend to either add or take from the performance indicators of another team. Lopez-Felipa and Porterb, (2015) while addressing the issue of team-opponent interaction when analysing sports performance, pointed that measures of team performance tend to be taken without specific consideration of the context and the opposition (contestants) as noted here.

The context in which sports behaviours are produced is vital in performance evaluation and for game understanding. Extant literature shows that investigations on sports performance follow actions with the behaviour of sports teams usually being documented at the exclusion of the behaviour of opposing teams. Hence, the context in which sports behaviour is produced is often missed when analysing sports performance. The football game may be characterised by the opposition between two teams aiming identically; to win, or to avoid loose to the opposing team. In view of this, both teams need to coordinate their resources (intra-team coordination) through a collective strategy that considers the opposing teams (inter-team coordination) in an evolving context (Stalsett, 2017). These interactions between teams and game contest explain what drives sports performance. Teams explore the process of decision making during the game

to achieve a better sporting outcome at every moment. This is however regulated by the coaches' *tactical acts* and *mental solution-problem minds*. Coach perceives and analyses the game, determines a mental solution to the problem considering his knowledge and experience of the game and identifies a motor skill to solve the problem.

Related to the specificities of the game, coaches tend to develop strategies and training processes to automatize individual and collective actions. A football team with a game model or a specific game plan needs to explore the context, interact with environment and opponents to solve the emergent situation (Araujo and Travassos, 2009). Thus, rather than memorising a variety of rules, or prescriptions of actions, teams need to develop their capabilities to detect informational constraints specific to success-path (Stalsett, 2017). Conclusively, the Associations between Sports Behaviours and Sports Outcomes underlined why and how information communication influence performance.

4.6 The Impact of Stakeholder on Outcomes of EPL Clubs' Performances.

Esteve et al., (2011) argued that two contributions made by the stakeholders are the financial and non-financial contributions. These are in support of the strategic plans of these sports clubs as they are set to attain both financial and operational success. Against the views of Thiela and Jochen, (2009), Esteve et al., (2011) showed that sports clubs are not just profit organisations but profit maximisers as reflected in their relationship with various corporate bodies whose products are better advertised through sporting activities and other sponsorship programs. The contributions made by corporate organisations are not limited to funds; it includes facilities, technical support and sports equipment.

This section first identifies who the stakeholders are within English football industry and how they relate to the club to impact on performance. For a professional sports team in football, the key stakeholders include:

Supporters: They are known in football as *fans*. In the traditional economy, customers expect a good quality product and service from an organisation. The same goes for football fans. They expect a good show (game) from football contest in return for their huge expense on football tickets. Fans would always derive satisfaction from a good football game with its special

stadium atmosphere. They might not be interested in the size of clubs' net profits but do have an emotional link with their clubs expressed as kind of identity and loyalty. Their main expectation is for the club to win; thus, fans do put pressure on clubs to buy good players and engage the service of quality manager. Since good players are rare, labour price as determined by market mechanism is high and this means that football clubs must invest more money in the players if they are to satisfy their fans. In England, clubs have found an efficient tool in the use of internet forum on the clubs' website to get opinions of their fans. This is a platform where managers can easily discuss with fans. Nevertheless, managers, coaches and players often meet with fans to discuss and feel their desire. English football clubs do not communicate as frequent with shareholders as with fans.

Owners: Shareholders often seek a return on investment (profit and increase in the value of the club) when they invest their money, this is also the case with football. Club owners often invest in football to benefit from its media exposition or to get advantages like access to games and meetings with players. Shareholders are invited to attend the annual general meeting and the clubs publish their accounts every year or twice a year. English clubs have put in place special shareholders' lounge at the stadium for shareholders who attend home games, where they can meet the club manager. Shareholders endorse the club's strategy and often appoint key employees at the annual general meeting.

Employee: This category of stakeholder includes players, coaches or managers, often peculiar to sports clubs. These individuals are employees of the club and thus have similar expectations; to get an adequate salary, to be trained and to have good working conditions. Sporting success is the most important to this category. Therefore, financial bonuses are often related to success in players' and coaches' contracts. This means that their salary increases when the club wins. British football clubs run an equal opportunity policy when employing qualified staff, especially those with marketing skills, rather than ex-players who needed a job. Rajablu, Marthandan and Wan Fadzilah wan Yusoff, (2015) would advise management to adopt a strategy and to keep employees informed. Clubs communicate with players on a frequent basis through the coaches who are supposed to report any dysfunction for clubs' top managers to solve. Players as key elements of the clubs, all efforts are to satisfy them to improve teams' competition and to win.

Media: This category of stakeholders includes the media entities that invest financially in football, show games and the press and newspapers. Football clubs through competitive contests produce games pleasant to watch and attractive enough to make people pay to watch (pay per view system). Press and newspaper media expect newsworthy information that has tendencies of increasing their sales. The primary expectation is to get original information (newsworthy coaches and players). The press is always around the clubs and their players to inform their readers about the teams' news. Football clubs communicate with media on a regular basis especially when a game is re-scheduled. In England, the contacts between media and football exist between the media and the national football organisations. To answer media's expectations and to win, the Premier League clubs base their forecasts on the TV right contract.

Community: This category includes government, institutions, society which include individual and corporate organisations like banks and other football clubs. Government expectation of football clubs like other corporate bodies is in the form of tax. It is expected of football clubs to get involved in education centres, employment programs, community projects and charity programs through Corporate social responsibility (CSR) to develop the socio-economy of their local regions (Blumrodt, Desbordes and Bodin, 2013). Though governed by football associations and national leagues, nevertheless football clubs are subjected to rules enacted by the government and pay taxes.

Institutions equally expect football clubs to be part of the community support and accessible to everyone in the community without discriminations. Banks expect football clubs to pay up their loans on time and encourage players to open accounts with them (for example Barclays bank), other football clubs though are competitors and have similar expectations to attract more fans, more sponsors and to win as many competitions as possible. English clubs are always involved in the community projects; they organise stadium tours, stage soccer schools for children, they occasionally send their coaches to attend skills enhancement courses and even host social events at the stadium. Liverpool FC built a youth academy at Kirkby to assist children with their school work; it also works on an integration program set up for truants and delinquents. Football clubs sometimes share part of their profits with local and national charities.

Sponsor: Whether an individual or corporate entity, sponsors associate their names (brand) with football clubs to benefit from their popularity. Sponsors expect brand recognition which increases with better club performances. A *win-win* club attracts more fans, spectators and publicity which also increases sponsors' respective share of the market, media exposure and high sales. Football clubs do have commercial departments dealing with the sponsors to negotiate contracts with them. Clubs sometimes meet their sponsors at the stadium on match day since sponsors are given welcoming access to the exclusive luxury rooms installed to negotiate business affairs and to discuss commercial promotions with the clubs.

National and International Association: Internationally, these include associations like the Federation Internationale de Football Association (FIFA) which sets up the rules of the game, controls transfer and resolve football conflicts among the universal stakeholders. Then, the Confederation of African Football (CAF) in Africa, the Union of European Football Associations (UEFA) in Europe and so on. They represent FIFA and manage international competitions in their respective continents. At national level are the football associations of each nationality like Nigeria Football Federation (NFF), French Football Federation (FFF) and the Football Association (The FA) in England to mention but a few. Their expectations include making football clubs a famous ambassador for their region, compliance with rules and strive to promote a positive image of the game.

This specific list consists of both internal and external stakeholders which include the regulatory authorities such as the football federation and the government. A football club satisfies different needs such as athletic need; commercial need and social need as identified in the literature. The emphasis of this study is to consider how all these functions impact on sports performance. In the view of Alonso and O'Shea, (2012) the sport has increasingly been contributing towards regeneration in urban economies and social needs. However, the most widely held view is that managing multiple stakeholders and annexing the needs of a range of stakeholders into organisation's goal is critical to firm's strategy, long-term competitive advantage and the creation of organisational wealth (Freeman, 2010).

The issue of stakeholder relationships is an important aspect of football clubs' management. Even though many English football clubs are multimillion pound businesses, they also have a

highly significant social role that goes beyond issues of performance, profitability and efficiency (Walters, 2011). Management of stakeholders' relationship, stakeholders' engagement and stakeholders' participation enhance long-term firm performance by reducing uncertainty in external environments which also strengthen relationships between sources of dependence. Several sources of uncertainty characterised professional football leaving sports performances very dubious (Hamil and Walters, 2010). As a result of this vagueness, football clubs manage two types of dependent risks: commercial and financial. The commercial risk emanated from the teams' financial success which depends on sporting performances. Managing stakeholders' entails risk management to limit the damage caused to an organisation's reputation and minimise financial penalties to compensate for the imposition of government regulation and to enhance employees' relations through increased productivity and loyalty (Friedman and Miles, 2006).

Though most football stakeholders are kept at arm's length from corporate decision making, commitment to stakeholders' engagement only exerts a certain level of influence on corporate governance. It does not necessarily establish a commitment to collective and democratic decision-making involving stakeholders (Friedman and Miles, 2006). Stakeholders' participation enables stakeholder groups to have active involvement in decision making. This could involve integrating stakeholders' input into the governance structures of an organisation. According to Brown, Crabbe and Mellor, (2008), Stakeholders' participation entails involvement, collaboration, partnership, control and power delegation which enable stakeholders to exert input in the decision-making process. According to Friedman and Miles, (2006) maintaining regular stakeholder consultation (engagement) and decision-making opportunities (participation) between the club and community is a way of minimising the negative effects on residents and other stakeholders (fans) of the club.

Decisions regarding the engagement of club coaches or managers and playing talents sometimes involve certain contributions from external stakeholders such as fans, corporate sponsors and so on in addition to that of internal stakeholders as management, directors and club owners. Transfer market where playing talents are being traded is regulated by the football regulatory body; this consequently determines the stock of playing talents available to impact on clubs' performances. Fans supports and loyalties at the game venue serve as a perceptual or

psychological booster to the players which also impact positively towards the team collective performance. The referees' attitudes and decisions may create additional uncertainty. In a competitive sport, teams' performances depend directly on referees' decisions, which might be unlucky for a club as the outcome might reflect the referees' impact (Benkraiem, Roy and Louhichi, 2011). While the football authority regulates the conduct of players and teams both on and off the playing field, the team management influences the team performance through implementing appropriate policies, strategies and setting of attainable objectives.

Many sponsors and corporate organisations impact on football clubs to achieving their objectives through sponsorships deals, media advertisement of products and services and thus generate a substantial proportion of turnover from broadcast and commercial activities. These invariably increase the availability of funds to secure experienced and talented human skills (playing, coaching and management) to enhance clubs sporting success. Clubs performances on the pitch are equally influenced by the regulatory authorities through their increasingly innovative at improving sporting outcomes. Such innovations as goal-line technology and other computer aided notation analysis are meant to improve sports outcome and by implication team performance. It is also evidenced from the literature that the more fans a football club has, the higher the income generated through gate receipt, broadcast income from media advertisement because of higher market share and other commercial activities. So also, the more a club wins, the more it plays against increasingly prestigious adversaries and, thus, increases entries to its stadium. Conversely, stadium entries decline the more a club loses (Callejo and Forcadell, 2006; Hamil and Walters, 2010).

The Football Money League illustrates that the additional capacity at the Emirates Stadium led to increasing match day revenue by 111% and was mainly responsible for the rise in Arsenal's turnover from €192m in 2006 to €264m in 2007 (Deloitte and Touché, 2008). This probably shows that commercial need was the main driver underpinning the move to the Emirates Stadium rather than sporting need, as reflected by the requirement to increase stadium capacity to drive revenues.

4.7 Agency Theory as it Applies to Football Industry in England

Agency theory as explained in section 2.2.3 of this study, proffers contextual solution on how to align the differences in goals of the principal, other stakeholders and the agent so that they do not conflict, is closely related here as it applies to Football management in England. The importance of principal-agent relationship is a long tradition in football and is well established in traditional economics. Smith, (1776) and Mill, (1848) identified the manager as being engaged by entrepreneurs (owners) to oversee the day-to-day operations of their business. Again, Marshall, (1890) was very explicit when he opines that management; as the agent who integrates production functions should be recognised as a separate factor of production.

One inference from employing an agent is that owners (principals) are devolving both responsibilities and controls of their firms. The problems that could arise from separating ownership from control in football management were long established by Smith, (1776) when he submitted that:

> *"The directors of such companies, however, being managers of other people's money rather than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which they watch over their own (Book V, Chapter 1)."*

A major concern of owners of the modern corporations is the performance of their managers. Buchanan, Heesang-Chia and Deakni, (2014) hypothesised that in the absence of monitoring and incentives, managers (agents) would pursue other utility enhancing and objectives that are inconsistent with those of the owners (principals). Consequently, managers may just shirk by exerting less effort resulting in the firm being tagged as underperformers. This is otherwise known as hidden action problem and reflects the owners' inability to watch over the manager's actions. Due to these, the owners must either monitor or device incentives to impose orders upon the managers, seeking common objectives and to exert full effort.

In England as well as in many other parts of the globe, club managers (agents) are appointed by the club owner (principal) to annexe clubs' resources effectively and efficiently to achieve clubs' strategic goal. It implies that both the principal (mostly shareholders) and the agent (coaches or managers) have the same information prior to the relationship being established. However, the interests of the principal and the agent might diverge, or the agent might not be

as productive as expected given the agent's characteristics (Stout, 2012). This hidden information problem occurs when perfect information about the agent's characteristics is not known, or the agent sends a misleading signal about his or her actual ability. The totality of both the hidden action and the hidden information constitute the principal-agent problem within football industry. Consequently, both the players and the club owners face two problems. First, which agent to employ? And second, creating the required incentives to motivate the agent once hired. These two problems are usually looked upon in isolation.

It, therefore, shows that in sports especially football, agents are engaged because of the gains to specialisation which occur when the principal employs an agent with specialised skills and traits, creating a *potential* comparative advantage in the sporting contest. The role of the manager is crucial in professional sports as in production process, managers (agents) organise production as efficiently as possible given the available resources (human and otherwise) in any given time horizon. Managers are uniquely required to coordinate, integrate and monitor other human and non-human inputs towards achieving the corporate objectives.

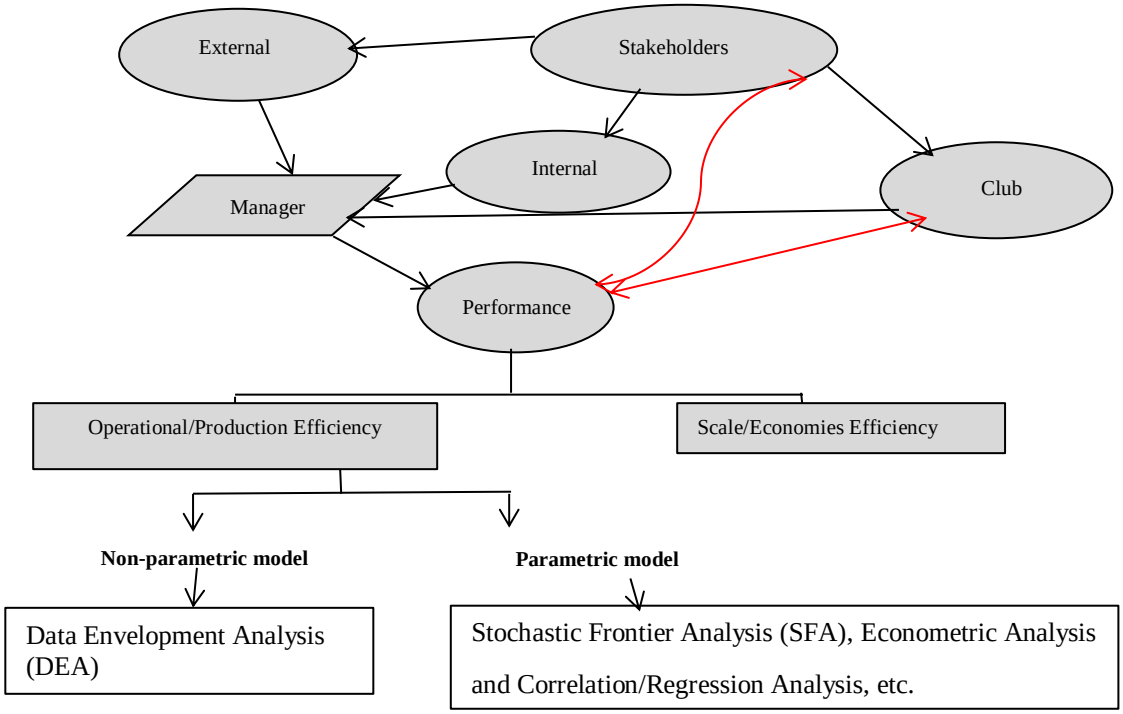
Football club management is centred on managerial activities of interpersonal relations, information processing, and decision making roles. The roles of team selection, team coordination and rules of the game, tactics, leadership and liaison constitute the interpersonal skills of the managers. Leadership is vital in team sports as it involves guiding and motivating athletes through verbal praise and criticism, formal recognition and dismissal. Liaison role involves networking, the ability to trade information with other football clubs especially in the transfer market, use of information about players' skills, experience and current form to monitor playing talents and analyse their performances.

Most of this information may be passed around the industry through performance indicators such as goals scored, competitions played, national and international awards won and so on and communicated to the principal (owners) for decision making purposes. However, decision making role involves resource allocation, decisions relating to players to be featured in a game, the choice of players to purchase or sold at the transfer market and decision on what drive sports performance. In the case of unforeseen events such as players' conflicts, unexpected injuries and other probable circumstances, managers are required to act as disturbance handlers.

Finally, managers should possess skills systematic to managerial effectiveness. These include: technical skills or knowledge to carry out a specific activity and a detailed knowledge of products and services produced both by the club and its competitors; communication skills to demonstrate the manager's knowledge of human behaviour as better managers are those that are able to clearly communicate, understand and cooperate with the team using interpersonal skills like tact, charm and diplomacy; managers' conceptual skills such as analytical ability, foresight, intuition, judgement and perseverant are important for effective planning and organizing. For an instant, managers should make strategic decisions on how to improve team performance. The ability to do this is enhanced by analysing events that have taken place and anticipating problems and changes that may occur in the future events. In England, the stakeholder-principal-agency relationship as it impacts on clubs' performance which informs the chosen methodology for the current study is shown in figure 4.1 below.

English football managers are at the centre of football production process and this explained why managers are being fired when clubs are not performing. Different stakeholder groups look up to the managers for efficient performance and to achieve the desired satisfaction for the money spent. Managers, therefore, stand as an intermediary between the football clubs whose aims and objectives are clearly stated and the nexus of stakeholders whose different claims need to be unified to establish a benchmark against which performance is measured.

Figure 4.1 Stakeholder-Principal-Agency Relations



Created by: Author's illustration of how theoretical framework linked with the choice of methodology in chapter 5.

4.8 Conclusion

This chapter started by justifying the choice of EPL as the case study; being one of the most competitive football leagues in the world. Its wide acceptability among many world footballers as the most sought-after league in the world in terms of playing quality, marketable opportunities and exposures; the most profitable league in terms of commercial activity and television broadcasting deal and the availability of data concerning the EPL significantly influenced the choice of English football clubs as the role model for other football leagues in the world. It presents a general overview of the EPL from the inception in 1992, highlighting some of the historical events associated with EPL on a seasonal basis and examines the Role of the Football Governing Body in the Premier League. The section further considered the associations between sports behaviours and sports outcomes, the impacts of stakeholders in influencing the outcomes of team performance and the practice of principal-agent relations as it applies to football management in England. However, the next chapter introduces the research methodology.

CHAPTER FIVE

RESEARCH METHODOLOGY

5.1 Introduction

The focus here is to discuss the methodology adopted in this thesis; a blueprint for the collections, measurements and analyses of data relating to the performance and efficiency of English Premier League football clubs between 2004/05 and 2015/16 seasons. The explanation provided here includes the research philosophy leading to the choice of methodology, research approach, strategies and methods for collecting and analysing data. The chapter also discussed the validity and reliability of the research methods, ethical issues relating to the study and a brief conclusion ended the chapter.

5.2 Differences Between Qualitative and Quantitative Approaches

Social science research is rooted in two distinct methodological orientations grouped as qualitative and quantitative approaches. These methods are often used in social science research, but the philosophical assumptions about the development and nature of knowledge differentiate the two methods (Maxwell, 2016; Fetters, 2016 and Molina-Azorin & Fetters, 2016). The qualitative approach entails an observation which does not only encapsulate a wide range of observational practices, but also denotes a fieldwork strategy that includes interviewing and perusal of documents (Riazi, 2016). This methodology base knowledge on constructivist or interpretive perspectives (Whiteley, 2012) and include strategies as narrative, case study, focus group and in-depth interview which emphasise words rather than quantification (Malhotra, 2010). With questionnaire and structured interview among selected football stakeholders, qualitative concepts can be operationalized and objectivity maintained.

This study requires an examination of complex social relationship or intricate patterns of interaction among Football Clubs on EPL (for example, stakeholders' and agency relationships). This invariably desires first-hand behavioural information on factors that drive efficiency among clubs on EPL. It, therefore, implies that a better view of reality may be achieved when a social survey is linked to some forms of questioning or participatory observation (Naturalistic Approach).

The quantitative approach, on the other hand, depicts a research method to the conduct of social research which applies a natural science and a positivist approach to social phenomena (Ostlund et al., 2011). A survey of English Football Clubs' financial statements and English Premier League table are typically seen as the preferred quantitative research instrument as they can apparently be readily adapted to evaluate the performance of teams in EPL. Both quantitative and qualitative research are thought of as complementary and should, therefore, be mixed in research of this nature. This coincides with the growing attention focused upon *triangulation* in social research. Although, Zlatev, (2012) points to the cumulative advantages that accrued to a research that combined both quantitative and qualitative methods, however, Fielding and Cisneros-Puebla, (2009) showed concern by being suspicious about the extent to which a neat, additive or synergic effect of mixed approach as postulated by Zlatev, (2012) could bridge the gap between the two approaches.

Considering the differences in the two approaches which might likely dictate the choice of data collection method or instrument and analysis procedure. Zlatev, (2012) emphasised that quantitative or qualitative distinction has become one which in large part is derived from epistemological issues and that questions about research technique are taken to be systematically related to these issues. While quantitative approach uses empirical methods, measurements or quantification, representativeness and generalisation, qualitative approach, on the other hand, uses the notion of no absolute truths, construction of meaning and that meanings are non-existent until a mind engages in them. Table 5.1 below depicts the major differences between qualitative and quantitative research approaches.

Table 5.1 Differences Between Qualitative and Quantitative Research Approaches

Orientation	Qualitative Approach	Quantitative Approach
Paradigm	Interpretivism/Idealism	Positivism/Realism
Research Purpose	Subjective description Empathetic understanding Exploration	Numerical description, Causal explanation, Prediction
Epistemology	Subjectivist	Dualist/Objectivist
Methodology	Hermeneutical/Dialectical	Experimental/Manipulative
Research Methods	Ethnographies, Case studies, Narrative research, Interviews Focus group discussion, Observations Field notes, Recordings & Filming	Empirical examination, Measurement, Hypothesis testing, Randomization, Blinding, Structured protocols Questionnaires
Scientific Method	Inductive approach, generation of theory	Deductive approach, testing of theory
Nature of Data Instruments	Words, images, categories In-depth interviews, participatory observation, field notes, and open-ended questions	Variables Structured and Validated-data collection instruments
Data Analysis	Use descriptive data, search for patterns, themes, ad hoc features, and appreciate variations	Identify statistical relationships among variables
Results	Particularistic findings; provision of insider viewpoint	Generalizable findings
Final Report	Informal narrative report	Formal statistical report with: • Correlations • Comparisons of means • Reporting of statistical significance of findings

Source: Adapted from Antwi and Hamza, (2015) Qualitative and Quantitative Research Paradigms in Business Research: A Philosophical Reflection, European Journal of Business and Management, Vol.7(3); pp. 222.

5.3 Why Using a Combination of Methodologies

Although the problem under investigation might dictate the relevant method(s) of approach, the choice of an epistemological base leads to the preference for specific methodology on the ground of its appropriateness. Lincoln, Lynham and Guba, (2011); Whaley and Krane, (2011) and Sparkes and Smith, (2014) illustrated how the philosophical assumptions underpin a paradigm influence its methodology, but they did not make claims that these determine the methods used in any given study (Sparkes, 2015). It may be argued that how data are collected might not always be dictated by the researcher's ontological or epistemological position. Sparkes and Smith opined that borrowing a qualitative or quantitative data gathering technique does not make one a positivist, constructivist, or interpretive researcher. They submitted that the same data gathering technique could be used in very different ways, for different purposes not minding differences in the philosophical assumptions by researchers operating within different

paradigms. Based on this, the standard criteria used for the choice of an approach may relate to the quality of study which is normally reflected in the validity, reliability and generalizability of the study (Tenenbaum, Eklund and Kamata, 2012).

Moran, Matthews and Kirby, (2011) suggested that mixed method approach has much to offer researchers who believe that quantitative and qualitative methods may be combined effectively. According to Hagger and Chatzisarantis, (2011); Hesse-Beber, (2010); Horn, (2011) and Moran, Matthews and Kirby, (2011) they proposed benefits for undertaking a mixed method approach to include offsetting weaknesses of individual approach and providing stronger inferences. They believed that the respective weaknesses of quantitative and qualitative methods may be overcome and neutralised through the complementary strengths of each approach to provide more accurate inferences. It may be enough to say that triangulation allows for greater validity in a study by seeking corroboration between quantitative and qualitative approaches. Using a combination of methods allows for the emergence of a complete and comprehensive picture of the phenomenon being studied and might generate new insights (Sparkes, 2015). Qualitative methods may be used to develop hypotheses to be tested by quantitative methods. Complementing quantitative methods with qualitative methods may assist in the further and quicker development of theory, improvement, testing and refinement of psychometric tools for use in subsequent quantitative studies (Sparkes, 2015).

A quantitative survey technique may enhance purposeful sampling and case selection in qualitative studies whilst also assisting in identifying a population of interest that was not predicted. More so, the quantitative approach might be used to obtain a representative sample to enhance the generalizability or transferability of qualitative findings. Therefore, a study could either adopt a *mono-method* using one of (qualitative or quantitative) approaches or *multiple methods* using more than one approach. Culver, Gilbert and Sparkes, (2012) in their study on qualitative research in the next decade 2020-2029 and beyond, it was found that out of a total of 75 mixed methods articles analysed, about 22.7% (17) were classified as adopting qualitative approach in their selected sample, 25 employed open-ended questions within a survey or test, 23 used tests and interviews, while 10 used systematic observation in conjunction with interviews. This emphasised a growing acceptance of mixed methods in research.

More often, the choice of a methodological approach may be influenced by the research objectives which might necessitate a qualitative or quantitative and or a combination of both qualitative and quantitative data or information to solve each of the research problems. Emerging from the gaps identified in the extant literature in the field of performance management and efficiency measurements, the current study provides solutions to the research questions restated below to remain focus using a mixed methodological approach combining both qualitative and quantitative methods in an evaluative case study research as suggested by Substance, (2010):

i) *Which EPL club(s) can be regarded as the most efficient using the research methodology (DEA and Naturalistic Approach)?*

ii) *To what extent does EPL ranking evaluate efficient performance and what factors are responsible for such outcomes?*

iii) *Could it be argued that the existing methodology in ranking EPL football clubs needs modification to align with the recent transformation in managerial focus within football industry?*

iv) *How does the social value of football clubs' impact on the stakeholders' assessments of club's performance and efficiency?*

v) *How can the current method of assessing teams' performance be improved?*

These research questions are believed to have contributed immensely to the choice of the methodology adopted in this study.

5.4 Data Collection Methods

Given the parameters of this study, several data collection instruments were used to gather both qualitative and quantitative data depending on the problem to be addressed. Social research requires a research logic and procedures that appreciate and reflect the distinctiveness and intricacy inherent in social interactions (Vasilachis de Gialdino, 2011). Indeed, extant literature abundantly acknowledges various methods of collecting data to include such strategies as narratives, case studies, focus groups, observations, interviews, questionnaires and experiments. Though not exhausted, data thus collected whether qualitative or quantitative may either be classified as primary or secondary data.

The qualitative and quantitative classification is helpful in differentiating between both data collection techniques and data analysis procedures. A major way of distinguishing types of data

is to focus on numeric and non-numeric data. Qualitative is commonly used as a synonym for both data collection techniques and data analysis procedure that generates or uses non-numeric data such as interviews and data categorising procedures. In contrast, quantitative is largely used as a synonym for data collection techniques such as questionnaires, experiments or measurements and data analysis procedure using parametric methods in statistics or graphs thereby generating or using numeric data.

Time horizon is another scenario that distinguishes data types. The scenario that reflects a moment in time or a range of short period representing an event is called a *snapshot*. On the other hand, a study conducted over an extended period is referred to as *longitudinal* and may require a *cross-sectional* data reflecting time horizon for the study. However, this seems to fully encompass what the current study is doing, as it measures performance and efficiency in terms of resource utilisation among football clubs playing in EPL between 2005 and 2016. In other words, the study gathers more than just a snapshot. These include both qualitative and quantitative data streams classified as belonging to either *primary* or *secondary* data group.

5.4.1 Secondary Data

These are data that were initially collected by someone else and for a different purpose other than the current engagement. In contrast to primary data, secondary data tends to be readily available, less expensive and easy to obtain. A common type of secondary data used increasingly in research is administrative data (Hoagwood et al., 2016). The term refers to data collected routinely as part of everyday operations of an institution, organisation or agency. Examples are hospital intake and discharge records, national population records, motor vehicles registration, workers' compensation claims records, premier football league table and more. Because administrative data are collected over an extended period, they are comprehensive and routine. Data collected tend to have large samples and allow researchers to detect change over time. Secondary data collection techniques used in this study include:

Documentation. This study source secondary data through perusal of published documents such as; Annual Financial Report of English Premier Football Clubs; Premier Football League Table; Articles in journals; Textbooks and other publications from newspaper, television and internet (Orbits and Econlits databases) including *statista* – a statistics portal where total population of

the United Kingdom (UK) from 2004 to 2015 were sourced (Appendix II). Again, these comprise of both qualitative and quantitative panel data presented in chapter six.

An idiographic (case study) examination of performances and activities of individual football clubs and the production process as documented in Annual Financial Report, Premier League Table and Databases were employed to gain an in-depth understanding of the EPL being investigated. This approach forms the major source of secondary data about EPL football clubs. The choice of data type used in this study depends on many factors which include the research questions, research objectives, researcher's budget, skills and available resources. Based on these and the underlying research philosophy, the study chooses to use both primary and secondary data.

5.4.2 Primary Data

The following data were collected specifically for this study, though, tailored mainly for the research needs, they are however not only expensive to gather but sometimes difficult and problematic to obtain. Several qualitative and quantitative data collection instruments were used in this study to enhance validity and reliability of the research. Among the primary data collection instruments are:

Observation of research subjects: This involves the art or science of describing a group or culture (in this case EPL). It is common among researchers to participate in the activities of the phenomena under investigation (participatory observation) and this is known as *ethnography*. It entails both introspective and retrospective, keeping and watching the video recording of matches played by selected research subjects, survey through mailed or postal questionnaires, structured interviews among selected stakeholders' representatives and keeping diaries of research subjects.

The survey provides either numeric or non-numeric description of trends, opinions, attitudes, or attributes of a population by studying a sample of the population. Typically, data were collected using structured interviews or questionnaires to generalise from the sample of the population. A semi-structured questionnaire prepared the ground for a *face-to-face* interview and identified those willing to participate in the structured interview that is expected to capture any

intervention in the football production process resulting from uncontrollable variables such as environmental attributes like population, behaviours of external stakeholders and location. This is in tandem with the established position in the literature that sequential method is used where the results of one method are essential for planning the next stage in the research process (Li et al., 2014). A phenomenological approach is aiming at the better understanding of stakeholders' perceptions and perspectives of issues investigated using a structured interview with selected stakeholders who have had direct experience with football management forms a vital method adopted in this study.

Again, the researcher inquiries into the activities or events of EPL football clubs from one or more stakeholders' group to provide stories about clubs' performance and efficient use of resources and then retell the stories into a narrative chronology which combines views from the participants and the researcher. Therefore, survey enhances the collection of the structured and systematic dataset which enable systematic comparison between cases of similar features (Harris and Brown, 2010). The conduct of this survey is to have a reflective perspective on DEA analysis conducted with empirical data. The survey provides a first-hand data or information from the perception of the nexus of stakeholders in football industry regarding the performance and efficient use of sports resource and how the current performance measurement system might be improved. Data obtained through the survey were contextually analysed using NVivo data analysis software. The results from contextual analysis and that of DEA analysis were compared to enhance the understanding of professional football performance, the efficiency of factors utilisation and facilitate better operational and managerial policies for sports managers.

Stakeholders' View

Primary data were sourced directly from the social actors to seek the opinions of football stakeholders (fans or supporters, sponsors, regulatory authorities and all stakeholders identified in chapter two) regarding issues pertinent to clubs' performance and efficiency measurement. The general approach here is to find out how football clubs might be assessed in terms of overall performance and to establish the most efficient club in terms of resource utilisation for ranking purpose whilst analysing how consistency is the EPL clubs in terms of performance and efficiency over the researched period. The data collection techniques like interviews,

questionnaires and focus-group have different constraints and specific problems, with the interview poses the most difficult challenges in this study. Many stakeholders could not grant *face-to-face* interview due to time constraints, tight work schedule and lack of motivation to engage in such activity. Only a few consented to the *face-to-face* interview. Initially, searches were conducted on football stakeholders to be interviewed. These include (Players, Managers, Fans or Supporters, Sponsors, Regulatory Authorities, Local Communities and Academicians in sports departments of UK universities).

However, after more than 50 postings with one response in 55 days, it became apparent that an alternative approach was necessary. To this end, searches were carried out for fans or supporter clubs on individual EPL clubs' website, UK universities where sports management courses are taught, English Football Association website (The FA) and other stakeholders whose email addresses, phone numbers and other contact details could be sourced online and were directly contacted. This method proved to be particularly more successful with most of the respondents being academicians from different UK universities, fans from various clubs and a few players and managers some of whom later agreed to the personal or *face-to-face* interview. A total of eighty-two respondents were received through questionnaires of which twenty-seven consented to a *face-to-face* interview (Appendix V). Thus, twenty-seven structured interviews were conducted among 13 football fans, 6 academicians from sports departments within UK universities, 3 football players, 3 staff from the Football Association and 2 football managers both from EPL. These interviews were conducted with research ethics duly observed (Appendix VI) and interviewees were informed of their rights to opt out should they wish not to continue, while the purpose, the use and the reporting of the exercise were obviously declared with the reassurance of confidentiality of information provided before and after the commencement of the interview.

Consequently, questionnaires and focus group were chosen as preferred tools with the questionnaire producing higher responses. These data collection methods seem appropriate for the needs of this research and indeed are often used in the academic circle when gathering primary information (Al-Shamali, Al-Shamali and Al-Khoury, 2014). Having said this, whilst carrying out the review of existing literature, it became apparent that most of the existing studies have used DEA methodology in its different applications to assess performance and efficiency of

football clubs including EPL, none has ever combine DEA with Naturalistic Approach (NA) as in this study to confirm or refute the findings of DEA in previous studies regarding the performance and efficiency of team sports.

Thus, the questionnaire was designed as a *two-in-one* questionnaire, combining interview questions since the *face-to-face* interviews were barely feasible. Questions that ought to have been asked during the interview were included in the questionnaire making the questionnaire a *hybrid* type. Though structured, it contains both closed and open-ended questions to allow stakeholders to express their views and to be easily administered and analysed by the researcher. The questionnaires were in two parts: First, personal information such as demographic questions (e.g. which stakeholders' group best describe you), club support questions (e.g. what is your favourite football club, how long have you been following football and what has been keeping you over the years), club performance questions (e.g. how best would you assess the performance of your favourite club, how do you watch football games and so on). In the second part, are the evaluation questions (Appendix IV).

The questionnaires were then produced and distributed using online blogs such as yahoo professionals' groups, survey monkey, football fans' websites, e-mails and at football venue during football matches. The purpose of the questionnaire is to find out in more details how emotions, loyalty, social values, and other non-quantifiable factors affect and impact on performance and efficiency of football clubs from different stakeholders' perspectives. More so, it complements or corroborates the findings of DEA analysis to enhance and provide better managerial policies for the football managers. With the inclusion of questions initially designed for interviews, it becomes possible to decipher to a certain level whether the perceptions of the stakeholders' support the result obtained from DEA analysis.

These primary data were sourced over a period of 9 months starting July 2015 and completed by March 2016. Emails sent to participants were informal, friendly, customised and personalised with the subject and aims of the research clearly stated. It also reassures the participants of the importance of confidentiality of data and the use of the information provided. The online questionnaires are web-based and self-administered. Respondents were from all around the United Kingdom and beyond and were intended to complete the questionnaire by

themselves. Meanwhile, the emphasis was placed on how to ensure that all relevant information was extracted by including relevant questions (i.e. questions that will provide information required to meet the research objectives). It is expected that the information collected through this process helps in verifying and substantiating data collected through secondary method (Al-Shamali, Al-Shamali and Al-Khoury, 2014).

5.4.3 Datasets and Variables

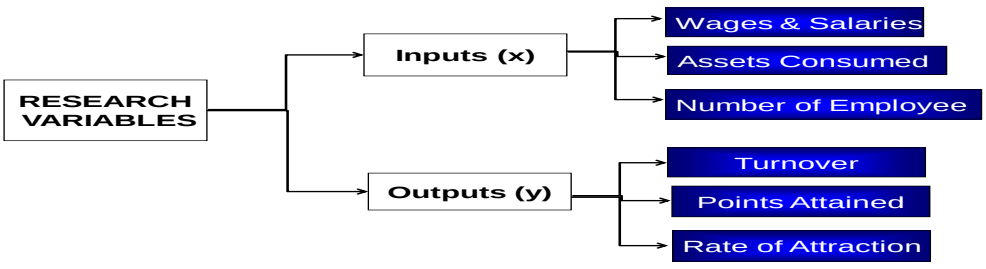
The dataset includes both quantitative and qualitative data from all football clubs that featured in the English Premier League for 12 seasons from 2005 to 2016. The selection of input and output variables for this study follows most previous studies in the extant literature. Though the choice of input or output variables is at the prerogative of the researcher based on his knowledge of the process being analysed and the specific objectives set to achieve. The availability of data is also a factor in determining the list of inputs and outputs variables. In this study, Analytical Hierarchy Process (AHP) is used to structure and rank the input and output variables to select the most appropriate ones to be included in the analysis.

Given the technology representing the relationship between inputs and outputs, inputs denoted by '*x*' is the independent variable, while outputs 'y' is the dependent variable. This relationship is otherwise put as:

$$y = f(x) \qquad (1)$$

What constitute '*x*' and '*y*' (the research variables) is explain in the figure 5.1 below.

Figure 5.1 Research Variables



Source: author's analysis of the research variables.

On the inputs side, this study uses: (i) Total wages and salaries (made up of players' salaries, salaries of coaching crew and other staff costs); (ii) Assets consumed (comprises of depreciation on fixed assets, players' amortization and other impairments) and (iii) The number of employee including players, trainers, management and other line-staff, while outputs are: (i) Points attained per season; (ii) Team's turnover per season and (iii) a discretionary variable (Spectators' or Games' Rate of Attraction) is introduced to enhance the objectivity of the chosen data analysis model (DEA). Spectators' rate of attraction is taken as win percentage multiply by the population of the league base UK (Appendix II). It also captures the totality of football viewers rather than the absolute attendance figure at games' venues. Moreover, not all English clubs have Stadium and where they do, are of varying capacities.

This variable is introduced to: (i) stress the homogeneity assumption of DEA decision making units as the football teams are often from different locations with varying population densities and ultimately differing demand for football entertainment, which in turn influences the revenue potential of the clubs; (ii) the choice of UK population (League base) as against home population of specific football club is to capture the totality of fans attracted to a particular match either by present at match venue or viewing via media relay which is assumed to depend on the club's win percentage. That is, the higher the clubs' win percentage; the more attracted are the fans to the clubs' games. Nevertheless, ticket takings from match venue and sponsorship fee on media broadcast are incomes reflecting on clubs' turnovers. In this way, sport, financial and social variables are combined in estimating technical efficiency of multi-objective organisations (Carrillo and Jorge, 2016), thereby, allowing a more comprehensive and holistic performance measure. The panel data for the DEA analysis shows inputs and outputs variables in the column while the units or football clubs are shown in the rows.

The choice of variables depends solely on the process under consideration, as is the classification of inputs or outputs. What may be input when measured against a set of goals may be output if another is considered. Whilst output may be physical goods, services or a measure of how efficiently a unit has achieved its goals; the input may include resources that are not a product but merely an attribute of the environment in which the unit operates. The input and output associated with football business could be classified as either controllable or uncontrollable variables. Controllable because the management of the Club has control and so can be

varied (e.g. outputs). Inputs, on the other hand, may either be controllable or uncontrollable. Uncontrollable or exogenous inputs are those whose characteristics or quantities of use are outside the control of the Club management.

Consequently, this study extensively applied the accounting matching concept in the choice of what constitute the income and expenses per season. For example, assets consumed as an input in this study includes yearly depreciation on fixed assets, players' amortisation and other impairments. These further stressed the homogeneity of the units as only a few clubs own, operate and manage stadium: a consequential source of income to football clubs.

5.5 Research Approach

This study adopted a mixed research approach combining quantitative and qualitative or naturalistic approaches. This combined methodology seems to be more appropriate for this study considering the nature of data used (Numerical and Non-numerical data) and permits a critical investigation of football clubs' performances from different stakeholders' perspectives. It, therefore, implies a collection of empirical data, facts or information about the phenomenon being studied (Tsang, 2014). Thus, a case study approach is adopted. Case study approach involves a detail investigation of the phenomena being studied (EPL), though is extensively used in social sciences, life sciences and clinical psychology; its robustness lies in the naturalistic way of sourcing data or information about the phenomena being investigated. This further enhances the uniqueness of the current study in the field of sports performance management and efficiency measurements.

5.5.1 Why Using Case Study Approach?

As earlier mentioned, the choice of data used in this study stems from many factors which include research questions, research objectives, researcher's budget, skills and available resources. This study intends to proffer solutions to problems relating to performance and efficiency evaluation of football clubs over a relatively large period as suggested by Kern, Schwarzmann and Wiedenegger, (2012) and Barros, Peypoch and Tainsky, (2014) which calls for a cross-sectional (longitudinal) data. Considering the population of clubs involved in footballing and to enhance the research validity and generalizability. A case study approach

may be a better choice to narrow down the research population for proper and effective sampling. More so, administrative data which are perceived to be comprehensive and routinely generated by institutions and organisations such as Football Clubs and Premier League form the major type of data used in this study. It could have been more cumbersome and more expensive if the research had involved all the existing football clubs in England, Europe or worldwide for the research period (2005 to 2016). Hence, the case study approach.

Easton, (2010) defined case study research as a method that *involves investigating one or a small number of social entities or situations about which data are collected using multiple sources of data.* Yin, (2009) opined that the issue being explored is usually a contemporary phenomenon in its real-life context. Therefore, a case study research is *an intensive investigation of a phenomenon in its natural setting, and often makes use of a variety of data sources* (Tsang, 2014). Tsang believes that the findings of case study approach may be generalised from a critical realist perspective, demonstrating that critical realism provides an enriched perspective of this methodological concerns relative to positivism and interpretivism. He, therefore, supports the view expressed by Wynn and Williams, (2012) that *generalizability has a significance in critical realism and requires further elaboration relative to case study research*.

Knowledge gained from experience is empiricism and relies on positivist methodology where empirical data, facts or evidence have been derived from observation and experiment. The current study adopts a mixed research method that combines both positivist and naturalistic or interpretive approaches. It, therefore, adopts a pragmatic epistemological approach. This is because the case study approach is rooted in both positivism and interpretivism epistemological philosophy. Pragmatic epistemological view of knowledge implies that specific theories or findings could help achieve certain goals and support some values but might also counteract other goals and values. It suffices to say that the final criterion of what is valid knowledge is assessed from the goals that the knowledge can support.

It might be argued that pragmatic theory of truth implies that what is true, is determined by considering the consequences of the underlying claims (Carling, 2012 and Schoneberger, 2016). That is, the theoretical/conceptual/philosophical (TCP) underpinnings the case study. Marr, (2013) observed that targeting the TCP precepts ‘evince, by far, the greatest internal

dissension' within behaviour analysis. Apparently, this approach allows the theories and concepts mentioned in chapter two to justify the consequences and goals, values and interests they support. Table 5.2 below aligned the research objectives with the paradigm and methods adopted.

Table 5.2 Aligning Research Objectives with Paradigm and Methods Adopted.

Research Objective		Paradigm	Methods Adopted
i)	To identify efficient football club(s) and deduce how efficient clubs utilised their inputs to produce effective outcomes.	Quantitative	Observation; AFR, PLT, internet and databases (Orbits, Econlits & Statista).
ii)	To evaluate the effects of management policies on overall performance using both quantitative and qualitative data.	Quantitative and Qualitative	Observation; AFR Interview and questionnaire
iii)	To investigate how football stakeholders, evaluate the performance and efficiency of their clubs.	Qualitative	Interview and questionnaire
iv)	To explore how EPL clubs are ranked and thus identify factors that contribute to effective team performance.	Quantitative and Qualitative	Observation; PLT Interview and questionnaire

Source: author's analysis of the relationship among research objectives, paradigm, and methods. **Abbreviations**: (AFL) Annual Financial Report; and (PLT) Premier League Table.

5.5.2 Population and Sample Size

The study involves a balanced panel data of 37 clubs played in the EPL whose composition varied from season to season due to the system of promotion and relegation but limited to 20 clubs per season over the period 2005 to 2016 (20*12 = 240 observations). With three (3) clubs not making their data available in certain season(s), thus, a population of 237 EPL football clubs were assessed during the research period, while a sample size of 8 clubs is selected across the 12 seasons for time series analysis based on 100% participation in all selected seasons of the EPL. The performance of these clubs is then analysed using DEA - Window Analysis to evaluate variations in their efficiencies over the selected 12 seasons. Hence, the window sample is made up of a total of (8*12 = 96 observations) 96 clubs representing 40.51% of the research

population, but only 21.62% (8 out of 37) clubs featured consistently in the English Premier League for the period under consideration. This systematic sampling approach first divides the research population into seasons and then selects constant clubs in all the season regardless of their position on the league table (Appendix I).

In a competitive industry like football; characterised by scarce resource (Financial and non-financial), performance measurement and management assume a decisive role and requires a more appropriate analytical tool. Hence, Data Envelopment Analysis (DEA); a non-parametric technique that evaluates the efficiency of Decision-Making Units (DMUs) in converting multiple inputs into multiple outputs is employed. In recent years, we have seen the widespread application of DEA in several fields; these include healthcare, education, manufacturing, retailing, banking, sports and so on, but to the best of my knowledge, no study has integrated DEA with Naturalistic Approach (NA) to assess performance and efficiency of English football clubs.

This study considered football contest as a productive activity and football clubs are regarded as decision-making units or production units whose goals are to maximise outputs in terms of achieving optimal operational and financial performances. From the economists' production framework, a football team uses a set of *x* inputs to produce a set of *y* outputs through a technology that represents the relationship between inputs and outputs. This relationship was depicted in equation 1 above as $y = f(x)$. Where the process involves multiple inputs and outputs, the equation is expanded and simply put as:

$$T = [f(x, y): x \text{ can produce } y] \quad (2)$$

Where; *T* is the production function; and

x and *y* are inputs and outputs respectively.

This study sees both quantitative and qualitative methods as not being mutually exclusive and therefore adopts the pragmatic approach which combined multiple data sources, theoretical perspectives and methodologies. It generally denotes a reference to a combination of research methods. According to Heit and Rotello, (2010) qualitative methods can be used to explain

quantitative findings and that any research can be affected by different kind of factors which if extraneous to the concerns of the research can invalidate the findings.

5.6 Framework for Data Analysis

From the extant literature, a wide range of data analysis methods was identified for analysing performance. These include the traditional accounting ratio analysis, balanced scorecard, stochastic frontier analysis, regression analysis, Malmquist index and so on. Whichever method is used will always belong to either parametric/econometric or non-parametric approach. In the parametric approach, the most popular methodology is stochastic frontier (Barros, Peypoch and Tainsky, 2014; Barros and Garcia-del-Barrio, 2008; Hofler and Payne, 2006). Meanwhile, DEA is the most commonly applied method of non-parametric approach (Zambom-Ferraresi et al., 2015; Estelle and Ruggiero, 2014; Halkos and Tzeremes, 2013 and Bosca et al., 2009). In this study, while considering how to evaluate aggregate efficiency and performance of EPL clubs, a DEA model is adopted. Since DEA allows the use of multiple inputs/outputs criteria, the choice of input and output variables is at the discretion of the researcher and how well the researcher understood the process being analysed. In identifying factors contributing to clubs' performance, discourse analysis in NVivo is used to analyse the qualitative data and the results of the two analyses were interpreted to validate the research findings.

To enhance objectivity, the concept of Analytical Hierarchy Process (AHP) developed in Saaty, (1980) seems to be useful in a complex decision-making process involving multiple criteria and therefore is used to structure all identifiable variables. AHP; a multi-attribute decision tool that allows financial and non-financial, quantitative and qualitative measures to be considered in analysing trade-offs among variables. The AHP assists decision-makers to incorporate variables of any kind while trying to solve complex problems by structural decomposition of the problem into hierarchies and prioritizing the variables using pair-wise correlation comparison (in this case incorporated in the new DEA-Solver 4.2.0) to determine the overall value for ranking the variables (Ishizaka and Labib, 2011; Soleimani-Damaneh, Hamidi and Sajadi, 2011).

This technique facilitates the choice of inputs and outputs to be considered in the current research as it aims at assessing the aggregate performance of clubs in English premier football league in relation to their financial and operational success through resource utilisation. AHP

"allows a better, easier and more efficient identification of selection criteria….." (Soleimani-Damaneh, Hamidi and Sajadi, 2011). As in Mavi et al., (2012) page 116;

> "*It is designed to cope with the intuitive, the rational and the irrational when decision-makers make multi-objective, multi-criterion and multi-factor decisions with or without certainty about any number of alternatives*."

Because of the great potentialities of AHP technique in solving multi-criteria decision-making problems, it is extensively used in various fields of performance evaluation such as taking a decision about expanding oil fields, agriculture, resource allocation and decision making in general (Soleimani-Damaneh, Hamidi and Sajadi, 2011). Since its development by Saaty, it has featured prominently in solving many complicated decision-making problems. Huang, Keisler and Linkov, (2011) identify the significant growth in AHP related publications and opine that "the wide use of AHP may be related to the availability of user-friendly and commercially supported software packages and enthusiastic and engaged user groups".

The current study chooses from available variables identified by AHP based on a rank comparison between "X - Y plot" incorporated in the new DEA-solver 4.2.0 - a facility that measures the correlation between variables (input and output). The correlation may either be negative or positive; this does affect the choice of variables to be accepted or rejected. A yearly average correlation of 60% is assumed in this study as the cut-off ratio between variables X and Y. Therefore, correlation values less than 60% is not included in the definitive analysis especially where they are negatively correlated as it tends to overestimate efficiency scores. Though there is no standard norm for the AHP pair-wise correlation comparison value, the current study accepts positive correlation of 60% and above between variables (*X*, *Y*). Any negative value will be rejected and excluded from the final analysis (Djordjevic, Vujosevic and Martic, 2015)

Table 5.3 Correlation Between Inputs (X) and Output (Y) in the Preliminary Model (3 Outputs and 3 Inputs)

Output	Year 1			Year 2			Year 3			Year 4			Year 5		
	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA
Wages & Salaries	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Assets Consumed	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Number of Employee	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Output	**Year 6**			**Year 7**			**Year 8**			**Year 9**			**Year 10**		
	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA
Wages & Salaries	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Assets Consumed	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Number of Employee	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Output	**Year 11**			**Year 12**											
	P/A	T/O	ROA	P/A	T/O	ROA									
Wages & Salaries	*	*	*	*	*	*									
Assets Consumed	*	*	*	*	*	*									
Number of Employee	*	*	*	*	*	*									

Note: * is the value of correlation comparison arrived at using DEA – "X - Y plot". P/A (Points Attained); T/O (Turnover); and ROA (Rate of Attraction)

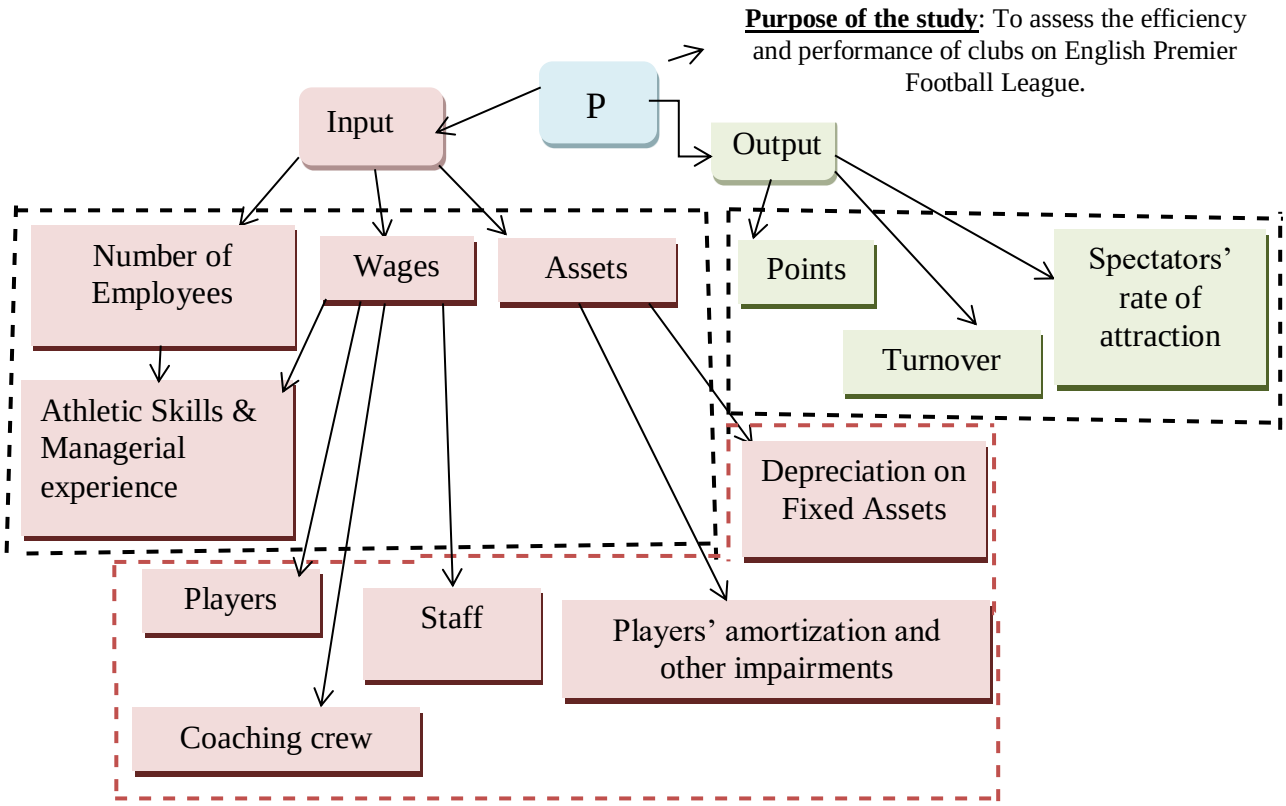
Table 5.4 Yearly Average Correlation Between Variables (X, Y)

Y / X	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Wages & Salaries	**	**	**	**	**	**	**	**	**	**	**	**
Assets Consumed	**	**	**	**	**	**	**	**	**	**	**	**
Number of Employee	**	**	**	**	**	**	**	**	**	**	**	**

Source: Created by Author. Where ** denotes a yearly average correlation between variables X and Y. Therefore, correlation values of 60% and above are accepted, and such variables are included in DEA definitive model analysis. The correlation is incorporated and calculated by DEA solver 4.2.0 at 5% significant level.

However, since the analysis spans over a range of time (12 seasons); it is likely for any of the variables to have negative values at any point in time. Should these cumulate into a negative average value at the end of the period, such variable should be excluded. The fact remains that negatively correlated variables are likely to overestimate DEA efficiency scores in the analysis. The figure 5.2 below shows the process of identifying the variables included in the initial DEA model.

Figure 5.2 Analytical Hierarchy Process



Source: Soleimani-Damaneh, Hamidi and Sajadi, (2011) Evaluating the Performance of Iranian Football Teams Utilising Linear Programming, American Journal of Operations Research.

The efficiency score is calculated using the latest DEA software (DEA-Solver 4.2.0) developed by BANXIA for frontier analyst (Banxia.com, 2013) which incorporates; Malmquist indices for analysing changes over time; Correlation and regression analysis and other features for sorting, filtering and grouping of data where appropriate. Data envelopment analysis (DEA) is used in this current study to assess the holistic efficiency of English professional football clubs

playing in EPL from 2004/05 to 2015/16. Charnes, Cooper and Rhodes, (1978)[1] pioneers the concept of DEA as a reformulation of Farrell, (1957)[2] efficiency measure involving multiple-output and multiple-input cases.

DEA is one of the non-parametric methods focusing primarily on the aggregate assessment of relative efficiency. Based on the analysis of a set of inputs and outputs that characterised the object under review (English Football Clubs), it uses mathematical programming to set up a technological frontier (piece-wise) representing best practices. The technique is well established in the literature, and it simply assesses the performance of organisations using efficiency scores of multi-inputs/outputs relationship. As described in the Analytical Hierarchy Process (AHP), the choice of variables is of paramount importance in DEA study and as a precursor to this research, it is significant to analyse the process that is being assessed, examining and pick the most appropriate variables for the goals against which *efficient performance* will be measured. In the first study to adopt DEA which eventually triggers wider research in this area, only 5 outputs and 3 inputs were used out of possible 25 outputs and 11 inputs (Charnes, Cooper and Rhodes, 1981)[3].

The criterion for demodulating DEA efficiency is to achieve a Pareto optimum. In each time for a given technology and resources, Pareto efficiency assumes that it is impossible to produce more quantities of at least one product while producing the same number of other products. This signifies that the combination of resources used in the production process is optimal. According to Masson et al., (2016), efficiency is attained when a decision-making unit (DMU) is 100% effective. This occurs if:

* None of the inputs can be reduced without reducing one or more outputs or adjusting other inputs; or
* None of the outputs can be increased without increasing one or more input factors or reducing other outputs.

[1] Charnes et al., (1978) is a classical paper
[2] Farrell, (1957) is also a classical paper
[3] Charnes et al., (1981) is equally a classical paper

Distinct from the ordinary least squares (OLS) technique, DEA develops a model of identifying the most efficient producer. Unlike both linear and nonlinear regression techniques, DEA efficiency is to achieve a Pareto optimisation and does not require explicitly formulated assumptions of data distribution; a methodology directed at frontier determined by the most efficient producers rather than central tendencies of fitting a regression plane through the centre of the data as in statistical regression models.

Assuming there are 'n' DMUs or football clubs (FC) in a process where each DMU uses inputs (resources) range from *1 - r* to produce outputs (products or services) range from *1 - s*. Efficiency score of DMU_a; where $a = 1, 2\ldots\ldots\ldots, n$. uses input levels X_{ia}; where $i = 1, 2\ldots\ldots\ldots, r$. to produce output levels Y_{ja}; where $j = 1, 2\ldots\ldots\ldots, s$. Let (X_a, Y_a) denotes the input-output vector of DMU_a. Considering DMU_a (X_a, Y_a), where $a = \{1, 2\ldots n.\}$ as the unit under assessment, both CCR and BCC models may be adopted depend on the goal to be achieved.

Specifically, DMU_a consumes X_{ia} amount of input i and produces Y_{ja} amount of output j. This study assumes that $X_{ia} \geq 0$ and $Y_{ja} \geq 0$ and further assumes that each DMU has at least one positive input and one positive output value per operation. This input/output normalising constraints (at least one positive input/output per DMU) reflects the condition that the virtual output to virtual input ratio of every DMU, including $DMU_a = DMU_n$, must be less than or equal to one.

Using mathematical notation, efficiency score of the unit 'a' is given as:

$$Max\ \emptyset_a = \sum_{j=1}^{s} UjYja \ /\ \sum_{i=1}^{r} ViXia \tag{3}$$

Subject to:

$$Max\ \emptyset_a = \sum_{j=1}^{s} UjYja \ /\ \sum_{i=1}^{r} ViXia \leq 1 \tag{4}$$

Where $a = \{1, 2\ldots n\}$, and $Uj, Vi > 0$ (5)

With 'n' units (DMUs) in the dataset and 'a' is a subset of 'n',

Uj; is the weight applied to j^{th} output;

Yja; is the quantity of j^{th} output produced by DMU '*a*';

Vi; is the weight applied to i^{th} input;

Xia; is the quantity of i^{th} input used by DMU *'a'*;

'a' is the DMU assessed, and $Ø_a$ is DEA score for DMUa.

The efficiency in the classical DEA is the ratio of the sum of the weighted outputs to the sum of weighted inputs (Zambom-Ferraresi et al., 2015). This model definition contains *weighted variables* (Uj, Vi) that are to be determined, where $j = 1, 2……., s$ and $i = 1, 2……., r$. The values of these weights are determined objectively by the solution of the DEA algorithm with the constraint that no DMU can be more than 1 or 100% efficient as depicted by equation 4 above. The efficiency score derived for each DMU is on a scale of zero to one (0 - 1), while '0' represents an extremely inefficient unit, a score of '1' denotes an efficient unit. It therefore means that efficiency scores range from 0 to 1 and are relative to (not absolute) other DMUs in the dataset being analysed.

Where individual DMUs determine the value of 'weighted variables' (Uj, Vi), the weights assigned would be biased and reflected the requirement of the individual DMUs. For example, many clubs might consider athletic outcome such as points attained per league, to be the most important while some clubs may be pursuing economic reward as profit or turnover as their main target. Therefore, different weights could be assigned to outcomes by different clubs in their respective aggregate outputs.

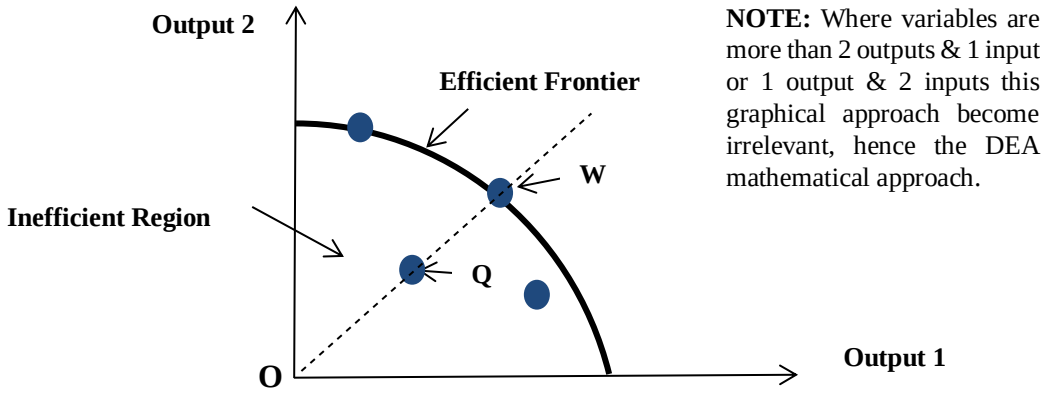
Thus, it can be argued that DEA identifies the EPL club(s) that is/are regarded as most efficient, the inputs and outputs that could be used in measuring performance and efficiency of EPL clubs, and probably recommend how the current methods of assessing clubs' performance might be improved. Thereby provide solution to some of the research questions, hence the appropriateness of DEA.

It identifies a production frontier on which the relative performance of all DMUs in the dataset can be compared and benchmarked firms against the best producers. Efficiencies estimated using DEA are relative to the best performing DMU or DMUs. It uses the production frontier to assess relative efficiency. Based on inputs and outputs of the units, DEA forms efficient surface. If a DMU lies on the surface, it is efficient; otherwise, it is inefficient (Kadarova, Mihok and

Turisova, 2013). DEA also shows how the current performance differs from the ideal and proffers recommendation for improvement (Kulikova and Goshunova, 2013). Thus, DEA method shows reasons for inefficiencies which provide fundamental ways to improve the current efficiency level either by improving the inefficient management as measured by BCC (pure technical efficiency) or by adverse conditions as reveals by CCR (technical efficiency). However, this method of analysis does not allow for the identification and assessment of the impacts of factors which might influence the efficiency scores, hence, its integration with the naturalistic approach.

DEA frontier could possibly be presented in the form of a diagram where not more than 1 input and 2 outputs or 2 inputs and 1 output are involved. The efficiency frontier is the envelope representing 'best performance' and consist of units in the datasets which are most efficient at transforming their inputs into outputs. The units that determine the frontier are those classified as being 100% efficient. For two outputs and one input, under input minimisation using CCR model, a graphical representation of the efficiency frontier is constructed as in figure 5.3 below:

Figure 5.3 Efficiency Frontier



Source: Author's illustration of Efficiency Frontier from possible location of DMUs.

Any unit on the frontier is relatively efficient and has an efficient score of 1 (100%), while units below the frontier (inefficient region) are relatively inefficient and thus have efficient scores less than 1 (100%). Q is made efficient by the dotted line from the origin to the efficiency frontier, and its efficiency score is calculated as OQ/OW (Lee and Kim, 2014). W is referred to as the composite or virtual unit. Interestingly, DEA allows each unit to identify a benchmarking set; a group of units that follow the same objectives and priorities, but performed better

(Thanassoulis et al., 2011). It worth emphasising that DEA works better and effectively under the following assumptions as exhibited in this study: (i) DMUs are homogenous; (ii) No functional forms stipulated; (iii) Zero values are not allowed and (iv) The more the number of input and output variables, the more efficient units (DMUs) on the frontier.

5.6.1 DEA Models: Charnes, Cooper and Rhodes Model (CCR) & Banker, Charnes and Cooper Model (BCC)

The two known DEA models are the CCR and BCC models. The need to measure *technical efficiency* led to the development of the Charnes, Cooper and Rhodes (CCR) model. CCR gives a measure of the overall efficiency of each unit in a dataset, in which both pure technical efficiency and scale efficiency are aggregated into one global value. DEA Frontier Analysts use CCR and the subsequent Banker, Charnes and Cooper models (BCC) to analyse efficiency. The CCR model is probably the most commonly used and best-known DEA model as observed in the literature. CCR was the first DEA model to be developed and was introduced in the academic article and published in the European Journal of Operational Research in 1978. The CCR model assumes that operations follow Constant Returns to Scale (CRS) and because of this limitation, CCR was not totally accepted for the analysis of production processes.

However, Banker, Charnes and Rhodes, (1984) modified the CCR model to deal with the limitation of CCR and situation of Variable Returns to Scale (VRS). The BCC model named after Banker, Charnes and Cooper was first introduced in the academic article and published in the Journal of Management Science in 1984. Thereafter, DEA models feature more prominently in academic research in areas of efficiency and performance measurement among commercial banks, institutes of higher learning, wards within hospital and departments within the establishment and even the efficiency of operating machines and so on. Previous research works encompass DEA methods and assumptions include Espitia-Escuer and Garcia-Celbrian, (2010); Mavi and Mavi, (2014); Paradi, Vela and Zhu, (2010); Paradi, Rouatt and Zhu, (2011); Halkos and Tzeremes, (2011); Soleimani-Damaneh, Hamidi and Sajadi, (2011); Kern, Schwarzmann and Wiedenegger, (2012); Mavi et al., (2012); Zhao, (2013); Paradi and Zhu, (2013); Kulikova and Goshunova, (2014); Carmichael, Thomas and Rossi, (2014); Arabzad, Ghorbani and Shirouyehzad, (2014); Zambom-Ferraresi et al., (2015) and Zambom-Ferraresi et al., (2017).

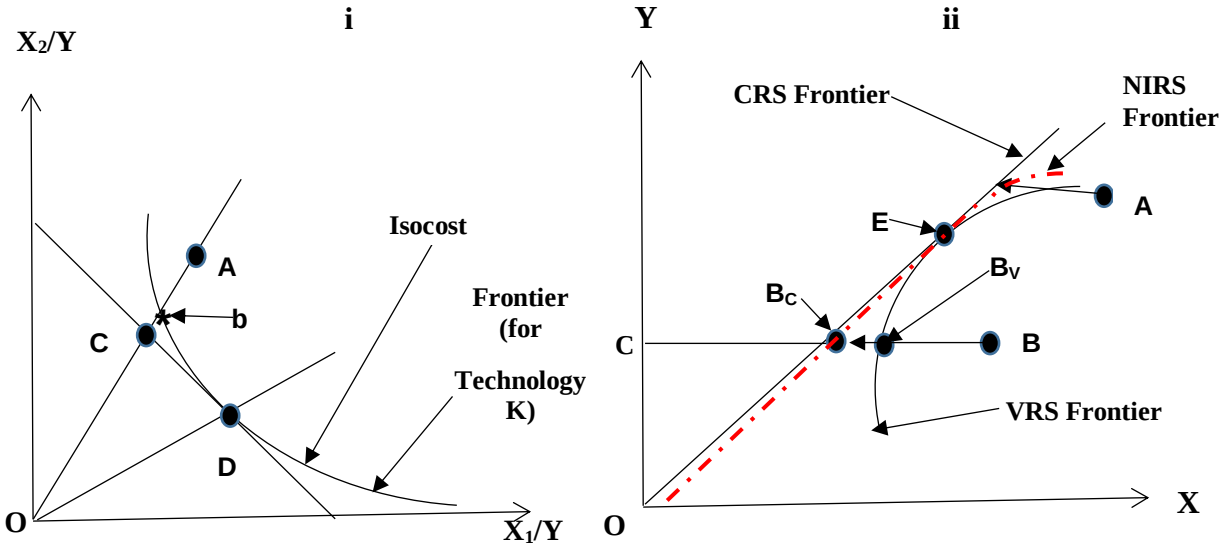
CCR model measures the global Technical Efficiency (TE) which is the aggregate of both pure technical efficiency and scale efficiency. Technical efficiency describes the efficiency of converting inputs to outputs while scale efficiency explains the economy of scale attained at all scales of production and the most productive scale is where production is optimised. Hence, BCC model describes the variation of efficiency controlling the scale of operation and therefore measures the Pure Technical Efficiency (PTE). Efficiency scores measured by CRS is usually less than or equal to the pure technical efficiency estimated with VRS. Comparing the TE scores with the PTE scores might provide deeper insights into the source of inefficiencies among DMUs.

$$\text{Scale Efficiency (SE)} = \frac{\text{Technical Efficiency (CCR Efficient)}}{\text{Pure Technical Efficiency (BCC Efficient)}} = \frac{\text{TE}}{\text{PTE}}$$

Therefore, TE = SE X PTE

Where the researcher is uncertain of the scale of operation in the process being analysed, it is advisable to use both models and interpret their results. Illustrating efficiency measure for a simple case of two inputs (X_1, X_2) and an output (Y) may be depicted in figure 5.4 (i and ii) below.

Figure 5.4 Illustration of Scale efficiency (SE) in DEA



Source: Adapted from Nguyen, (2013) Efficiency Analysis and Experimental Study of Cooperative Behaviour of Shrimp Farmers Facing Wastewater Pollution in the Mekong River Delta; a PhD Thesis.

Where a production unit consumes a combination of (X_1, X_2) inputs defined by point 'A' in (i) above to produce output Y, the inefficiency of unit A can be measured by the distance Ab reflecting the quantities of X_1 and X_2 that can be proportionally reduced to produce the same level of output Y. Therefore, the effectiveness of producing a certain level of output(s) given a bundle of inputs is referred to as technical efficiency (TE) Daraio et al., (2016). The efficiency with which inputs and outputs are allocated is equally referred to as allocative efficiency (AE), while the process of minimising the cost of output from resource consumed is known as cost efficiency (CE) and the efficiency of scale of operation is measured by scale efficiency (SE). Since the current study measures aggregate or overall efficiency (AOE), it is pertinent to emphasise that AOE = TE = AE = CE = SE = 1.

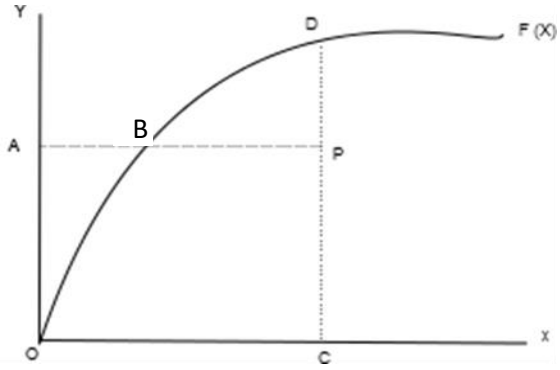
From (i), TE = Ob/OA; AE = OC/Ob; and CE = OC/OA. Therefore, TE=CE/AE. Given the fact that efficiency scores are bounded between zero and one, the distance Cb represents the reduction in production costs should production were technically and allocative efficient as the case of unit D. Hence, unit D has AOE = TE = AE = CE = 1, and unit b is technically efficient but allocative inefficient.

To illustrate measure of scale economies in one input and one output DEA operation, (ii) shows constant return to scale (CRS), variable return to scale (VRS) and non-increasing return to scale (NIRS) DEA frontiers. With CRS, the distance BB_C measures unit B's technical inefficiency, while distance BB_V measures the technical inefficiency of unit B under VRS. Thus, the TEs from CRS and VRS, and are measured by the ratios: $TE_{CRS} = CB_C/CB$ and $TE_{VRS} = CB_V/CB$ for technical efficiencies under a constant return to scale and variable return to scale respectively. Scale efficiency is measured as ratio; $SE_k = CB_C/CB_V$. However, the main drawback of this measure is the inability to specify if the unit is operating under an increasing return to scale (IRS) or decreasing return to scale (DRS). A comparison between NIRS-technical efficiency score and the VRS-technical efficiency score reveals that variable return to scale could be either a unit exhibits increasing return to scale (IRS) like unit B in (ii) or decreasing return to scale (DRS) as in unit A. Unit E, therefore, has AOE = TE = AE = CE = SE = 1.

5.6.2 DEA Output Oriented

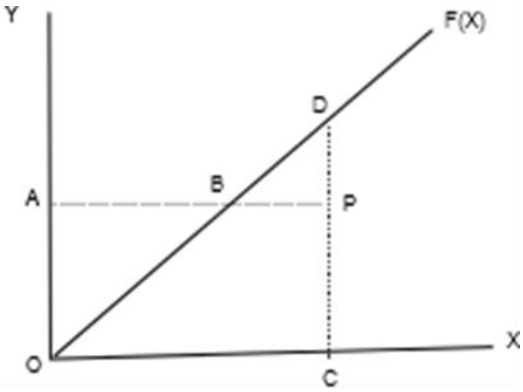
A term used in conjunction with DEA (BCC and CCR) models to indicate that an inefficient unit could be made efficient by increasing the proportions of its outputs while keeping the input proportions constant (Zambom-Ferraresi et al., 2015). CCR model yields the same efficiency score regardless of whether it is input or output-oriented but differs with the BCC model. The output-orientation explains how much the output can be expanded without altering the input. Using figure 5.5 below, a variable return to scale technology is represented by F(X) and an inefficient unit operating at the point (P) Farrell's input-oriented measure of technical efficiency would be equal to AB/AP while the output measure would be CP/CD. However, as revealed in DEA, the output/input-oriented provide an equivalent measure of technical efficiency when constant return to scale exist (CCR). The constant return to scale is represented in figure 5.6 as AB/AP= CP/CD for any inefficient point P chosen.

Figure 5.5 Variable Returns to Scale Technology



Source: Author's illustration of economists' variable returns to scale technology.

Figure 5.6 Constant Returns to Scale Technology



Source: Author's illustration of economists' constant returns to scale technology.

5.6.3 DEA Input Oriented

Like output orientation, the term input oriented is also used in conjunction with both CCR and BCC models in DEA to indicate that an inefficient unit may be made efficient by reducing the proportions of its inputs while keeping the outputs proportions constant (Haas, 2003a; Barros and Leach, 2006a). Whether the DEA algorithm problem is input minimization or output maximisation, the CCR model will yield the same efficiency score regardless of input or output orientation, but this is not the case with the BCC model.

5.6.4 DEA Window Analysis

This is a tabular method that allows an analysis of efficiency changes over time. With the practical application of DEA in clubs' efficiency measurements and since data is available for Football Clubs (FC) periodically, usually on a yearly basis, with 'n' units (DMUs) and inputs/outputs levels attributable to each of the 't' periods, many analyses may be conducted giving distinct performance evaluations. Basically, there are two different approaches to which efficiency changes over time could be explored. The first approach is to treat each decision-making unit as a separate unit in each time 't' period, giving ('n' X 't') units in the analysis. The second approach being the one adopted in this study is known as 'window analysis' (Halkos and Tzeremes, 2009; Wang, Yu and Zhang, 2013). A 'window' of period 'p' is defined, and assessments carried out for ('n' X 'p') units. If data is available yearly as in this case, over a period of twelve seasons/years, then each unit is treated as being different in each of the windows. If a 'window' period of (3) seasons/years is assumed, the first window has the first 3 years' data set. After the analysis is carried out, the first year is then dropped from the set and data for the fourth year is included in the second window. The illustration to be followed in the window analysis in chapter six where the numerical values are calculated is presented in table 5.5 below:

Table 5.5 DEA Window Analysis

Season	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Year	04/05	05/06	06/07	07/08	..	..	..	11/12	12/13	13/14	14/15	15/16
Club 1												
Window 1	**	**	**									
Window 2		**	**	**								
“				..	..	..	..					
“						..	..	..	..			
Window 10										**	**	**
Club 2												
Window 1	**	**	**									
Window 2		**	**	**								
“				..	..	..	..	..				
“						..	..	..	..			
Window 10										**	**	**
Club n												
Window 1	**	**	**									
Window 2		**	**	**								
“				..	..	..	..					
“						..	..	..	..			
Window 10										**	**	**

Source: Adapted from Banxia.com, (2013) *DEA-Solver 4.2.0 manual released by BANXIA Frontier Analyst*. (**) represents window analysis-relative efficiency scores.

Ten ‘windows’ could be identified for each of the clubs in the twelve seasons/years of the English Premier League (EPL) considered. When the result is tabulated, changes in efficiency over time could easily be seen by comparing the row values of windows 1, 2, 3, 4, 5, 6, 7. 8, 9 and 10. The rows show how efficiency varies over time, but columns provide information on the efficiency of the clubs during any season.

5.6.5 Justification for DEA Model

In the past, various frontier efficiency approaches have been used in efficiency measurements. Some of these methods use parametric or econometric approaches; Thick Frontier Approach (TFA), Distribution-Free Approach (DFA), and Stochastic Frontier Approach (SFA). Others adopt Non-Parametric Linear Programming Approaches (NPLPA); Free Disposal Hull (FDH) and Data Envelopment Analysis (DEA). These techniques differ in the assumptions imposed on the specifications of efficient frontier and the distribution of the inefficiencies and random error. Whilst Parametric Econometric Approaches (PEAs) require a prior specification of the production function and capture random error, NPLPAs neither based on any pre-specified production functions nor captures random error components but relies on absolute observable data.

DEA has been applied in various context of sports performance evaluation Barros et al., (2009); Espitia-Escuer and Garcia-Celbrian, (2010); Soleimani-Damaneh, Hamidi and Sajadi, (2011); Kern, Schwarzmann and Wiedenegger, (2012); Mavi et al., (2012); Zhao, (2013); Kulikova and Goshunova, (2014); Carmichael, Thomas and Rossi, (2014); Arabzad, Ghorbani and Shirouyehzad, (2014) and Zambom-Ferraresi et al., (2015). DEA has also been used to measure efficiency in many other aspects of economic activities such as in banking McEachern and Paradi, (2007); Paradi, Vela and Zhu, (2010); Paradi, Rouatt and Zhu, (2011) and Paradi and Zhu, (2013). In computer sector Cooper, Seiford and Tone, (2007) and in education (Nazarko and Saparauskas, 2014). Unlike the Univariate Analysis Techniques (UAT) which measure one ratio at a time based on company's financial statements, DEA derives performance efficiency index based on a mixture of quantitative and qualitative data hence, the attractiveness of DEA in recent literature on corporate performance measurement (Paradi and Zhu, 2013).

Though comparative studies on consistency and robustness of the estimations between different frontier techniques found that both SFA and DEA techniques generated similar average cost efficiencies but differ in the decomposition of cost inefficiencies between technical and allocative efficiencies and that the rank-order correlation between SFA and DEA was particularly weak (Banker and Cummins, 2010; Lotfi et al., 2010). However, Banker and Natarajan, (2008) submitted that DEA estimators have good statistical properties that could be used to enhance consistency in the estimation of the impacts of environmental variables on organisational performance and that DEA could be more effective than SFA where smaller sample size is

involved. The impacts of environmental factors could be conspicuously noticed in football operations and this suggests the use of DEA in this study. When based on same conceptual framework and datasets, the econometric and DEA produced highly correlated results (Paradi and Zhu, 2013).

Meanwhile, model specification and inclusion/exclusion of variables in DEA may affect the efficiency results (Berg, 2010), but its distinct advantage lies in the ability to accommodate a multiplicity of inputs and outputs regardless of measuring scales, filters data and allows the researcher to make units active or inactive in the analysis. This ensures easy experimentation with units and variables (inputs or outputs) in the analysis. DEA frontier analyst indicates how resources can be re-allocated more effectively to improve or increase efficiency.

This model not only based on peer comparisons, but it also provides a means of benchmarking as a target for the inefficient units to work towards. What is clear from the existing literature is that none of the previous research has ever combined DEA-Solver 4.2.0 version released by BANXIA Frontier Analyst in (2013) with naturalistic approach despite its advantages over the traditional DEA or stochastic frontier approaches. Unlike the econometric stochastic frontier approach, DEA does not impose any functional form on the data; nor does it make distributional assumptions for the error term. Both methods assume that the production function of the fully efficient decision unit is known. Really, this is not the case, and the efficient isoquant must be estimated from the sample. Under these conditions, the frontier may be relative to the sample being analyzed. Although DEA is more sensitive to outliers than stochastic frontier and all variation between production units is interpreted as inefficiency in DEA (Barros, Peypoch and Tainsky, 2014). Notwithstanding an important feature in the sports literature on efficiency assumes that all football teams use the same technology. If this assumption is wrong, then this could lead to overestimating the efficiency scores of some teams as technology differences could be interpreted as inefficiency (Paradi, Vela and Zhu, 2010).

The model is based on observed best practices. Therefore any change made to the input/output profile of one unit will affect the efficiency scores of numerous other units (Mavi et al., 2012). The *window analysis* approach explains periods where seasonal factors affect performance, and so this can be held constant whilst analysing changes in efficiency. It equally leads to an

increase in the number of pieces of data for the units being analysed, which enhances the discrimination in the DEA results.

As in ratio analysis, zero value in data present a problem and are therefore not allowed in DEA frontier analyst. Where the value of an input or output is missing, the unit may have to be omitted from the dataset unless a surrogate measure is agreed or allowed. Its' consideration for operational scale while calculating efficiency makes DEA model more relevant in this study than any other techniques. In case the researcher is interested in investigating the efficiency of transferring multiple inputs into multiple outputs but has only a small number of observations and parametric method has been precluded, DEA is particularly appropriate (Kern, Schwarzmann and Wiedenegger, 2012). However, DEA suffers some criticisms which include its inability to allow for random errors or distribution errors in efficiency measurements; difficult to perform statistical tests and to confirm the results which made statistical inference impossible and could therefore, overestimate efficiency score (Zambom-Ferraresi et al., 2015). These limitations made DEA being labelled *Deterministic*.

A future research area suggested for further investigation by Paradi and Zhu, (2013) is to find new ways to apply DEA in conjunction with other methodologies to complement each other's strengths while eliminating their weaknesses. This study, therefore, takes up this challenge by combining DEA with the naturalistic approach (NA) to neutralise DEA drawbacks and further enhance the objectivity and reliability of managerial and policy implications of DEA studies with the strengths of naturalistic approach using case study analysis that is rooted in phenomenological perspectives.

5.7 Validity and Reliability of the Research Methods

The quality of data or information and methods used cannot be overemphasised in establishing the validity, reliability and generalizability of both research data and analysis methods. As a triangulation method, a questionnaire/mini-interview were administered to some relevant football stakeholders. Information from this survey is designing to testify or declare by affirmation, other data collected from various sources earlier stated in the research methodology. The combined analysis methods further enhance the research validity and reliability.

5.7.1 Validity

The degree to which a research study measures what it intends to measure. Its importance is in analysing the appropriateness, meaningfulness and usefulness of a research study. The ability to generalise the findings to the target population (External Validity) and the validity of measurement and the test itself (Internal Validity) is of great concern to this study. Some internal validity as identified by Gravetter and Farzano, (2009) were considered. In the first instance, the results from DEA models (CCR and BCC) are compared to establish the source of inefficiency among football clubs and what needs to be done to improve the situation (Concurrent Validity). Second, the results of DEA are then compared with the findings from a naturalistic approach which entails contextual analysis of responses from the nexus of stakeholders.

According to Patry, (2013) *Often two measurement approaches will behave in the same way but are not necessarily measuring the same variable*. Features like correlation and regression analysis, filter and window analysis, added to the new DEA-Solver 4.2.0 ensure that the results obtained from this analysis can accurately be used to predict behavioural pattern (Predictive Validity). The filter in DEA allows variables or group of variables to be made active or inactive while experimenting with the analysis. This construct validity may show that the measurement behaves in the same way as the variables it measures. Kelly, Fitzsimons and Baker, (2016) refer to face validity as to whether a technique "looks like" is going to measure what it intends to measure. The transparency or relevance of DEA is seen in the objective way to which it assigns a weighted value to the inputs/outputs.

5.7.2 Generalisability

Qualitative methods allow theoretical generalizability, while quantitative methods allow statistical generalizability. Generalisability is the extent to which research findings can be applied to the settings other than that in which they were originally tested. The findings of this research are presumed to be applicable in measuring the efficiency, productivity and performance of any unit-based activity in any aspect of life especially other football leagues. The findings of the study could equally be applied in the researchers' home country: Nigeria to enlighten both sports administrators and policy makers that incorporating sports management courses in the curriculum of learning would accelerate sports development.

Unit is being used in this study to steer away readers from thinking of a profit centre but purely a Decision-Making Unit (DMU). Transferability is, therefore, possible as the result of a research in one situation is applicable to other similar situations such as measuring performance of banks branches (Paradi, Sherman and Tam, 2017; Banker and Cummins, 2010) and departments or faculties' efficiency in universities (Daghbashyan, Deiaco and McKelvey, 2014; Sav, 2013) and so on.

5.7.3 Reliability

This is the consistency of results when the experiment is replicated under the same conditions. To ensure the reliability of this research, variable with zero values were excluded from the dataset. Where variable could not be directly quantified a surrogate measure may be adopted with all assumptions clearly stated. Not only that the units (Football clubs) are homogenous, they consistently featured in the English Premier League for all the seasons under review to be included in the *window* analyses. Multiple methods were used to validate data collected and to be more confident in the research findings. Reliability and Validity are two different evaluations of research studies and are independent factors. Therefore, a study can be reliable without being valid and vice-versa. However, good research will be both reliable and valid (Zimbardo and Boyd, 2015).

5.7.4 Triangulation

This is a powerful technique that facilitates validation of data through cross verification from two or more sources. This study obtains both quantitative and qualitative data from different sources such as survey using questionnaire, it then peruses various relevant documents and adopts selected stakeholders' questionnaire/mini-interview to validate the data. A structured survey is used as data triangulation technique. In general, triangulation is ensured by the application and combination of several research data sources and the use of DEA models combined with a naturalistic approach using discourse analysis in NVivo. Thus, this study adopted multiple triangulation methods in both data collection and data analysis techniques to validate the research reliability.

5.8 Ethical Issues

Ethics are neither rules nor regulations but do represent the tenets of best ethical practices that have served the researcher community well in the past and will continue to do so in the future. Ethics in research accord respect for all those who engage with the research work such as researchers and participants, academics and professional practitioners, commissioning bodies and all those that use the research. Within the paradigm and methodology of this study, a variety of concepts relating to *data*, *reliability*, *validity*, *subjectivity* and *objectivity* have been clarified as often used in various disciplines and their sub-disciplines. Research ethics, therefore, recognises the legitimacy of diverse research philosophies, theories and methodologies that exist and seeks to ensure that no selective judgment or constrain emanate directly or indirectly from the methodological distinctions of this research processes. Ethical lapses not only render a study invalid, unethical, substandard or unreliable but also may significantly harm a human, animal, other research subjects and other participants including the public (Guillemin and Gillam, 2004).

To respect and not to cause any harm to the participants in general, this study considers the guide on the conduct of research within the ethical framework as set out by British Education Research Association (BERA). Participants whether active or passive subjects in the process of observation, biographical reflection, survey or interviewing were accorded respects, individuals were treated fairly, sensitively, with dignity within the ethical framework and freedom from prejudice regardless of age, gender, sexuality, race, ethnicity, class, nationality, disability, political belief or any other significant differences. While collecting data through Survey (questionnaire and mini-interview), Observation and so on, the researcher fulfilled voluntary informed consent of the participants ensuring they understood and agreed their participation without duress prior to, during and after the conduct. Participants understood why they were engaged, the importance of their participation, how it will be used, how and to whom it will be reported, their rights to withdraw at any point if so wish, confidential and anonymous treatment of participants' data (privacy) and the detriments arising from their participation in the research if any. The researcher complied with the legal requirements in relation to the storage and use of personal data as laid down by the Data Protection Acts (1998 and 2018) and other similar

acts including the research ethics as provided by the institute (London Metropolitan University) in which the research is conducted.

5.9 Limitations

It may be observed that the process of identifying the relevant information for the DEA study highlights deficiencies in the current information gathering systems, where information is not available or missing then a surrogate measure may be used to ensure that all important factors are accounted for and that all suitable values for zero substitution are agreed. Using surrogate measures may expose the result of the study to criticism because values used are estimated rather than real values. It should also be recognised that intangible inputs/outputs such as coaching quality or experience and players' talents may exist, depend on the significance of such factors to the process being assessed.

Again, having identified all inputs and outputs associated with the process being analysed, a decision on which to include or not must be made because of the limitation imposed on input/output data by DEA. The issues here involve the size of the dataset in relation to the number of inputs/outputs identified and the existence of outliers in the data. Reducing the number of inputs/outputs to a level where the number of units being analysed is at least twice as large as the number of inputs and outputs. This increases the objectivity of DEA and thereby produces more accurate and efficient information. However, if all the data gathered are used, it gives a clear and complete picture of operation at the units, but a possible drawback here is that the data may contain some outliers. Excluding these outliers may give a more accurate efficiency score, but to some extent, it takes away the objectivity of DEA.

The existence of factors associated with the environment in which the units operate needs to be considered in a DEA study. Such factors as location, competition, market size, investors' attitude, stakeholders' interest and regulatory system or regulatory requirements and others relevant to a study may not be adequately represented in the DEA model, but their existence and influence should be considered. The assumption of homogeneity of units in DEA is jeopardised by such factors as team location and fan-base population.

5.10 Conclusion

In the pursuit of knowledge, this study contributes to a relatively new concept of evaluation research. Evaluation is a methodological area that is closely related to, but distinguishable from traditional social research. Evaluation research utilizes mostly same methodologies used in traditional social research, but because evaluation takes place within an organizational (wards, units, groups, clubs, branches, departments and so on) context, it requires team skills, management ability, political adroitness, sensitivity to various stakeholders and other skills that social research would not generally rely on.

This chapter presents the methodology adopted in carrying out the current study. The study uses DEA to analyse playing and managerial talents, financial and non-financial resources utilised in the sporting production process to produce social, financial and sporting success. It further identifies the amortisation of players' contract as well as depreciation on club's physical assets as part of the factor inputs consumed in the production process to evaluate how efficient are the football clubs in the use of their resource. The research methodology diagnosis production within football industry considering the factor inputs; Man, Machine and Money and thereby use different research instruments to collect both qualitative and quantitative data. It equally adopts the two known DEA models of analysis to enhance results comparison and validity. Next chapter presents the empirical data on DEA, its analyses, interpretation and discussion.

CHAPTER SIX

DEA ANALYSIS, INTERPRETATION AND DISCUSSION

6.1 Introduction

The appropriateness of football industry for studies such as performance management and efficiency measurement of team-based organisation cannot be overemphasised since football outputs are jointly produced through complementary efforts of at least two separate clubs. Besides, football inputs and outputs are well documented most especially in England and the industry is less subjected to the kind of disclosure problems that characterised other industries. The facts that football clubs compete under same rules and regulations, and share a common technology stresses the homogeneity assumption of DEA and emphasises the appropriateness of DEA for the current study.

The process of modelling football production and managerial efficiency were discussed in the previous chapters. This chapter presented the data sources and the construction of the data used in estimating the production frontier whilst measuring clubs' efficiency scores. To identify the efficient club(s) and source of inefficiency on EPL; measure changes in efficiency over the research period and appraise the adequacy of current EPL ranking system *vis-à-vis* DEA efficiency scores, this chapter presents the data sets for DEA modelling of football production process. It then measures the clubs' efficiency scores using DEA-$_{BCC}$ which evaluates pure technical efficiency (PTE) and DEA-$_{CCR}$ for the technical efficiency (TE) in each of the twelve EPL seasons. Thereby, identifies the efficient and inefficient clubs in the English Premier League during the research period. Although DEA might not be able to identify factors that contribute to effective club performance, it could, however, deduce how efficient clubs utilised their inputs to produce effective outcomes.

Furthermore, this chapter presents time-series analyses of changes in clubs' efficiency over the research period using DEA-Window analysis, thereby considers the effect of seasonal factors on clubs' efficiencies. The interpretation of the efficiency results is then presented, while the section concludes with a summary of the chapter.

6.2 Presentation of Empirical Data

As mentioned in chapter four, Analytical Hierarchy Process (AHP); a multi-attribute decision tool that allows financial and non-financial, quantitative and qualitative measures to be considered in analysing trade-offs among variables facilitates the choice of inputs and outputs to be considered in the current research (Mavi et al., 2012). The two variables in this research are the inputs (*X*) and outputs (*Y*). Whilst the inputs include Wages and Salaries (measured by total players' wages, coaches, management and other staff salaries); Assets Consumed (comprises of depreciation on fixed assets, players' amortisation, and other impairments) and number of employees per season. The research outputs reflecting the clubs' sporting, financial and social objectives are Points attained per league season; the clubs' Turnover and the games' Rate of Attraction for the individual club on EPL.

Games' Rate of Attraction is introduced in this study as earlier mentioned to enhance homogeneity among football clubs as their location not only differ but unequally populated. Such environmental factor could be linked to wages and salaries paid to star players as remuneration, fans population base and gate revenue, therefore, needs proper consideration. Moreover, not all football clubs have their own stadium, those that owned stadia are of varying capacities thus disparities in gate revenue. In addition, the variable captures the social objective and measures the rate at which individuals are attracted to a football match. This is measured by individual club's win percentage multiply by the population of League base (UK) to capture the totality of spectators (those at games' venue and those elsewhere in the UK watching through media relay).

The data sets as obtained from Orbits Database, Clubs' Annual Reports and EPL table for the research period are presented in table (6.1) while table (6.2) presents the descriptive statistics of the data. It should be noted that Orbits presents the data in US Dollars for easier comparison. Hence data sourced from other means were converted to US Dollars using Orbits rates at every point in time and where Orbits rate is not available, the study adopts Oanda closing rate (Rate at Balance sheet date) where appropriate. Meanwhile, it is necessary to emphasise that the unit of measurement does not make any difference in DEA analysis, especially where it is not cross-border analysis. Sports organisations (Football clubs) use different quantities of resources, making the comparison between different sports teams extremely difficult. To overcome this

issue, many studies in the extant literature recommend the application of the nonparametric methodology called data envelopment analysis *DEA* (Misener and Doherty, 2014).

Whilst sports clubs are focusing on providing the sportive objectives (i.e. Entertainment) which represent the core of their founding mission (Robinson and Palmer, 2010) the current focus on business orientation of these clubs necessitates the use of appropriate performance appraisal technique that would provide the decision makers with the possibility to identifying how to reduce costs and optimize their relationship with other stakeholders such as football regulators, fans/supporters and sponsors as well as improving the delivery of sports outputs to the local community, enhancing members and community's loyalties to improve revenues generation from their activities and events (Miragaia et al., 2016).

Therefore, a more holistic approach to analysing performance and efficient use of sports resource is required to supplement the regulations enforced by the football authorities (Plumley, Wilson and Ramchandani, 2014). Hence, financial and non-financial data regarding EPL clubs between 2005 and 2016 were collected and analysed here using Data Envelopment Analysis (DEA) as presented in tables (6.1); (6.2); (6.3) and (6.4) below. Table (6.1) presents the panel data sets showing the units (Football Clubs) on the rows and the variables (Input and Outputs) in the columns using abbreviations; W & S – Wages and Salaries; Ass. C – Assets Consumed; No. E – Employees; P. Att. – Points Attained; T/O – Turnovers and RoA – Rate of Attraction, while table (6.2) shows descriptive statistics in rows according to season instead of units.

Table 6.1 Seasonal EPL Inputs and Output Data

	2004/2005						2005/2006						2006/2007					
DMU	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**
Arsenal FC	115290	31842	293	83	209216	0.6579	145459	33368	312	67	248331	0.5263	173583	43784	374	68	274851	0.5
Aston Villa FC	10690	1697	211	47	93855	0.3158	11626	2280	206	42	91186	0.2632	12633	3984	211	50	104152	0.2895
Birmingham FC	48759	20812	140	45	76141	0.2859	51139	20515	150	34	76559	0.2105	xx	xx	xx	xx	xx	xx
Blackburn R. FC	56156	15713	231	42	74077	0.2368	61235	15227	223	63	79626	0.5	73604	16073	232	52	86818	0.3947
B. Wanderers FC	44619	5031	185	58	80654	0.4211	51253	9598	191	56	85354	0.3947	60075	19267	204	56	86385	0.4211
Charlton A. FC	51430	26589	695	46	74021	0.3158	62782	40303	687	47	78806	0.3421	64897	42217	760	34	71033	0.2105
Chelsea FC	176075	155286	133	95	219985	0.7632	190189	136564	160	91	239284	0.7632	246160	138288	183	83	331492	0.6316
Crystal P. FC	32873	7311	144	33	61253	0.1842	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Everton FC	56070	10296	893	61	109000	0.4737	69485	29263	259	50	109254	0.3684	75982	30001	627	58	101657	0.3947
Fulham FC	59429	16544	580	44	64937	0.3158	55233	19016	615	48	68094	0.3684	70510	20681	781	39	78648	0.2105
Liverpool FC	112780	49698	290	58	212547	0.4474	128485	54584	313	82	222946	0.4474	157606	74611	335	68	272011	0.5263
Man. City FC	68500	3349	204	52	110656	0.3421	64551	21776	209	43	116169	0.3421	71936	23791	216	42	112558	0.2895
Man. United FC	117187	51941	297	77	192910	0.579	128255	50662	276	83	194358	0.6579	153746	61536	270	89	288351	0.7368
Middlesbrough FC	52994	24955	179	55	99893	0.3684	75187	33305	182	45	94271	0.3158	69640	39932	183	46	95839	0.3158
Newcastle Utd. FC	86140	17414	1295	44	152960	0.2632	93686	17529	1354	58	152077	0.4474	117866	55437	1459	43	174190	0.2895
Norwich FC	30753	9527	201	33	68042	0.1842	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Portsmouth FC	45538	7949	356	39	65529	0.2632	46620	14051	495	38	67797	0.2632	72939	23925	703	54	79576	0.3684
Reading FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	55489	21758	354	55	88832	0.4211
Sheffield United FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	41076	22049	181	38	69083	0.2632
Southampton FC	48116	15094	580	32	71482	0.1579	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Sunderland FC	xx	xx	xx	xx	Xx	xx	32375	7399	497	15	73793	0.0789	xx	xx	xx	xx	xx	xx
T. Hotspur FC	57948	23	201	52	120087	0.3684	72892	22	779	65	126339	0.4737	85499	38492	194	60	188665	0.4474
Watford FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	33808	7615	249	28	56994	0.1316
W. Bromwich FC	37559	12443	120	34	65470	0.1579	37360	32521	119	30	65211	0.1842	xx	xx	xx	xx	xx	xx
West Ham Utd. FC	xx	xx	xx	xx	Xx	xx	53378	18168	737	55	97758	0.4211	81706	31056	816	41	97732	0.3158
Wigan Athletic FC	xx	xx	xx	xx	Xx	xx	38650	1729	59	51	65511	0.3947	54336	17080	69	38	53187	0.2632

Table 6.1 Cont.

	2007/2008						2008/2009						2009/2010					
DMU	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**
Arsenal FC	190464	51485	379	83	361745	0.6316	163449	46181	384	72	317492	0.53	157382	40999	416	75	333869	0.61
Aston Villa FC	20609	5848	1191	60	149074	0.4211	15943	5628	1264	62	136013	0.45	15901	6241	1405	64	130466	0.45
Birmingham FC	48588	26445	146	35	91145	0.2105	xx	xx	xx	xx	xx	xx	55200	20960	162	50	84776	0.34
Blackburn R. FC	78993	21608	238	58	112322	0.3947	76413	17080	254	41	84343	0.26	71191	18635	253	50	86808	0.34
B. Wanderers FC	76294	26532	223	37	101603	0.2368	66513	29474	234	41	86697	0.29	67912	3224	244	39	81757	0.26
Burnley FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx						
Chelsea FC	319968	123573	195	85	378586	0.6579	257086	91065	219	83	307334	0.66	242423	65817	213	86	281403	0.71
Derby County FC	51526	17381	202	11	95829	0.0263	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Everton FC	87781	35558	210	65	149295	0.5	79261	30556	226	63	128689	0.45	79185	8751	234	61	115294	0.42
Fulham FC	78361	29523	654	36	103630	0.2105	76560	28533	741	53	104568	0.37	74051	28547	796	46	115798	0.32
Hull City FC	xx	xx	xx	xx	Xx	xx	55658	11392	129	35	84646	0.21	59581	17929	95	30	73946	0.16
Liverpool FC	177708	89899	369	76	315002	0.5526	166420	68005	416	86	293755	0.66	188602	95624	477	63	287443	0.47
Man. City FC	107007	76001	258	55	162409	0.3947	133477	95800	302	50	140584	0.39	194360	110742	413	67	186936	0.47
Man. United FC	203382	82984	313	87	359038	0.7105	172315	72869	339	90	326426	0.74	168149	69653	352	85	289114	0.71
Middlesbrough FC	49641	38983	182	42	84372	0.2632	50533	11291	166	32	67863	0.18	xx	xx	xx	xx	xx	xx
Newcastle Utd. FC	138736	55268	425	43	196834	0.2895	121222	40177	395	34	141888	0.18	xx	xx	xx	xx	xx	xx
Portsmouth FC	107911	34511	635	57	139084	0.4211												
Reading FC	61364	27094	409	36	101783	0.2632	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Stoke City FC	xx	xx	xx	xx	Xx	xx	48054	17409	184	45	86428	0.32	65326	20613	239	47	85990	0.29
Sunderland FC	73011	29090	562	39	125716	0.2895	82043	36220	530	36	106818	0.24	83623	40482	598	44	101686	0.29
T. Hotspur FC	101364	71801	234	46	204906	0.2895	97807	3337	239	51	174122	0.37	97715	60087	241	70	171034	0.55
W. Bromwich FC	xx	xx	xx	xx	Xx	xx	50854	19483	133	32	77777	0.21						
West Ham Utd. FC	121873	51055	864	49	141366	0.3421	107652	44563	803	51	122461	0.37	78217	31447	786	35	105180	0.21
Wigan Athletic FC	75686	28112	67	40	84555	0.2632	68162	26160	72	45	74745	0.32	57476	20992	73	36	63541	0.24
Wolverhampton FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	43450	740	241	38	88419	9.24

Table 6.1 Cont.

	2010/2011						2011/2012						2012/2013					
DMU	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**
Arsenal FC	200693	5726	454	68	325551	0.5	218002	5235	496	70	362082	0.5526	230402	76935	530	73	335082	0.5526
Aston Villa FC	18191	6996	1565	48	146580	0.3158	15284	6715	1584	38	123644	0.1842	15667	6285	1433	41	124274	0.2632
Birmingham FC	72177	31116	173	39	98374	0.2105	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Blackburn R. FC	79832	15824	263	43	92139	0.2895	77483	16129	267	31	84002	0.2105	xx	xx	xx	xx	xx	xx
Blackpool FC	40637	3494	127	39	82251	0.2632	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
B. Wanderers FC	87556	33979	256	46	97487	0.3158	83317	26569	263	36	90643	0.2632	xx	xx	xx	xx	xx	xx
Chelsea FC	284922	72646	205	71	328561	0.5526	248114	86306	233	64	354686	0.4737	250600	97977	260	75	350861	0.579
Everton FC	95760	8425	238	54	135359	0.3421	98278	27561	228	56	124855	0.3947	95923	23739	234	63	131444	0.4211
Fulham FC	92321	19701	840	49	119862	0.2895	96523	56818	940	52	121942	0.3684	101219	48073	836	43	111134	0.2895
Liverpool FC	219308	73474	535	58	298919	0.4474	183988	8346	554	52	262015	0.3684	201190	85705	557	61	313626	0.4211
Man. City FC	287114	151214	386	71	252890	0.5526	312854	139216	476	89	377567	0.7368	354647	131904	449	78	484999	0.6053
Man. United FC	206604	71151	363	80	341116	0.6053	208194	67515	391	89	292352	0.7368	223918	71477	386	89	312695	0.7368
Newcastle Utd. FC	85779	5180	478	46	141549	0.2895	100011	24065	300	65	146200	0.5	94768	23828	288	41	147251	0.2895
Norwich FC	xx	xx	xx	xx	Xx	xx	57005	14964	210	47	115198	0.3158	78040	25371	273	44	123220	0.2632
Reading FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	70276	24384	428	28	90207	0.1579
Southampton FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	66210	24480	460	41	105651	0.2368
Stoke City FC	77718	23713	210	46	110255	0.3421	82517	27434	235	45	109666	0.2895	91756	40023	306	42	101197	0.2368
Sunderland FC	99073	49647	611	47	129087	0.3158	100052	36768	646	45	120848	0.2895	86941	34938	634	39	110293	0.2368
Swansea City FC	xx	xx	xx	xx	Xx	xx	53593	7868	192	47	101102	0.3158	74101	14116	208	46	102139	0.2895
T. Hotspur FC	141845	67158	261	62	238851	0.4211	135919	48140	281	69	205571	0.5263	142164	46771	306	72	203424	0.5526
W. Bromwich FC	70280	13578	135	47	116377	0.3195	78784	18624	139	47	104010	0.3421	82898	5842	150	49	107097	0.3684
West Ham Utd. FC	91928	33630	702	33	133574	0.1842	xx	xx	xx	xx	xx	xx	85533	39748	580	46	138215	0.3158
Wigan Athletic FC	65926	23738	95	42	83352	0.2368	58418	21858	105	43	81546	0.2895	66461	21731	115	36	85865	0.2368
Wolverhampton FC	62571	16246	251	40	106281	0.2895	59441	16285	338	25	95026	0.1316	xx	xx	xx	xx	xx	xx
Queens Park R. FC	xx	xx	xx	xx	Xx	xx	86745	13470	93	37	114413	0.2632	111465	26033	107	25	159786	0.1053

Table 6.1 Cont.

	2013/2014						2014/2015						2015/2016					
DMU	**W & S**	**Ass. C**	**No. E**	**P. Att.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P.**	**T/O**	**ROA**	**W & S**	**Ass. C**	**No. E**	**P.**	**T/O**	**ROA**
Arsenal FC	274276	74909	539	79	510228	0.6316	189708	116117	596	75	335171	0.5789	191764	124182	642	71	341434	0.5263
Aston Villa FC	17746	6828	1378	38	185997	0.2632	13483	3766	1436	38	112450	0.2632	15862	3154	1428	17	106752	0.0789
AFC Bournemouth	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	59557	14225	526	42	87875	0.2895
Burnley FC	xx	xx	xx	xx	Xx	xx	29395	7389	167	33	78770	0.1842	xx	xx	xx	xx	xx	xx
Cardiff City FC	89422	49346	184	30	134472	0.1842	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Chelsea FC	297147	130418	290	82	490370	0.6579	199831	75428	298	87	282994	0.6842	222406	77119	785	50	329122	0.3158
Crystal P. FC	76970	25406	142	45	152073	0.3421	68028	26982	187	48	102396	0.3421	80556	55661	194	42	101816	0.2895
Everton FC	116630	41680	247	72	205790	0.5526	77515	51618	274	47	125572	0.3158	83985	66003	315	47	121541	0.2895
Fulham FC	115263	67307	948	32	153553	0.2368	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Hull City FC	73801	33251	185	37	143915	0.2632	55611	25169	208	35	84090	0.2105	xx	xx	xx	xx	xx	xx
Leicester FC	xx	xx	xx	xx	Xx	xx	57438	11307	207	41	104437	0.2895	80352	9617	223	81	128715	0.6053
Liverpool FC	241815	15297	567	84	430049	0.6842	166085	97295	636	62	297947	0.4737	208258	80062	700	60	301765	0.4211
Man. City FC	344925	142528	314	86	582902	0.7105	193821	148600	320	79	351766	0.6316	197584	183594	320	66	391774	0.5000
Man. United FC	281674	103462	470	64	401459	0.5	158289	127930	411	70	182628	0.5263	184946	142690	374	66	230271	0.5000
Newcastle Utd. FC	131711	38257	288	49	218257	0.3947	65087	45377	264	39	128830	0.2632	74668	31807	258	37	125755	0.2368
Norwich FC	92090	35143	278	33	160717	0.2105	xx	xx	xx	xx	xx	xx	67193	40369	304	34	97816	0.2368
Southampton FC	100308	46993	507	56	174009	0.3947	78258	37607	270	60	110619	0.4737	82209	32434	300	63	121092	0.4737
Stoke city FC	101869	30895	264	50	165391	0.3421	66580	13576	272	54	99626	0.3947	82293	17996	290	51	104169	0.3684
Sunderland FC	114897	49482	658	38	170545	0.2632	75158	45566	613	38	97007	0.1842	81753	51103	580	39	104072	0.2368
Swansea City FC	106369	36702	246	42	166031	0.2895	70749	16980	264	56	89081	0.4211	81778	18519	362	47	97151	0.3158
T. Hotspur FC	170925	86051	313	69	277942	0.5526	100832	47251	399	64	196377	0.5000	100042	92248	409	70	209770	0.5000
W. Bromwich FC	111528	10611	159	36	147811	0.1842	69801	15862	161	44	96269	0.2895	73742	14390	169	43	98337	0.2632
Watford FC	xx	xx	xx	xx	Xx	xx	xx	xx	xx	xx	xx	xx	57900	15532	211	45	94449	0.3158
West Ham Utd. FC	107459	40267	609	40	198372	0.2895	72715	23100	591	47	120747	0.3158	84633	36391	618	62	142063	0.4211
Queens Park R. FC	xx	xx	xx	xx	Xx	xx	69992	27639	121	30	112072	0.2105	xx	xx	xx	xx	xx	xx

Note: Burnley FC and Portsmouth FC did not publish their annual reports for the years highlighted in light-green, so they were completely omitted from DEA efficiency computations in the years affected, while 'xx' indicates clubs that are not playing in EPL for the respective season. Only 20 clubs played per EPL season.

Table 6.2 Descriptive Statistics of the Data Used.

Season		Inputs			Outputs		
		Wages & Salaries	Assets Consumed	Number of Employees	Points Attained	Turnover	Rate of Attraction
2004/2005	Max	176075	155286	1295	95	219985	0.76
	Min	10690	23	120	32	61253	0.16
	Average	65445.3	24175.7	361.4	51.5	111135.75	0.36
2005/2006	Max	190189	136564	1354	91	248331	0.76
	Min	11626	22	59	15	65211	0.08
	Average	73492	27894	391.15	53.15	117636.2	0.39
2006/2007	Max	246160	138288	1459	89	331492	0.74
	Min	12633	3984	69	28	53187	0.13
	Average	88654.55	36578.85	420.05	52.1	135602.7	0.37
2007/2008	Max	319968	123573	1191	87	378586	0.71
	Min	20609	5848	67	11	84372	0.03
	Average	108513.35	46137.55	387.8	52	172914.7	0.37
2008/2009	Max	257086	95800	1264	90	326426	0.74
	Min	15943	3337	72	32	67863	0.07
	Average	94471.1	34761.15	351.5	50.1	143132.45	0.33
2009/2010	Max	242423	110742	1405	86	33869	0.71
	Min	15901	740	73	30	63541	0.16
	Average	89987.2	22074.15	361.9	49.3	134173	0.35
2010/2011	Max	287114	151214	1565	80	341116	0.61
	Min	18191	3494	95	33	82251	0.18
	Average	119011.75	36331.8	407.4	51.45	168920.75	0.35
2011/2012	Max	312854	139216	1584	89	377567	0.74
	Min	15284	5235	93	25	81546	0.13
	Average	117726.1	33494.3	398.55	52.35	169368.4	0.38
2012/2013	Max	354647	131904	1433	89	484999	0.74
	Min	15667	5842	107	25	86865	0.11
	Average	126208.95	43468	427	51.6	181923	0.36
2013/2014	Max	344925	142528	1378	86	582902	0.71
	Min	17746	6828	142	30	13447	0.18
	Average	148341.25	53241.55	429.3	53.1	253494.15	0.4
2014/2015	Max	199831	148600	1436	87	351766	0.68
	Min	13483	3766	121	30	78770	0.03
	Average	93918.8	47327.95	384.75	52.35	155442.45	0.37
2015/2016	Max	22406	183594	1428	81	391774	0.61
	Min	15862	3154	169	17	87875	0.08
	Average	105574.05	55354.8	450.4	51.65	166786.95	0.36

Note: Max= Maximum; Min = Minimum

The initial DEA-$_{\mathbf{CCR}}$ analyses show that the correlation comparisons between variables (*X*, *Y*) for all seasons range between negative and positive values. This is presented in table (6.3), while table (6.4) presents the yearly average correlation between (*X*, *Y*) variables to prioritise the variables in AHP and select those to be included in the definitive DEA model. A correlation coefficient of 60% is assumed here. This indicates that where the average correlation between (X, Y) variables is less than 60%, such variable is rejected and will not be included in the definitive model. The panel data set in table (6.1) is keyed into the DEA-Solver 4.2.0 to calculate the correlation (Numerical values) using one of the extra features incorporate in the new DEA software for calculating correlation and regression values among variables as presented in table (6.3) showing the results of the pilot test or initial test conducted with three inputs and three outputs.

Table 6.3 Correlation Between Inputs (X) and Output (Y) in the Preliminary Model (3 outputs and 3 Inputs)

Output / Input	Year 1			Year 2			Year 3			Year 4			Year 5		
	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA
Wages & Salaries	0.84	0.90	0.82	0.83	0.93	0.82	0.77	0.92	0.76	0.75	0.90	0.76	0.71	0.86	0.73
Assets Consumed	0.73	0.68	0.71	0.61	0.66	0.62	0.66	0.83	0.66	0.65	0.80	0.64	0.61	0.66	0.65
Number of Employees	-0.11*	0.04*	-	0.01*	0.02*	0.03*	-0.24*	-0.07*	-0.25*	0.07*	-0.05*	0.06*	0.20*	0.07*	0.18*
Output / Input	**Year 6**			**Year 7**			**Year 8**			**Year 9**			**Year 10**		
	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA	P/A	T/O	ROA
Wages & Salaries	0.73	0.85	0.75	0.85	0.88	0.87	0.81	0.95	0.83	0.80	0.97	0.79	0.84	0.95	0.84
Assets Consumed	0.60	0.69	0.60	0.62	0.57*	0.65	0.68	0.61	0.69	0.73	0.94	0.72	0.59*	0.73	0.61
Number of Employees	0.09*	0.07*	0.05*	-	0.06*	-	-0.02*	0.08*	-0.09*	-0.05*	0.00*	-0.05*	-0.12*	0.01*	-0.19*
Output / Input	**Year 11**			**Year 12**											
	P/A	T/O	ROA	P/A	T/O	ROA									
Wages & Salaries	0.89	0.92	0.89	0.55*	0.93	0.53*									
Assets Consumed	0.72	0.85	0.70	0.49*	0.85	0.51*									
Number of Employees	0.02*	0.17*	-	-	0.22*	-0.35*									

Note: * signifies correlation values less than 60%. Correlation is calculated at 5% significance level using DEA solver 4.2.0.

Table 6.4 Final Yearly Average Correlation Between Variables (X, Y)

X / Y	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Wages & Salaries	0.85	0.86	0.82	0.80	0.77	0.78	0.87	0.86	0.85	0.88	0.90	0.67
Assets Consumed	0.71	0.63	0.72	0.70	0.64	0.63	0.61	0.66	0.80	0.64	0.76	0.62
Number of Employees**	-0.05	0.02	-0.19	0.03	0.09	0.07	-0.01	-0.01	-0.03	0.07	-0.02	-0.15

Note: ** signifies variable excluded from the definitive model.

However, since the analysis spans over a range of period (twelve seasons) the correlation comparisons between variables (*X*, *Y*) as shown in table (6.3) indicates that some variables do have negative values at a point in time. DEA does not accept negative values and any negative correlation between variables X and Y might lead to efficiency scores being overestimated. Moreover, where the correlation between (X, Y) variables is less than 60%, such variable is excluded from the definitive analysis for reliability and quality enhancement. Therefore, the number of employees (highlighted in table 6.4) is rejected. The research variables, therefore, comprise two inputs and three outputs in the definitive test.

6.3 Calculation of DEA Efficiency Score

Efficiency score is calculated using the two known DEA models. In this study, the research adopts both output-orientation and input-orientation approaches of BCC and CCR models. With output-orientation in CCR, DEA technical efficient (TE) index assumes that football clubs aim to maximise sporting, financial, and social results simultaneously under a constant return to scale as demonstrated in the previous chapters. This approach sees inputs as endogenous and outputs as exogenous from the competitive environment in which the clubs compete (Barros and Leach, 2006b). Considering constant return-to-scale (CRS) hypothesis, it composes of a non-additive combination of technical and scale efficiencies. Thus, measures aggregate or global efficiency scores. A ratio of the technical efficiency scores measured by CCR to pure technical efficiency scores evaluated by BCC provides the scale efficiency (SE) measurement.

This indicates that DEA measures three (3) different classes of efficiencies. The pure technical efficiency (PTE); the technical efficiency (TE) and the scale efficiency (SE). However, the definitive efficiency scores of English premier clubs as measured by DEA from 2004/05 to 2015/16 seasons are presented in table (6.5) using both $DEA_{\text{-CCR}}$ and $DEA_{\text{-BCC}}$ models. The table shows efficiency scores according to model used. Models are presented in the columns by season with abbreviations such as BCC – Banker, Charnes and Cooper; CCR – Charnes, Cooper and Rhodes; and SE – Scale Efficiency. However, the units or football clubs are presented in rows.

Table 6.5 DEA Efficiency Scores of English Premier Clubs Between 2004/05 – 2015/16.

SEASON	2004/2005						2005/2006						2006/2007					
DEA MODEL	Output Oriented			Input Oriented			Output Oriented			Input Oriented			Output Oriented			Input Oriented		
DMU	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**
Arsenal FC	1.000	0.207	0.207	1.000	0.207	0.207	1.000	0.218	0.218	1.000	0.218	0.218	1.000	0.240	0.240	1.000	0.240	0.240
Aston Villa FC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Birmingham	0.749	0.210	0.280	0.219	0.210	0.959	0.606	0.191	0.315	0.227	0.191	0.841						
Blackburn R.	0.670	0.170	0.254	0.190	0.170	0.895	1.000	0.361	0.361	1.000	0.361	0.361	1.000	0.338	0.338	1.000	0.338	0.338
B. Wanderers	1.000	0.414	0.414	1.000	0.414	0.414	0.961	0.351	0.365	0.891	0.351	0.394	1.000	0.306	0.306	1.000	0.306	0.306
Charlton A.	0.754	0.208	0.276	0.208	0.208	1.000	0.756	0.241	0.319	0.445	0.241	0.542	0.528	0.142	0.269	0.195	0.142	0.728
Chelsea FC	1.000	0.147	0.147	1.000	0.147	0.147	1.000	0.177	0.177	1.000	0.177	0.177	1.000	0.163	0.163	1.000	0.163	0.163
Crystal P. FC	0.605	0.228	0.377	0.325	0.228	0.702												
Everton FC	1.000	0.286	0.286	1.000	0.286	0.286	0.797	0.234	0.294	0.577	0.234	0.406	0.859	0.227	0.264	0.603	0.227	0.377
Fulham FC	0.690	0.180	0.261	0.180	0.180	1.000	0.797	0.295	0.370	0.602	0.295	0.490	0.636	0.150	0.236	0.193	0.150	0.777
Liverpool FC	1.000	0.215	0.215	1.000	0.215	0.215	1.000	0.221	0.221	1.000	0.221	0.221	0.937	0.209	0.223	0.896	0.209	0.233
Man. City FC	0.937	0.391	0.417	0.631	0.391	0.620	0.815	0.234	0.287	0.584	0.234	0.401	0.666	0.190	0.285	0.271	0.190	0.701
Man. United	0.924	0.187	0.202	0.856	0.187	0.219	1.000	0.227	0.227	1.000	0.227	0.227	1.000	0.227	0.227	1.000	0.227	0.227
Middlesbrough	0.893	0.236	0.264	0.640	0.236	0.369	0.689	0.186	0.270	0.322	0.186	0.578	0.700	0.198	0.283	0.301	0.198	0.658
Newcastle	0.917	0.202	0.220	0.831	0.202	0.243	0.914	0.218	0.239	0.836	0.218	0.261	0.721	0.179	0.248	0.562	0.179	0.319
Norwich FC	0.612	0.252	0.412	0.348	0.252	0.724												
Portsmouth FC	0.666	0.196	0.294	0.235	0.196	0.834	0.681	0.249	0.366	0.249	0.249	1.000	0.850	0.220	0.259	0.556	0.220	0.396
Reading FC													0.990	0.331	0.334	0.976	0.331	0.339
Sheffield													0.693	0.280	0.404	0.308	0.280	0.909
Southampton	0.534	0.169	0.317	0.222	0.169	0.761												
Sunderland FC							0.639	0.291	0.455	0.359	0.291	0.811						
T. Hotspur FC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.947	0.268	0.283	0.905	0.268	0.296
Watford FC													0.534	0.293	0.549	0.523	0.293	0.560
W. Bromwich	0.604	0.206	0.341	0.285	0.206	0.723	0.585	0.223	0.381	0.311	0.223	0.717						
West Ham							0.963	0.348	0.361	0.912	0.348	0.382	0.627	0.169	0.270	0.256	0.169	0.660
Wigan							1.000	1.000	1.000	1.000	1.000	1.000	0.664	0.212	0.319	0.233	0.212	0.910
AVERAGE*	**0.828**	**0.305**	**0.352**	**0.609**	**0.305**	**0.616**	**0.860**	**0.363**	**0.411**	**0.716**	**0.363**	**0.551**	**0.818**	**0.267**	**0.325**	**0.639**	**0.267**	**0.507**

Table 6.5 Cont.

SEASON	2007/2008						2008/2009						2009/2010					
DEA MODEL	Output Oriented			Input Oriented			Output Oriented			Input Oriented			Output Oriented			Input Oriented		
DMU	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**
Arsenal FC	1.000	0.276	0.276	1.000	0.276	0.276	1.000	0.276	0.27	1.000	0.276	0.276	1.000	0.351	0.351	1.000	0.351	0.351
Aston Villa FC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Birmingham FC	0.546	0.259	0.474	0.424	0.259	0.611							0.725	0.231	0.319	0.294	0.231	0.786
Blackburn R.	0.854	0.262	0.307	0.271	0.262	0.967	0.614	0.213	0.34	0.316	0.213	0.674	0.729	0.240	0.329	0.287	0.240	0.837
B. Wanderers	0.544	0.184	0.338	0.270	0.184	0.682	0.577	0.159	0.27	0.240	0.159	0.663	0.793	0.532	0.671	0.561	0.532	0.948
Burnley FC																		
Chelsea FC	1.000	0.164	0.164	1.000	0.164	0.164	0.942	0.140	0.14	0.661	0.140	0.212	1.000	0.187	0.187	1.000	0.187	0.187
Derby County	0.510	0.257	0.504	0.400	0.257	0.643												
Everton FC	0.948	0.279	0.294	0.802	0.279	0.348	0.870	0.204	0.23	0.272	0.204	0.750	0.940	0.479	0.510	0.641	0.479	0.747
Fulham FC	0.526	0.183	0.348	0.263	0.183	0.696	0.741	0.178	0.24	0.208	0.178	0.856	0.643	0.193	0.300	0.217	0.193	0.889
Hull City FC							0.546	0.282	0.51	0.469	0.282	0.601	0.440	0.185	0.421	0.316	0.185	0.585
Liverpool FC	0.927	0.245	0.264	0.862	0.245	0.284	0.978	0.207	0.21	0.930	0.207	0.223	0.861	0.186	0.216	0.663	0.186	0.281
Man. City FC	0.756	0.210	0.278	0.292	0.210	0.719	0.602	0.123	0.20	0.147	0.123	0.837	0.785	0.117	0.149	0.284	0.117	0.412
Man. United FC	1.000	0.244	0.244	1.000	0.244	0.244	1.000	0.222	0.22	1.000	0.222	0.222	1.000	0.210	0.210	1.000	0.210	0.210
Middlesbrough	0.653	0.291	0.446	0.415	0.291	0.701	0.497	0.251	0.50	0.478	0.251	0.525						
Newcastle Utd.	0.663	0.196	0.296	0.423	0.196	0.463	0.534	0.145	0.27	0.172	0.145	0.843						
Portsmouth FC	0.789	0.191	0.242	0.191	0.191	1.000												
Reading FC	0.545	0.229	0.420	0.336	0.229	0.682												
Stoke City FC							0.673	0.241	0.35	0.332	0.241	0.726	0.680	0.213	0.313	0.280	0.213	0.761
Sunderland FC	0.590	0.238	0.403	0.282	0.238	0.844	0.493	0.153	0.31	0.194	0.153	0.789	0.600	0.148	0.247	0.190	0.148	0.779
T. Hotspur FC	0.819	0.279	0.341	0.643	0.279	0.434	1.000	1.000	1.00	1.000	1.000	1.000	0.939	0.213	0.227	0.786	0.213	0.271
W. Bromwich							0.472	0.179	0.37	0.314	0.179	0.570						
West Ham Utd.	0.654	0.160	0.245	0.169	0.160	0.947	0.652	0.133	0.20	0.148	0.133	0.899	0.498	0.164	0.329	0.203	0.164	0.808
Wigan Athletic	0.588	0.182	0.310	0.272	0.182	0.669	0.638	0.170	0.26	0.234	0.170	0.727	0.521	0.165	0.230	0.290	0.165	0.569
Wolverhampton													1.000	1.000	1.000	1.000	1.000	1.000
AVERAGE*	**0.746**	**0.267**	**0.360**	**0.516**	**0.267**	**0.619**	**0.728**	**0.278**	**0.36**	**0.480**	**0.278**	**0.652**	**0.786**	**0.323**	**0.389**	**0.556**	**0.323**	**0.635**

Table 6.5 Cont.

SEASON	2010/2011						2011/2012						2012/2013					
DEA MODEL	Output Oriented			Input Oriented			Output Oriented			Input Oriented			Output Oriented			Input Oriented		
DMU	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**
Arsenal FC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.220	0.220	1.000	0.220	0.220
Aston Villa FC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Birmingham FC	0.682	0.205	0.301	0.252	0.205	0.813												
Blackburn R.	0.763	0.343	0.450	0.348	0.343	0.986	0.559	0.378	0.676	0.409	0.378	0.924						
Blackpool FC	1.000	1.000	1.000	1.000	1.000	1.000												
B. Wanderers	0.769	0.208	0.271	0.208	0.208	1.000	0.613	0.332	0.542	0.438	0.332	0.758						
Chelsea FC	0.963	0.202	0.210	0.691	0.202	0.292	0.966	0.214	0.222	0.853	0.214	0.251	0.973	0.181	0.186	0.959	0.181	0.189
Everton FC	0.950	0.628	0.661	0.778	0.628	0.807	0.869	0.461	0.531	0.730	0.461	0.632	1.000	0.397	0.397	1.000	0.397	0.397
Fulham FC	0.839	0.317	0.378	0.343	0.317	0.924	0.818	0.317	0.388	0.670	0.317	0.473	0.684	0.170	0.249	0.268	0.170	0.634
Liverpool FC	0.876	0.190	0.217	0.757	0.190	0.251	0.814	0.715	0.878	0.722	0.715	0.990	0.979	0.197	0.201	0.965	0.197	0.204
Man. City FC	0.913	0.111	0.122	0.600	0.111	0.185	1.000	0.195	0.195	1.000	0.195	0.195	1.000	0.186	0.186	1.000	0.186	0.186
Man. United FC	1.000	0.225	0.225	1.000	0.225	0.225	1.000	0.368	0.368	1.000	0.368	0.368	1.000	0.240	0.240	1.000	0.240	0.240
Newcastle Utd.	0.906	0.841	0.928	0.843	0.841	0.998	1.000	0.635	0.635	1.000	0.635	0.635	0.835	0.313	0.375	0.587	0.313	0.533
Norwich FC							0.931	0.665	0.714	0.893	0.665	0.745	0.778	0.262	0.337	0.341	0.262	0.768
Queens Park R.							0.681	0.514	0.755	0.524	0.514	0.981	0.872	0.310	0.356	0.699	0.310	0.443
Reading FC													0.522	0.187	0.359	0.257	0.187	0.728
Southampton													0.756	0.255	0.337	0.256	0.255	0.996
Stoke City FC	0.851	0.304	0.357	0.481	0.304	0.632	0.760	0.358	0.471	0.528	0.358	0.678	0.688	0.175	0.254	0.211	0.175	0.829
Sunderland FC	0.761	0.184	0.242	0.184	0.184	1.000	0.715	0.275	0.385	0.435	0.275	0.632	0.665	0.171	0.257	0.180	0.171	0.950
Swansea City							1.000	1.000	1.000	1.000	1.000	1.000	0.858	0.468	0.545	0.596	0.468	0.785
T. Hotspur FC	0.899	0.209	0.233	0.758	0.209	0.276	0.967	0.377	0.390	0.936	0.377	0.403	1.000	0.276	0.276	1.000	0.276	0.276
W. Bromwich	0.856	0.438	0.512	0.471	0.438	0.930	0.816	0.558	0.684	0.742	0.558	0.752	1.000	1.000	1.000	1.000	1.000	1.000
West Ham Utd.	0.600	0.188	0.313	0.205	0.188	0.917							0.795	0.220	0.277	0.452	0.220	0.497
Wigan Athletic	0.749	0.255	0.341	0.289	0.255	0.882	0.839	0.464	0.553	0.745	0.464	0.623	0.657	0.254	0.387	0.288	0.254	0.882
Wolverhampton	0.772	0.361	0.468	0.378	0.361	0.955	0.547	0.289	0.528	0.408	0.289	0.708						
AVERAGE*	**0.858**	**0.411**	**0.462**	**0.579**	**0.411**	**0.754**	**0.845**	**0.506**	**0.596**	**0.752**	**0.506**	**0.687**	**0.853**	**0.324**	**0.372**	**0.653**	**0.324**	**0.588**

Table 6.5 Cont.

SEASON	2013/2014						2014/2015						2015/2016					
	Output Oriented			Input Oriented			Output Oriented			Input Oriented			Output Oriented			Input Oriented		
DMU	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**	**BCC**	**CCR**	**SE**
Arsenal FC	1.000	0.249	0.249	1.000	0.249	0.249	1.000	0.529	0.52	1.000	0.529	0.529	1.000	0.436	0.436	1.000	0.436	0.436
Aston Villa FC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AFC Bournemt.													0.708	0.691	0.976	0.700	0.691	0.987
Burnley FC							1.000	1.000	1.00	1.000	1.000	1.000						
Cardiff City FC	0.543	0.157	0.289	0.198	0.157	0.793												
Chelsea FC	0.964	0.157	0.163	0.917	0.157	0.171	1.000	0.546	0.54	1.000	0.546	0.546	1.000	0.259	0.259	1.000	0.259	0.259
Crystal P. FC	0.798	0.348	0.436	0.605	0.348	0.575	0.877	0.803	0.91	0.847	0.803	0.948	0.625	0.511	0.818	0.517	0.511	0.988
Everton FC	1.000	0.343	0.343	1.000	0.343	0.343	0.812	0.650	0.80	0.755	0.650	0.861	0.702	0.540	0.769	0.568	0.540	0.951
Fulham FC	0.540	0.139	0.257	0.154	0.139	0.903												
Hull City FC	0.675	0.240	0.356	0.240	0.240	1.000	0.695	0.604	0.86	0.618	0.604	0.977						
Leicester FC							0.989	0.956	0.96	0.972	0.956	0.984	1.000	1.000	1.000	1.000	1.000	1.000
Liverpool FC	1.000	1.000	1.000	1.000	1.000	1.000	0.988	0.508	0.51	0.982	0.508	0.517	1.000	0.329	0.329	1.000	0.329	0.329
Man. City FC	1.000	0.161	0.161	1.000	0.161	0.161	1.000	0.559	0.55	1.000	0.559	0.559	1.000	0.422	0.422	1.000	0.422	0.422
Man. United FC	0.788	0.142	0.180	0.668	0.142	0.213	0.900	0.531	0.59	0.783	0.531	0.678	0.897	0.399	0.445	0.624	0.399	0.639
Newcastle Utd.	0.774	0.265	0.342	0.542	0.265	0.489	0.831	0.668	0.80	0.792	0.668	0.843	0.761	0.481	0.632	0.541	0.481	0.889
Norwich FC	0.612	0.169	0.276	0.194	0.169	0.871							0.629	0.510	0.811	0.524	0.510	0.973
Southampton	0.849	0.265	0.312	0.699	0.265	0.379	1.000	0.966	0.96	1.000	0.966	0.966	0.837	0.780	0.932	0.781	0.780	0.999
Stoke City FC	0.776	0.291	0.375	0.559	0.291	0.521	1.000	1.000	1.00	1.000	1.000	1.000	0.720	0.613	0.851	0.624	0.613	0.982
Sunderland FC	0.624	0.154	0.267	0.154	0.154	1.000	0.662	0.413	0.62	0.442	0.413	0.934	0.611	0.459	0.751	0.465	0.459	0.987
Swansea City	0.677	0.206	0.304	0.286	0.206	0.720	1.000	0.962	0.96	1.000	0.962	0.962	0.669	0.561	0.839	0.564	0.561	0.995
T. Hotspur FC	0.910	0.218	0.240	0.840	0.218	0.260	1.000	0.791	0.79	1.000	0.791	0.791	1.000	0.725	0.725	1.000	0.725	0.725
W. Bromwich	0.628	0.610	0.971	0.643	0.610	0.949	0.812	0.681	0.83	0.711	0.681	0.958	0.704	0.562	0.798	0.570	0.562	0.986
Watford FC													0.773	0.764	0.988	0.775	0.764	0.986
West Ham Utd.	0.705	0.186	0.264	0.285	0.186	0.653	0.869	0.693	0.79	0.804	0.693	0.862	0.887	0.716	0.807	0.808	0.716	0.886
Queens Park R.							0.688	0.509	0.74	0.576	0.509	0.884						
AVERAGE*	**0.793**	**0.315**	**0.389**	**0.599**	**0.315**	**0.613**	**0.906**	**0.719**	**0.79**	**0.864**	**0.719**	**0.840**	**0.826**	**0.588**	**0.729**	**0.753**	**0.588**	**0.821**

6.4 Results of DEA-$_{CCR}$, DEA-$_{BCC}$ and Scale Efficiency (SE)

From table (6.5) above, several observations emerged from DEA analysis. First, the CCR calculation indicates that efficiency scores remain the same be it input-oriented or output-oriented stressing the fact that DEA$_{-CCR}$ measures the overall efficiencies, showing the efficient clubs and the most efficient seasons (on average). Second, the inefficient clubs (DEA$_{-CCR}$ < 1) are decomposed into; clubs whose DEA$_{-BCC}$ = 1 and SE < 1. Clubs in this category might have used their resources without wastage. Others are clubs whose DEA$_{-BCC}$ < 1 and SE = 1. Though these clubs are technically sound, they might have wasted resources. Third, some clubs whose DEA$_{-BCC}$ < 1 and SE < 1 are equally identified and decomposed. Aston Villa remains efficient in all DEA models using BCC (Variable return to scale) and CCR (Constant return to scale) till 2015/16 season. This is further shown in figures (6.1); (6.2) and (6.3) below, Aston Villa FC is therefore, a super-efficient club (DEA$_{-BCC}$ = 1, DEA$_{-CCR}$ = 1 and SE = 1). Though DEA showed the efficient and inefficient EPL clubs in each of the seasons investigated per input/output orientations, most of the clubs investigated were inefficient. Only about 10.97% (26 out of 237) clubs were efficient in all DEA models throughout the seasons investigated. Among the few efficient clubs, only Aston Villa football club could be consistent at efficiency level during the period analysed (see figures 6.1; 6.2 and 6.3). These figures further show that only eight clubs could participate in the EPL throughout the seasons analysed, and these eight clubs were selected for DEA window analysis based on their 100% participation to determine which of the eight clubs is most efficient and able to maintain consistency in the efficiency level during the period analysed.

In terms of technical efficiency (TE) as measured by DEA$_{-CCR}$, seasonal analysis of the results revealed that the degree of inefficiency among the EPL was very high during the period investigated. Figure (6.3) further demonstrates this as several EPL clubs were found within the lower efficiency band and only a few operated by the upper-efficiency band. As many as 211 DMUs out of 237 DMUs have DEA$_{-CCR}$ < 1 (89.03% of all the DMUs investigated), many of which have efficiency scores below 0.5 as shown in figure (6.3). This comprises of about 25 football clubs (highlighted in light blue in table 6.5). The indication is that inefficiencies among EPL clubs are greatly caused by technical inefficiency. Out of the 12 seasons analysed, 2014/15 is among the three (3) seasons that has the highest number of efficient clubs and is the most

efficient season with highest average efficiency scores for DEA_{-BCC}, DEA_{-CCR} and SE being 90.6%, 71.9% and 84% for output-oriented, and 86.4%, 71.9% and 84% for input-oriented respectively.

Whilst decomposing DEA_{-CCR} inefficiency ($DEA_{-CCR} < 1$), a group emerged whose $DEA_{-BCC} < 1$, and SE = 1. These group highlighted grey in table (6.5) comprises of clubs such as Charlton FC, Fulham FC, Portsmouth FC, Bolton Wanderers FC, Sunderland FC and Hull City FC. Though the clubs are technically sound and might have wasted resources, they operated at an optimal return to scale. Any increase or decrease in operational size, the efficiency of these clubs will drop. This might probably be the reason while these clubs could not have a continuous appearance on EPL throughout the period analysed as shown in figures (6.1); (6.2) and (6.3). It could also be observed from the table (6.5) and figure (6.3) that all technically efficient DEA_{-CCR} clubs are also pure technically efficient in DEA_{-BCC} model, signifying that the dominant source of inefficiency is scale. In addition to Aston Villa FC which has technical efficiency score of 1.0 throughout the period analysed, other clubs that are technically efficient in figure 6.3 (i.e. have technical efficiency scores of 1.0) are all scale efficient (SE). Other football clubs that are scale efficient (SE) during the period and whose DEA_{-BCC} scores were less than one, but equal DEA_{-CCR} scores include Charlton FC and Fulham FC in 2004/2005; Portsmouth FC in 2005/2006 and 2007/2008; Bolton Wanderers FC and Sunderland FC in 2010/2011 and Hull City and Sunderland in 2013/2014 are shown in table (6.5).

Table 6.6 Average Efficiency Scores

	Output Oriented			**Input Oriented**		
SEASON	**DEA_{-BCC}**	**DEA_{-CCR}**	**SE**	**DEA_{-BCC}**	**DEA_{-CCR}**	**SE**
2004/05	0.828	0.305	0.352	0.609	0.305	0.616
2005/06	0.860	0.363	0.411	0.716	0.363	0.551
2006/07	0.818	0.267	0.325	0.639	0.267	0.507
2007/08	0.746	0.267	0.360	0.516	0.267	0.619
2008/09	0.728	0.278	0.367	0.480	0.278	0.652
2009/10	0.786	0.323	0.389	0.556	0.323	0.635
2010/11	0.858	0.411	0.462	0.579	0.411	0.754
2011/12	0.845	0.506	0.596	0.752	0.506	0.687
2012/13	0.853	0.324	0.372	0.653	0.324	0.588
2013/14	0.793	0.315	0.389	0.599	0.315	0.613
2014/15	0.906	0.719	0.791	0.864	0.719	0.840
2015/16	0.826	0.588	0.729	0.753	0.588	0.821

Though it is not always clear at a glance to bring out the trend at which the efficiency scores for each of the DMUs varies in table (6.5), figures (6.1; 6.2 and 6.3) show the efficiency trend of each of the EPL clubs during the period analysed. A comparative analysis per season on the average efficiency scores shows that 2011/12; 2014/15 and 2015/16 seasons had average efficiency scores in DEA_{-CCR} above 50% with 2014/15 season being the best season with DEA_{-CCR} average efficiency of 71.9%. The remaining seasons had average DEA_{-CCR} efficiency scores below 50% which is why many clubs operated at the lower efficiency band as shown in figures (6.2; and 6.3). From table (6.6) and figures (6.1 and 6.4), DEA_{-BCC} output-oriented efficiency model seems to be a better technique as it has not only shown the highest average efficiency scores across the season analysed but reveals its supremacy over input orientation when measuring correlation between DEA ranking and current EPL ranking and on average, it is more consistent with maximising sports outcomes (sporting, financial and social).

Figure 6.1 DEA-BCC OUTPUT ORIENTED

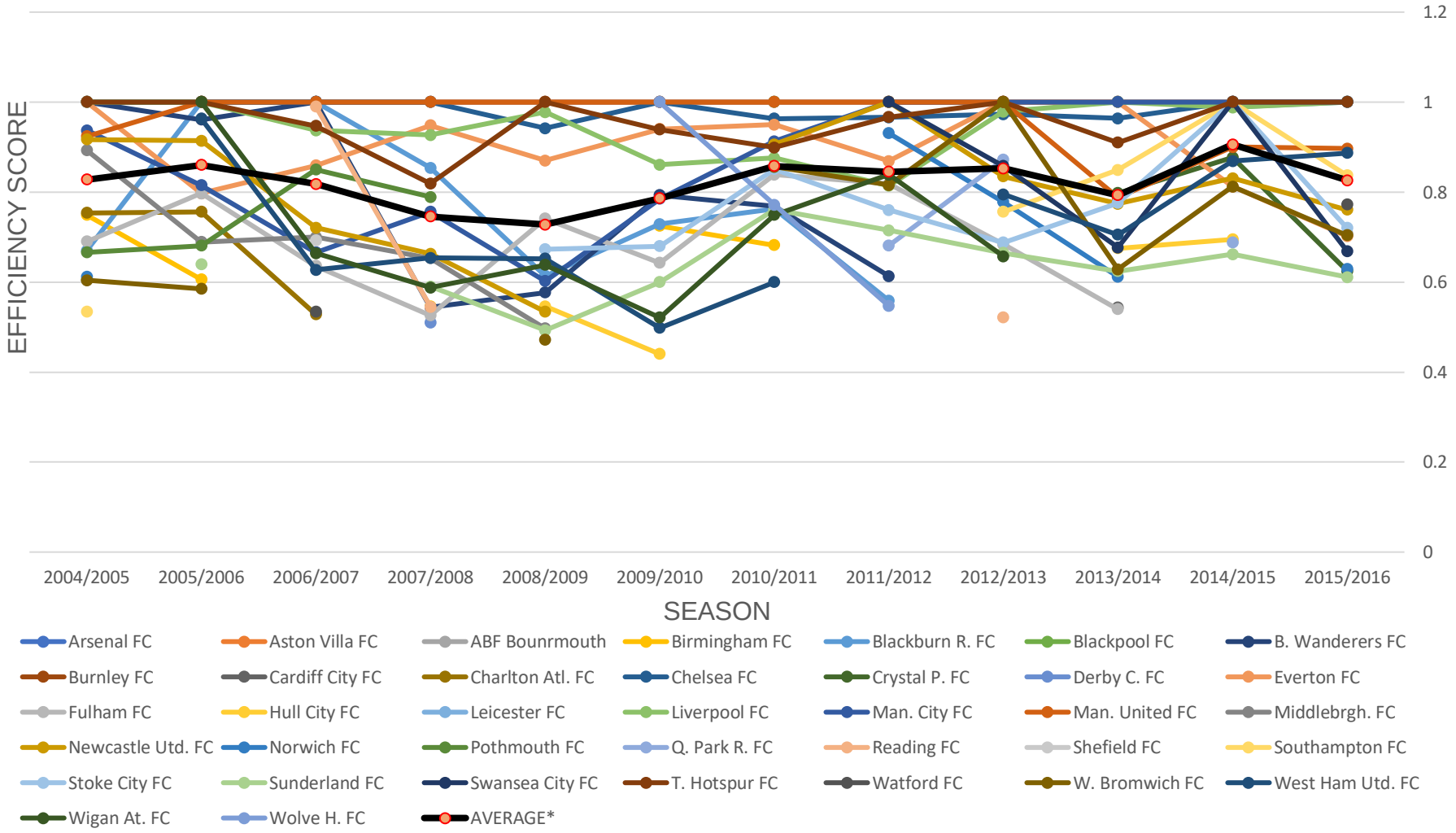


Figure 6.2 DEA-BCC INPUT ORIENTED

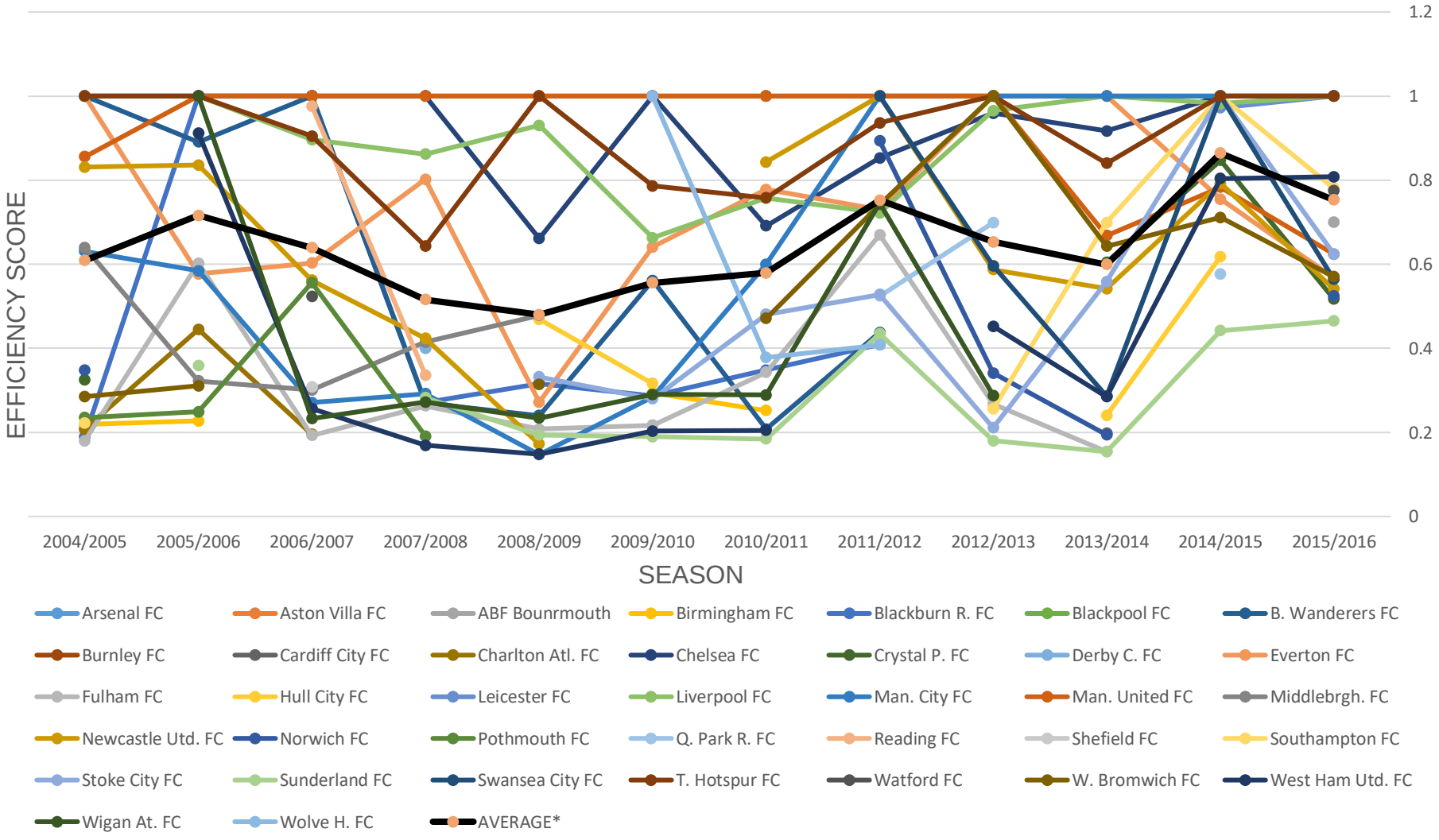


Figure 6.3 DEA-CCR INPUT/OUTPUT ORIENTATION

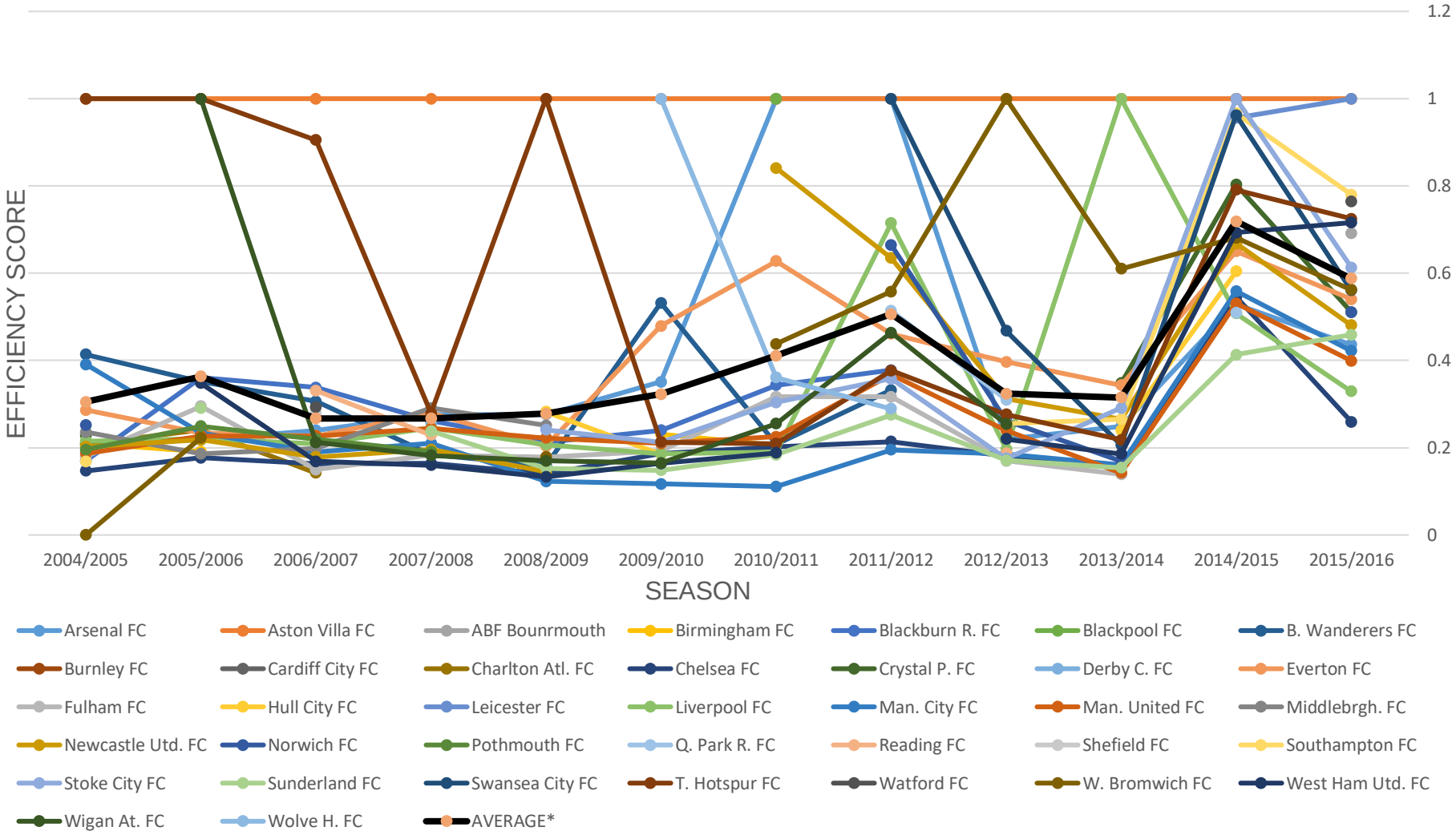


Figure 6.4 Output Oriented (Average Efficiency Scores)

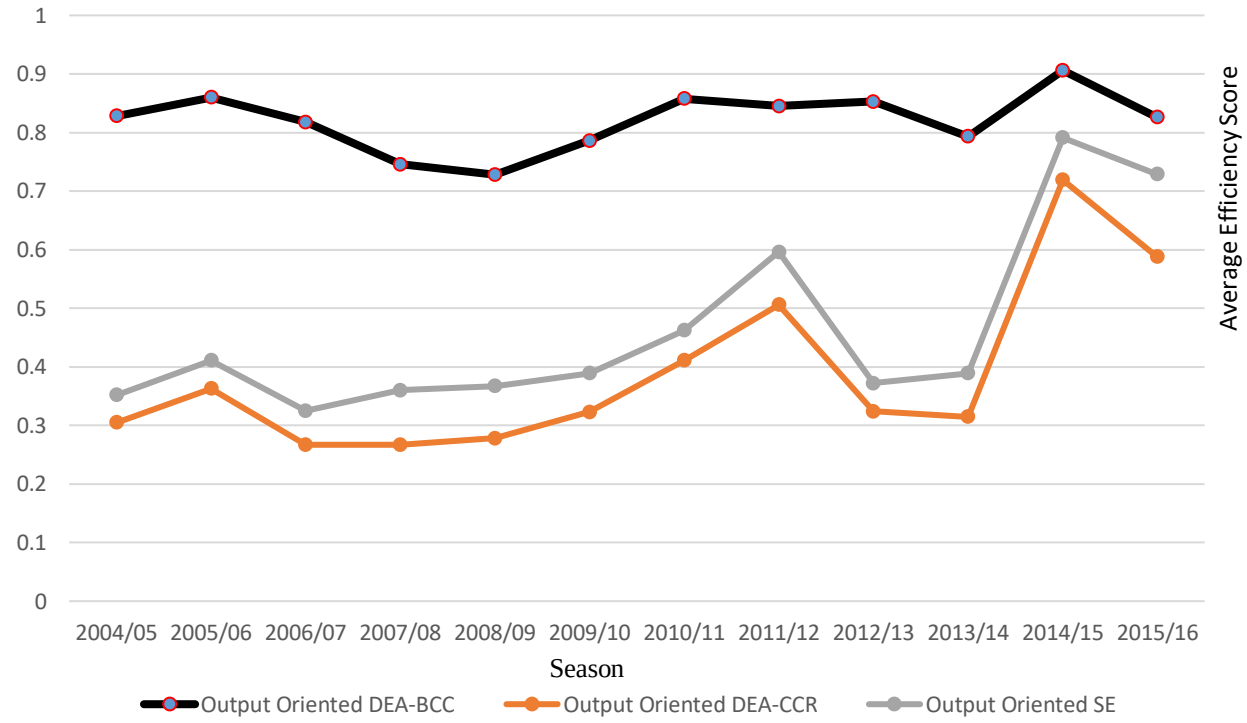
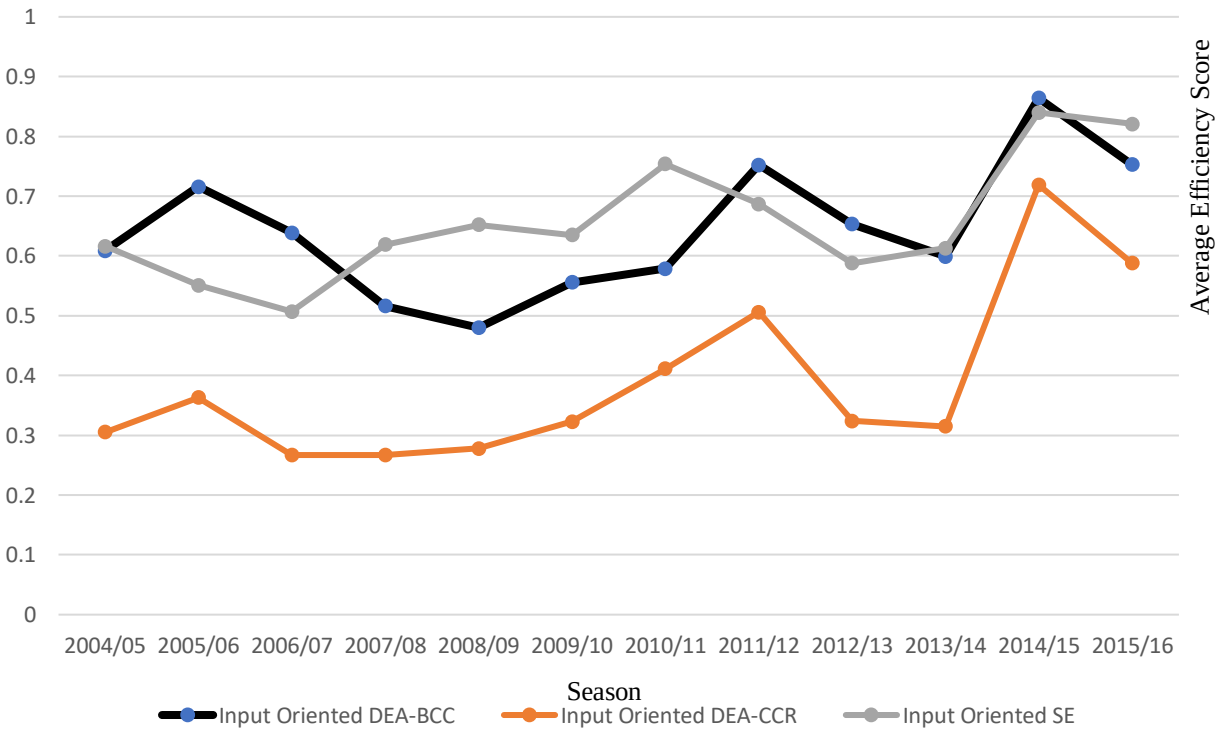
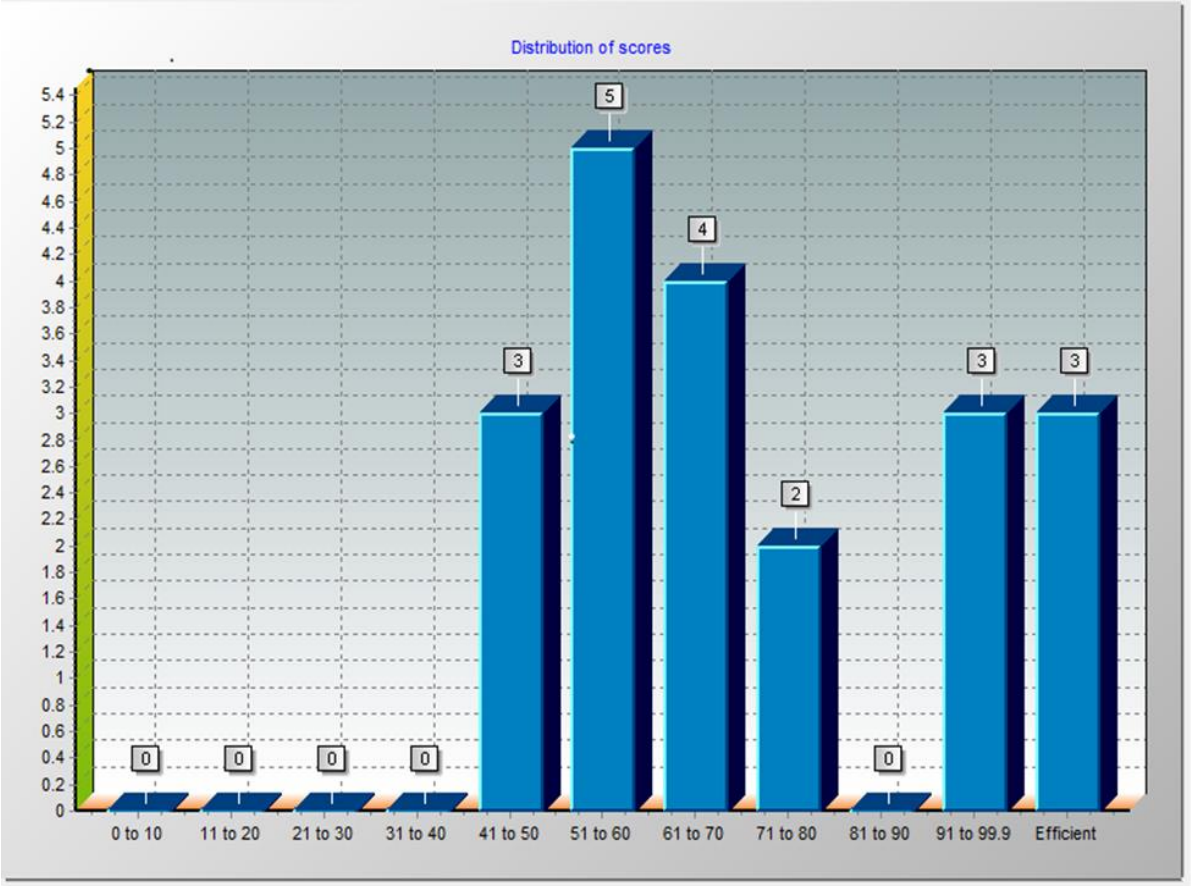


Figure 6.5 Input Oriented (Average Efficiency Scores)



In 2014/15 season, efficiency scores are distributed as shown in figure (6.6) below.

Figure 6.6 Distribution of Efficiency Scores



Three clubs were efficient in 2014/15 season using DEA-$_{CCR}$ model, three clubs had efficiency scores between 91% and 99.9%, two clubs had between 71% and 80%, four clubs had between 61% and 70%, five clubs had between 51% and 60%, and the remaining three clubs had between 41% and 50%. In this season, though only three clubs were efficient about 17 clubs out of 20 clubs that played on EPL in 2014/15 had efficiency scores above 50%.

The three efficient clubs in 2014/15 were Aston Villa FC, Burnley FC, and Stoke City FC. One or more of these efficient clubs form a reference set or peer group for the inefficient clubs. A peer is a unit which is found to be efficient, with a similar combination of weights as that of an inefficient unit. Where two or more of these efficient units act as peers for an inefficient unit, they provide a *peer group* for the inefficient unit.

In 2014/15 season, the peer group for the inefficient clubs Arsenal, Liverpool, Manchester City, Queens Park Rangers, New castle and Sunderland is Aston Villa FC and Burnley FC; Leicester

FC has Stoke City FC and Aston Villa as its peer group; Swansea City and West Bromwich followed the pair of Burnley FC and Stoke City FC; other clubs like Chelsea, Crystal Palace, Everton, Hull City, Manchester United, Southampton, West Ham and Tottenham Hotspur had Burnley FC as peer unit (see figure 6.7). Quite interesting to see that neither of the big clubs like Arsenal FC, Manchester United FC, Chelsea FC, and Liverpool FC nor any of the previous league winners was efficient in 2014/2015. Only Aston Villa FC out of all clubs that had 100% participation in the EPL during the period analysed attained efficiency in all seasons analysed. This further stress the fact that big clubs, national champions or league winners are not always efficient. Surprisingly, Leicester FC made history in 2015/16 season as the only EPL champion to have ever attained efficient performance in all DEA models.

Figure 6.7 Reference Frequency

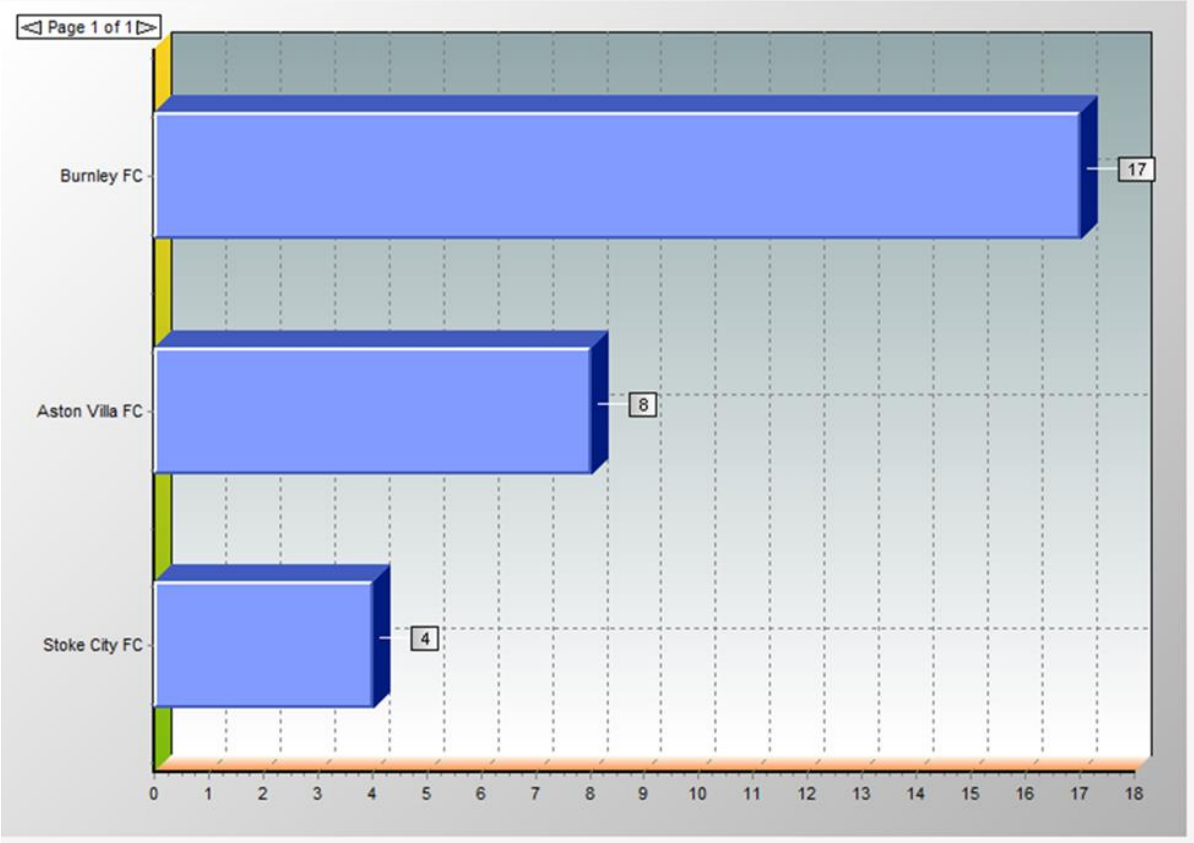
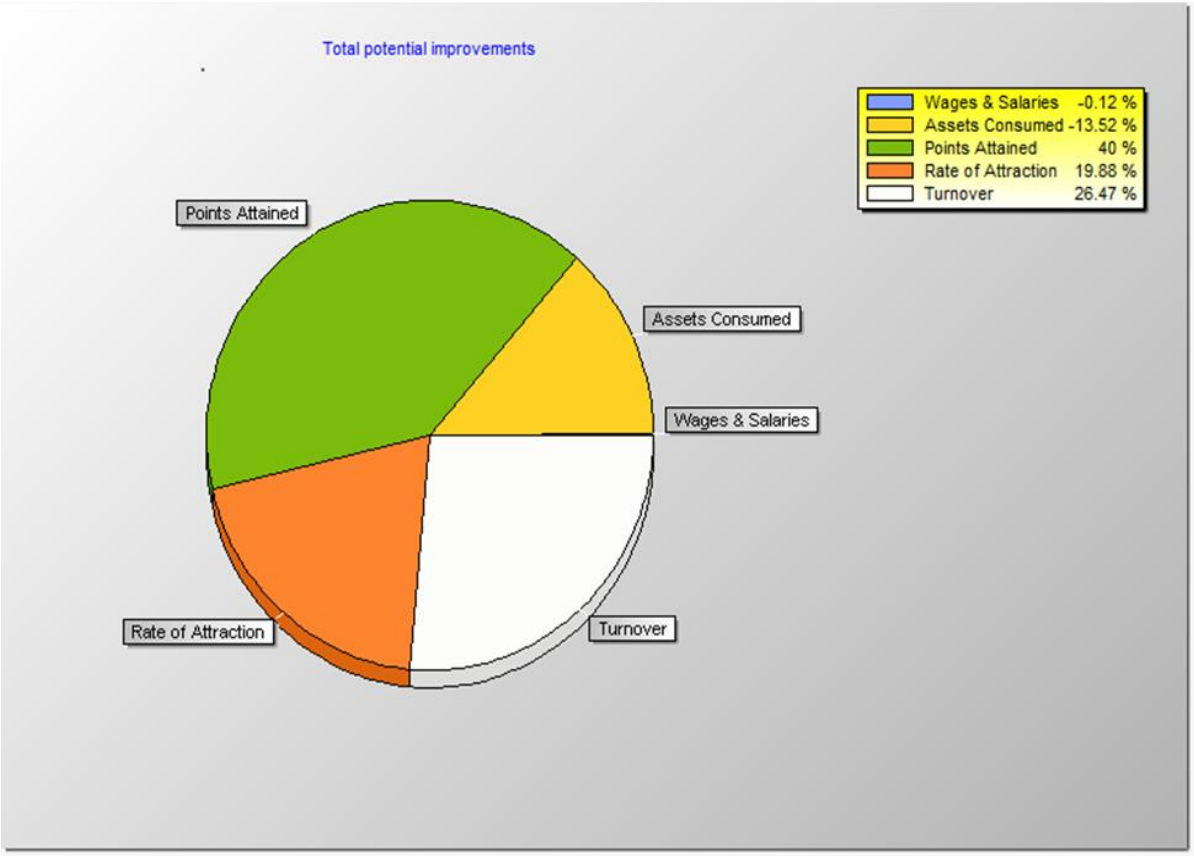


Figure (6.7) above shows that Burnley FC appeared 17 times, Aston Villa FC 8 times while Stoke City FC appeared 4 times as peer units to the inefficient clubs in 2014/15 season.

Overall DEA analysis suggests potential improvements in terms of the variables that require attention by the inefficient clubs in 2014/15 season as in other seasons (see figure 6.8). It should

be noted that the suggested potential improvements are relative in terms of the seasonal composition of clubs. The rewarding league system which promotes the performers and relegates the under-performers led to the variations in the seasonal composition of EPL clubs.

Figure 6.8 Total Potential Improvements



The total improvement chart above shows that on average Wages and Salaries and Assets Consumed in 2014/15 need to be reduced by 0.12% and 13.52% respectively, while Points attained; Games' rate of Attraction and Turnover should be increased by 40%, 19.88% and 26.47% respectively for the inefficient clubs to become efficient. These indicate that apart from the share of money prize accrued to clubs on EPL, each club, most importantly the inefficient ones need to seek ways of improving sports performance as well as income generation. Perhaps this is the reason for the recent focus towards business orientation in the football industry.

6.5 Change in Efficiency Over the Research Period

Efficiency scores estimated in table (6.5) showed some level of consistency on both DEA models (BCC - Variable return to scale and CCR - Constant return to scale) with Aston Villa

FC having efficiency score of 1.0 throughout the period analysed. Surprisingly, some high degrees of variation was noticed in the efficiency scores displayed among most of the clubs tagged as *the big four*; Manchester United; Chelsea; Liverpool and Arsenal (Oberstone, 2009) as revealed in figure (6.3).

Table 6.7 DEA-Window Analysis (BCC-Input Oriented)

	SEASON	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	MEAN	GD	TGD
	YEAR	1	2	3	4	5	6	7	8	9	10	11	12			
	WINDOW 1	1.000	1.000	1.000												
	WINDOW 2		0.807	0.747	1.000											
	WINDOW 3			0.731	1.000	0.949										
	WINDOW 4				1.000	0.889	1.000									
AR	WINDOW 5					0.888	1.000	1.000						**0.934**	**0.269**	**0.269**
	WINDOW 6						1.000	0.940	1.000							
	WINDOW 7							0.991	1.000	0.854						
	WINDOW 8								1.000	0.751	1.000					
	WINDOW 9									0.748	1.000	0.933				
	WINDOW 10										1.000	0.918	0.879			
	WINDOW 1	1.000	0.919	1.000												
	WINDOW 2		1.000	1.000	1.000											
	WINDOW 3			1.000	1.000	1.000										
	WINDOW 4				1.000	1.000	1.000									
AV	WINDOW 5					1.000	1.000	1.000						**0.997**	**0.081**	**0.081**
	WINDOW 6						1.000	1.000	1.000							
	WINDOW 7							1.000	1.000	1.000						
	WINDOW 8								1.000	1.000	1.000					
	WINDOW 9									1.000	1.000	1.000				
	WINDOW 10										1.000	1.000	1.000			
	WINDOW 1	1.000	1.000	1.000												
	WINDOW 2		1.000	0.696	1.000											
	WINDOW 3			0.688	1.000	0.599										
	WINDOW 4				1.000	0.604	0.995									
CH	WINDOW 5					0.606	0.985	0.542								
	WINDOW 6						0.888	0.541	0.815					**0.826**	**0.312**	**0.459**
	WINDOW 7							0.670	0.851	0.845						
	WINDOW 8								0.648	0.738	0.917					
	WINDOW 9									0.734	0.917	1.000				
	WINDOW 10										0.917	1.000	0.589			
	WINDOW 1	1.000	0.383	0.520												
	WINDOW 2		0.251	0.250	0.613											
	WINDOW 3			0.195	0.455	0.266										
	WINDOW 4				0.489	0.201	0.619									
EV	WINDOW 5					0.201	0.605	0.547						**0.591**	**0.494**	**0.805**
	WINDOW 6						0.691	0.710	0.225							
	WINDOW 7							0.771	0.613	1.000						
	WINDOW 8								0.719	1.000	1.000					
	WINDOW 9									1.000	1.000	0.454				
	WINDOW 10										1.000	0.496	0.450			

Table 6.7 (Cont.)

		1	2	3	4	5	6	7	8	9	10	11	12			
LP	WINDOW 1	0.848	0.916	0.896										**0.789**	**0.200**	**0.403**
	WINDOW 2		0.945	0.754	0.862											
	WINDOW 3			0.754	0.862	0.892										
	WINDOW 4				0.826	0.917	0.652									
	WINDOW 5					0.917	0.652	0.599								
	WINDOW 6						0.652	0.599	0.698							
	WINDOW 7							0.727	0.702	0.860						
	WINDOW 8								0.691	0.660	1.000					
	WINDOW 9									0.660	1.000	0.768				
	WINDOW 10										1.000	0.764	0.597			
MC	WINDOW 1	0.517	0.380	0.269										**0.550**	**0.270**	**0.873**
	WINDOW 2		0.245	0.196	0.292											
	WINDOW 3			0.188	0.292	0.132										
	WINDOW 4				0.285	0.132	0.277									
	WINDOW 5					0.127	0.280	0.355								
	WINDOW 6						0.284	0.359	1.000							
	WINDOW 7							0.487	1.000	1.000						
	WINDOW 8								1.000	0.730	1.000					
	WINDOW 9									0.730	1.000	1.000				
	WINDOW 10										1.000	1.000	0.934			
MU	WINDOW 1	0.832	0.899	1.000										**0.919**	**0.085**	**0.416**
	WINDOW 2		0.984	1.000	1.000											
	WINDOW 3			1.000	1.000	1.000										
	WINDOW 4				1.000	1.000	0.945									
	WINDOW 5					1.000	0.944	1.000								
	WINDOW 6						1.000	0.980	1.000							
	WINDOW 7							1.000	1.000	1.000						
	WINDOW 8								1.000	1.000	0.668					
	WINDOW 9									1.000	0.668	0.696				
	WINDOW 10										0.668	0.693	0.584			
TH	WINDOW 1	1.000	1.000	0.905										**0.816**	**0.309**	**0.459**
	WINDOW 2		1.000	0.611	0.643											
	WINDOW 3			0.611	0.643	1.000										
	WINDOW 4				0.611	1.000	0.715									
	WINDOW 5					1.000	0.715	0.614								
	WINDOW 6						0.762	0.614	0.541							
	WINDOW 7							0.753	0.850	0.910						
	WINDOW 8								0.799	0.849	0.840					
	WINDOW 9									0.849	0.835	0.975				
	WINDOW 10										0.831	0.984	1.000			

Table 6.8 DEA-Window Analysis (BCC-Output Oriented)

	SEASON	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	MEAN	GD	TGD
	YEAR	1	2	3	4	5	6	7	8	9	10	11	12			
	WINDOW 1	1.000	1.000	1.000												
	WINDOW 2		0.909	0.846	1.000											
	WINDOW 3			0.855	1.000	0.968										
	WINDOW 4				1.000	0.988	1.000									
AR	WINDOW 5					0.949	1.000	1.000								
	WINDOW 6						1.000	0.977	1.000					**0.966**	**0.154**	**0.154**
	WINDOW 7							0.997	1.000	0.921						
	WINDOW 8								1.000	0.859	1.000					
	WINDOW 9									0.860	1.000	0.963				
	WINDOW 10										1.000	0.956	0.934			
	WINDOW 1	1.000	0.942	1.000												
	WINDOW 2		1.000	1.000	1.000											
	WINDOW 3			1.000	1.000	1.000										
	WINDOW 4				1.000	1.000	1.000									
	WINDOW 5					1.000	1.000	1.000								
AV	WINDOW 6						1.000	1.000	1.000					**0.998**	**0.058**	**0.058**
	WINDOW 7							1.000	1.000	1.000						
	WINDOW 8								1.000	1.000	1.000					
	WINDOW 9									1.000	1.000	1.000				
	WINDOW 10										1.000	1.000	1.000			
	WINDOW 1	1.000	1.000	1.000												
	WINDOW 2		1.000	0.950	1.000											
	WINDOW 3			0.946	1.000	0.927										
	WINDOW 4				1.000	0.927	0.998									
	WINDOW 5					0.936	0.993	0.963								
CH	WINDOW 6						0.972	0.891	0.966					**0.944**	**0.181**	**0.260**
	WINDOW 7							0.876	0.911	0.929						
	WINDOW 8								0.785	0.866	0.962					
	WINDOW 9									0.868	0.962	1.000				
	WINDOW 10										0.963	1.000	0.740			
	WINDOW 1	1.000	0.737	0.824												
	WINDOW 2		0.708	0.805	0.871											
	WINDOW 3			0.786	0.854	0.851										
	WINDOW 4				0.865	0.856	0.938									
	WINDOW 5					0.856	0.920	0.812								
EV	WINDOW 6						0.914	0.804	0.765					**0.871**	**0.138**	**0.292**
	WINDOW 7							0.942	0.873	1.000						
	WINDOW 8								0.871	1.000	1.000					
	WINDOW 9									1.000	1.000	0.783				
	WINDOW 10										1.000	0.776	0.741			

Table 6.8 (Cont.)

	SEASON	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	**MEAN**	**GD**	**TGD**
	YEAR	1	2	3	4	5	6	7	8	9	10	11	12			
	WINDOW 1	0.905	0.963	0.937												
	WINDOW 2		0.982	0.859	0.920											
	WINDOW 3			0.855	0.917	0.960										
	WINDOW 4				0.913	0.975	0.798									
LP	WINDOW 5					0.975	0.849	0.876								
	WINDOW 6						0.833	0.825	0.798					**0.887**	**0.102**	**0.232**
	WINDOW 7							0.824	0.805	0.912						
	WINDOW 8								0.768	0.810	1.000					
	WINDOW 9									0.810	1.000	0.882				
	WINDOW 10										1.000	0.880	0.772			
	WINDOW 1	0.836	0.715	0.645												
	WINDOW 2		0.659	0.597	0.697											
	WINDOW 3			0.594	0.689	0.588										
	WINDOW 4				0.695	0.598	0.744									
	WINDOW 5					0.598	0.744	0.789								
MC	WINDOW 6						0.765	0.798	1.000					**0.811**	**0.098**	**0.406**
	WINDOW 7							0.798	1.000	1.000						
	WINDOW 8								1.000	0.902	1.000					
	WINDOW 9									0.902	1.000	1.000				
	WINDOW 10										1.000	1.000	0.964			
	WINDOW 1	0.924	0.973	1.000												
	WINDOW 2		0.995	1.000	1.000											
	WINDOW 3			1.000	1.000	1.000										
	WINDOW 4				1.000	1.000	0.977									
	WINDOW 5					1.000	0.977	1.000								
MU	WINDOW 6						1.000	0.996	1.000					**0.959**	**0.023**	**0.212**
	WINDOW 7							1.000	1.000	1.000						
	WINDOW 8								1.000	1.000	0.788					
	WINDOW 9									1.000	0.788	0.880				
	WINDOW 10										0.788	0.876	0.796			
	WINDOW 1	1.000	1.000	0.947												
	WINDOW 2		1.000	0.842	0.819											
	WINDOW 3			0.834	0.819	1.000										
	WINDOW 4				0.794	1.000	0.914									
TH	WINDOW 5					1.000	0.914	0.791								
	WINDOW 6						0.933	0.811	0.864					**0.919**	**0.113**	**0.209**
	WINDOW 7							0.887	0.940	0.963						
	WINDOW 8								0.914	0.943	0.910					
	WINDOW 9									0.949	0.908	0.986				
	WINDOW 10										0.907	0.991	1.000			

Table 6.9 DEA-Window Analysis (CCR-Input/Output Orientation)

	SEASON	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	MEAN	GD	TGD
		1	2	3	4	5	6	7	8	9	10	11	12			
AR	WINDOW 1	0.207	0.194	0.180										0.382	0.068	0.846
	WINDOW 2		0.215	0.197	0.235											
	WINDOW 3			0.233	0.263	0.259										
	WINDOW 4				0.274	0.270	0.315									
	WINDOW 5					0.276	0.323	1.000								
	WINDOW 6						0.362	0.932	1.000							
	WINDOW 7							0.968	1.000	0.203						
	WINDOW 8								1.000	0.177	0.240					
	WINDOW 9									0.154	0.228	0.183				
	WINDOW 10										0.226	0.184	0.177			
AV	WINDOW 1	1.000	0.893	0.939										0.985	0.107	0.107
	WINDOW 2		1.000	1.000	0.895											
	WINDOW 3			1.000	0.970	1.000										
	WINDOW 4				1.000	1.000	1.000									
	WINDOW 5					1.000	1.000	0.945								
	WINDOW 6						1.000	0.999	0.986							
	WINDOW 7							1.000	1.000	0.992						
	WINDOW 8								0.975	1.000	1.000					
	WINDOW 9									0.939	1.000	1.000				
	WINDOW 10										1.000	1.000	1.000			
CH	WINDOW 1	0.147	0.143	0.153										0.162	0.044	0.061
	WINDOW 2		0.174	0.163	0.144											
	WINDOW 3			0.158	0.139	0.140										
	WINDOW 4				0.139	0.140	0.167									
	WINDOW 5					0.140	0.171	0.179								
	WINDOW 6						0.192	0.200	0.193							
	WINDOW 7							0.200	0.193	0.174						
	WINDOW 8								0.149	0.148	0.157					
	WINDOW 9									0.142	0.157	0.175				
	WINDOW 10										0.157	0.176	0.152			
EV	WINDOW 1	0.286	0.179	0.176										0.318	0.253	0.594
	WINDOW 2		0.231	0.227	0.249											
	WINDOW 3			0.195	0.202	0.204										
	WINDOW 4				0.202	0.201	0.580									
	WINDOW 5					0.201	0.580	0.517								
	WINDOW 6						0.647	0.585	0.204							
	WINDOW 7							0.770	0.307	0.374						
	WINDOW 8								0.328	0.400	0.313					
	WINDOW 9									0.263	0.243	0.215				
	WINDOW 10										0.245	0.215	0.199			

Table 6.9 (Cont.)

		1	2	3	4	5	6	7	8	9	10	11	12			
	WINDOW 1	0.215	0.198	0.197												
	WINDOW 2		0.210	0.209	0.215											
	WINDOW 3			0.202	0.208	0.207										
	WINDOW 4				0.208	0.207	0.179									
	WINDOW 5					0.207	0.179	0.167								
LP	WINDOW 6						0.186	0.190	0.689					**0.305**	**0.224**	**0.804**
	WINDOW 7							0.190	0.698	0.193						
	WINDOW 8								0.656	0.149	0.718					
	WINDOW 9									0.149	0.942	0.179				
	WINDOW 10										0.890	0.180	0.138			
	WINDOW 1	0.391	0.205	0.178												
	WINDOW 2		0.231	0.190	0.184											
	WINDOW 3			0.187	0.178	0.123										
	WINDOW 4				0.178	0.123	0.113									
	WINDOW 5					0.123	0.113	0.104								
MC	WINDOW 6						0.117	0.107	0.147					**0.163**	**0.041**	**0.287**
	WINDOW 7							0.111	0.150	0.175						
	WINDOW 8								0.143	0.135	0.161					
	WINDOW 9									0.134	0.161	0.191				
	WINDOW 10										0.161	0.192	0.189			
	WINDOW 1	0.187	0.174	0.214												
	WINDOW 2		0.224	0.228	0.214											
	WINDOW 3			0.220	0.207	0.222										
	WINDOW 4				0.207	0.222	0.202									
	WINDOW 5					0.222	0.202	0.198								
MU	WINDOW 6						0.210	0.225	0.201					**0.202**	**0.074**	**0.114**
	WINDOW 7							0.225	0.238	0.224						
	WINDOW 8								0.255	0.243	0.142					
	WINDOW 9									0.169	0.141	0.170				
	WINDOW 10										0.141	0.174	0.145			
	WINDOW 1	1.000	1.000	0.251												
	WINDOW 2		1.000	0.268	0.245											
	WINDOW 3			0.259	0.237	1.000										
	WINDOW 4				0.237	1.000	0.205									
	WINDOW 5					1.000	0.205	0.198								
TH	WINDOW 6						0.213	0.205	0.201					**0.383**	**0.077**	**0.820**
	WINDOW 7							0.208	0.240	0.258						
	WINDOW 8								0.258	0.276	0.196					
	WINDOW 9									0.199	0.180	0.254				
	WINDOW 10										0.180	0.257	0.259			

Table 6.10 DEA-Window Average/variance Efficiency Scores.

DMU	BCC-INPUT ORIENTED			BCC-OUTPUT ORIENTED			DEA Rank	DMU	CCR-INPUT/OUTPUT ORIENTED			DEA Rank
	MEAN	GD*	TGD*	MEAN	GD*	TGD*			MEAN	GD*	TGD*	
AR	0.934	0.269	0.269	0.966	0.154	0.154	**2nd**	**AR**	0.382	0.068	0.846	**3rd**
AV	0.997	0.081	0.081	0.998	0.058	0.058	**1st**	**AV**	0.985	0.107	0.107	**1st**
CH	0.826	0.312	0.459	0.944	0.181	0.260	**4th**	**CH**	0.162	0.044	0.061	**8th**
EV	0.591	0.494	0.805	0.871	0.138	0.292	**7th**	**EV**	0.318	0.253	0.594	**4th**
LP	0.789	0.200	0.403	0.887	0.102	0.232	**6th**	**LP**	0.305	0.224	0.804	**5th**
MC	0.550	0.270	0.873	0.811	0.098	0.406	**8th**	**MC**	0.163	0.041	0.287	**7th**
MU	0.919	0.085	0.416	0.959	0.023	0.212	**3rd**	**MU**	0.202	0.074	0.114	**6th**
TH	0.816	0.309	0.459	0.919	0.113	0.209	**5th**	**TH**	0.383	0.077	0.820	**2nd**

Note: ***Mean****: Average Efficiency Score for 10 windows.*

GD*: The greatest difference in yearly efficiency scores but different windows.*

TGD*: Total greatest difference in efficiency scores for the entire period regardless of the window.*

Although all the *big four* clubs (highlighted in grey) featured on EPL throughout the period analysed, their overall performance does not warrant the accolade. From the DEA-window analysis, eight clubs (Arsenal FC, Aston Villa FC, Chelsea FC, Everton FC, Liverpool FC, Manchester City FC, Manchester United FC and Tottenham Hot Spur FC) had 100% participation in the English Premier League throughout the period analysed. An analysis of change in efficiencies over the twelve seasons researched showed on average regardless of input or output orientation using $DEA_{\text{-BCC}}$ and $DEA_{\text{-CCR}}$ that Aston Villa FC remains the best with over 99% average efficiency score. Though not efficient, EPL clubs showed a high level of inefficiencies for the entire research period.

Looking at the change in efficiency over the period analysed, 'TGD' minus 'GD,' i.e. (TGD less GD) is equal zero (0) for Arsenal FC, and Aston Villa FC using $DEA_{\text{-BCC}}$ (input or output orientations) and remain zero for Aston Villa FC only using $DEA_{\text{-CCR}}$ model. These two clubs are relatively more stable in performance as measured by the change in their efficiencies over the period analysed. With $DEA_{\text{-BCC}}$ model, Aston Villa FC has the minimal efficiency variance of 0.081 and 0.058 for input orientation and output orientation

respectively. Though Aston Villa FC has 10.7% (TGD) variance in efficiency score using DEA_{-CCR} model as indicated in table (5.10) above, as against Chelsea FC's 6.1%, but the difference between TGD and GD remain Zero (0) for Aston Villa FC as against Chelsea's (0.017) efficiency variance over the period analysed. Using any DEA window analysis model (BCC or CCR), Aston Villa FC remains the only football club whose efficiency scores was relatively stable on EPL between 2005 and 2016 season. Therefore, it could be fair to say Aston Villa football club is the most efficient club to have played on EPL in the period analysed using any DEA model. Though some EPL clubs were efficient in their operations during the research period (highlighted in orange in table 6.5), a high level of inefficiency operated across the EPL seasons researched as shown in figures (6.1; 6.2 and 6.3). Aston Villa FC has the highest mean score of about 99% and the lowest variance score of 0%, while high variations are noticed in the efficiency scores of the so-called *big clubs*.

6.6 EPL Rank and Aggregate Efficiency Evaluation

Table 6.11 Efficiency Ranking (DEA and EPL)

2014/15 SEASON (Output Oriented)				
DMU	BCC-Rank	CCR-Rank	SE-Rank	EPL-RANK
Arsenal FC	1st	17th	*19th	3rd
Aston Villa FC	1st	1st	1st	17th
Burnley FC	1st	1st	1st	*19th
Chelsea FC	1st	15th	*18th	1st
Crystal P. FC	13th	7th	7th	10th
Everton FC	16th	12th	11th	11th
Hull City FC	*18th	13th	8th	*18th
Leicester FC	10th	6th	4th	14th
Liverpool FC	11th	*19th	*20th	6th
Man. City FC	1st	14th	17th	2nd
Man. United FC	12th	16th	16th	4th
Newcastle Utd.	15th	11th	10th	15th
Southampton FC	1st	4th	5th	7th
Stoke City FC	1st	1st	1st	9th
Sunderland FC	*20th	*20th	15th	16th
Swansea City FC	1st	5th	6th	8th
T. Hotspur FC	1st	8th	13th	5th
W. Bromwich FC	16th	10th	9th	13th
West Ham Utd.	14th	9th	12th	12th
Queens Park R.	*19th	*18th	14th	*20th

Source: Researcher's review of efficiency ranking and actual EPL ranking.

Based on DEA_{-BCC} ranking; a measure of pure technical efficiency, Sunderland FC, Queens Park Rangers FC and Hull City FC came behind with 20th, 19th and 18th positions respectively. Among the three clubs relegated in 2014/15 EPL season are the Queens Park Rangers FC and Hull City FC. Whilst DEA_{-BCC} model recommended that Sunderland FC is relegated to lower division in 2014/15, EPL relegated Burnley FC which was adjudged to have performed efficiently by both DEA_{-BCC} and DEA_{-CCR} models. This showed that 2 out of 3 clubs relegated by EPL ranking in 2014/15 correlated with DEA_{-BCC} model; a correlation coefficient of 66.67%. Again, only 1 out of 3 clubs relegated by EPL ranking correlated with DEA_{-CCR} model which indicate a correlation coefficient of 33.33%. It is apparent that EPL does not measure scale efficient as there is no correlation between DEA-scale efficient and EPL ranking in 2014/15 season like every other season analysed.

From all indications both DEA_{-CCR} and DEA_{-BCC} models using either output-oriented or input-oriented show that Burnley FC should not have been relegated in 2014/15 as it performed better than both Sunderland FC and Liverpool FC in 2014/15 EPL season should overall efficiency, as measured by DEA models, were considered. It could be concluded that DEA_{-BCC} output oriented is more correlated in ranking with EPL than any other DEA model. During the period analysed, DEA_{-BCC} has a correlation coefficient range of between 33.34% and 100% with EPL ranking, i.e. $33.34\% \leq DEA_{-BCC} \leq 100\%$ (see table 6.12) showing an average correlation coefficient of about 66.67%. This result confirms that there is correlation between DEA and EPL ranking, but DEA output-oriented model is recommended when ranking football clubs. However, EPL ranking does not measure scale efficiency (SE) as there is no correlation between EPL and DEA-Scale ranking throughout the period analysed.

Surprisingly, none of the DEA models suggested Aston Villa be relegated in 15/16 season as actually relegated by EPL ranking. Looking at Aston Villa's games rate of attraction in 15/16, a significant deterioration is noticed in its on-the-field performances which could have affected the rate at which fans and other football viewers might have been attracted to Aston Villa's games during the season. Its relegation in 15/16 further confirmed that EPL evaluates clubs' performances purely on games won or on-the-field performance.

Table 6.12 Correlation Between DEA and EPL Ranking

Season	DEA-BCC Input-oriented	DEA-BCC Output-oriented	DEA-CCR	DEA-Scale Input-oriented	DEA-Scale Output-oriented
04/05	Nil	66.67%	33.34%	Nil	Nil
05/06	33.34%	100%	33.34%	Nil	Nil
66/07	33.34%	66.67%	33.34%	Nil	Nil
07/08	Nil	66.67%	Nil	Nil	Nil
08/09	33.34%	66.67%	Nil	Nil	Nil
09/10	Nil	33.34%	Nil	Nil	Nil
10/11	33.34%	33.34%	33.34%	Nil	Nil
11/12	66.67%	100%	Nil	Nil	Nil
12/13	Nil	66.67%	Nil	Nil	Nil
13/14	33.34%	100%	33.34%	Nil	Nil
14/15	66.67%	66.67%	33.34%	Nil	Nil
15/16	33.34%	33.34%	Nil	Nil	Nil
Average	**27.78%**	**66.67%**	**16.67%**	**Nil**	**Nil**

6.7 Empirical Findings and Interpretation of DEA Measurements

The variables used in this study conform with those used in recent studies (Barros and Leach, 2006a; Carmichael, McHale and Dennis, 2011; Kern, Schwarzmann and Wiedenegger, 2012; Mavi et al., 2012; Plumley et al., 2014; Chelmis et al., 2017; Miragaia, Ferreira and Ratten, 2017 and Ferri et al., 2017) to analyse performance and efficiency of professional football clubs. The results show that DEA efficiency can be used to group football clubs into different categories; creating a ranking that is not affected by the optimal weights multiplicity.

Given the multi-objective perspective of football clubs, namely sporting, financial and social success, three output variables have been selected; points attained per season, total turnover for the corresponding financial year and the games' rate of attraction. Points attained per EPL season measures the clubs' sporting performance on a regular basis over the period researched given that each football club plays 38 league matches per season. Similarly, points won has been used as a proxy for successful sporting performance in other recent studies on professional football (Haas, Kocher and Sutter, 2004; Barros and Leach, 2006a; Carmichael, McHale and Dennis, 2011 and Kern, Schwarzmann and Wiedenegger, 2012). Derived from the clubs' financial statements are the total turnover; an indicator of clubs' financial success (Kern, Schwarzmann and Wiedenegger, 2012). While differences exist in clubs' structures, some clubs are part of a group of companies;

others are independent liability companies. By using turnover figure reported in the Deloitte and Touché football financial reviews, together with the annual account of relevant football clubs as filed and published by the companies' house enhance the consistency of the turnover figure ensuring that data therein was adjusted to exclude figure related to non-football activities.

Aside from this kind of adjustment, total turnover has been used by previous studies (Barros and Garcia-del-Barrio, 2008; Jardin, 2009; Samagaio, Couto and Caiado, 2009; Barros and Douvis, 2009; Aglietta, Andreff and Drut, 2010; Barros, Assaf and De Araujo, 2011 and Halkos and Tzeremes, 2011) as measures of economic success of football clubs regardless of whether it is derived from gate takings, merchandising, media broadcasting, sponsorship or other incomes from football-related activities. Appropriate accounting marching concept was adopted to ensure that expenses incurred by the football clubs were met from the total revenue generated from football-related activities rather than from any other specific source. Though, it has been argued that the two outputs were enough to measure football clubs' efficiency (Haas, 2003a), the current study introduces *Games' rate of Attraction* as a measure of social esteem for spectators and motivates fans to be attracted to football match either by physical presence at games' venue or watched as relayed by media. It is measured as the ratio of games won (Win Percentage) to games played per season. This further stress the homogeneity of football clubs as each played 38 matches per season regardless of club location and its population density. The significance of this variable is seen in its positive influence on fans loyalty, determination of fans' size based and its existence as a readily available market for the sponsors to increase their shares of products market.

Inputs selected are various football expenses range from wages and salaries to assets consumed and several employees. At first, these three inputs were used in the initial analysis, but the negative effect of the number of employees on the initial analysis thereby overestimating the efficiency scores led to the number of the employee being dropped in the definitive analysis. The wages and salaries derived from the financial statements of the football clubs including but not limited to the wages of players, managers and coaching staff, but other frontline staff employed for the football business and Directors'

remunerations as their boardroom decisions on whom to employ as coach/manager or buy as player significantly influence club's performance (Haas, Kocher and Sutter, 2004; Barros and Leach, 2006a; Carmichael, McHale and Dennis, 2011; Kern, Schwarzmann and Wiedenegger, 2012 and Kulikova and Goshunova, 2013).

It is evident that players' wages constitute the bulk of clubs' total wages and salaries and thus, it is consistent with Szymanski and Kuypers, (1999) submissions while demonstrating the relationship between investment in playing talents and sporting success (Yamamura, 2015; Beck and Meyer, 2012). Players' salaries have accounted for about 70% of total cost and wage cost per league point in EPL varies considerably across clubs according to the presence of superstars, with financially strong teams spending more per league point than the other clubs (Carmichael, Thomas and Rossi, 2014). Chelsea FC, Manchester City FC, Liverpool FC, Arsenal FC and Manchester United FC spent £3.007m, £2.995m, £2.591m, £2.532m and £2.238m respectively on average per league point over the twelve seasons analysed. The second layer clubs of the eight clubs that had 100% participation on EPL between 2005 and 2016 (Tottenham Hotspur FC, Everton FC, and Aston Villa FC) spent (£1.771m, £1.433m and £0.317m) respectively on average per league point within the same period.

The second input is the assets consumed which comprise of total depreciation on fixed assets, players' amortisation and other impairments (Barros, Assaf and De Araujo, 2011). Again, accounting matching concept plays a significant role in selecting appropriate and relevant expense to enhance consistency of data, but the emphasis should be placed on different accounting policies adopted by different football clubs. This variable enhances the homogeneity among football clubs on EPL as not every club has their own stadium, and where they do are of varying capacities. More so, football clubs are based in different localities with varying population densities. Relative to these factors, relevant accounting concepts help in the determination of yearly or seasonal operational expenses to be matched against appropriate yearly or seasonal revenue. A major source of inefficiency as revealed by the DEA model is where little returns are generated from large investment, but clubs that received large returns from little investments are more efficient in the use of the productive resources. From the fans point of view, *The Champion is the best* and is

expected to spend heavily on playing talents to achieve the status. In the broader context of DEA, efficiency is not an absolute privilege of the champions as there is always enough space for improvements (Wyszynski, 2016 and Naidenova, Parshakov and Chmykhov, 2016). Whilst Haas, (2003b) and Haas, Kocher and Sutter, (2004) submitted that EPL ranking is not significantly related to the ranking based on efficiency scores, this study affirms the submissions of Haas, (2003a) that EPL ranking is significantly correlated with DEA efficiency scores. Though EPL ranking does not measure scale efficiency as does by the DEA efficiency score, the existence of a correlation between the two ranking models in this study confirms Haas, (2003a) submissions.

Although the sporting performance of a club is arguably related to its financial performance, there is no apparent consensus on which one is the mean and which one is the end (Plumley, Wilson and Ramchandani, 2014). Kulikova and Goshunova, (2013) opined that sport performance depends on human capital like players, coaches and other staff cost and that financial efficiency of the football clubs mainly depends on the sports efficiency, but this study shows that overall efficiency does not necessarily depend on financial strength or capability of the football club but rather on the managerial capabilities, skills and experience. Instances of financial performance driven what happens on the pitch thus occur as in the cases of Chelsea and Manchester City where wealthy investors injected money to acquire star players and higher wages to fund short-term sporting success. However, the economic aspects of sporting performance are not currently considered by EPL performance measuring system when ranking clubs, no evidence of any strong relationship between changes in league position and changes in profit, implying that there is no simple formula that relates financial and sporting factors to the overall measure of performance.

Carlsson-Wall, Kraus and Messner, (2016) also opine that success in football is often costly, requiring huge investment and ongoing expenses and financially rewarding. They submitted that football clubs that are successful on-pitch performance benefit from considerable prize money and attract new sponsors and fans who are attracted to the games and buy merchandise. However, this study shows that such success is uncertain and are not the absolute privilege of big and financially strong clubs, only a few clubs with

adequate managerial capabilities and skills will experience a virtuous cycle of this kind. The complex interactions between the traditional entertainment (sportive) and business orientation (financial) makes footballing a highly interesting context for studying how, in specific situations, performance measures inform decision-making (Aglietta, Andreff and Drut, 2010; Barros, Assaf and De Araujo, 2011 and Soleimani-Damaneh, Hamidi and Sajadi, 2011). The new environment of football requires the implementation of the triptych of objectives: *Financial success*, *Sporting success* and *Social success* as holistic performance evaluation of football teams considering the importance of all different stakeholders (Chelmis et al., 2017).

From table (6.5), EPL clubs could be grouped into two broad categories; the efficient operational clubs and the inefficient clubs. Efficient clubs have efficiency scores equal one (1) in any of the seasons studied, otherwise is inefficient. Table (6.5) also revealed that few of the EPL clubs could manage to maintain efficiency in one or more of the seasons studied (highlighted in orange), except for one club (Aston Villa FC) who remains efficient in all DEA model throughout the twelve seasons analysed. Surprisingly, what was named as *The Big 4* by Oberstone, (2009) and classified as *Tier 1* by Gerrard, (2010); who equally named them as *The Top 4*, experienced the greatest variations in efficiencies over the period researched. Also noticed was that only Leicester FC in 15/16 as EPL 'Champions' was efficient in all DEA models ($DEA_{-CCR} = 1$, $DEA_{-BCC} = 1$ and $SE = 1$) both input-oriented and output-oriented during the period analysed. Though, other champions could be said to have used their productive resources without wastage ($DEA_{-CCR} < 1$, but $DEA_{-BCC} = 1$ and $SE < 1$), but they were technically inefficient ($DEA_{-CCR} < 1$) throughout the seasons analysed indicating that there is space for improvements.

Second, all technically efficient ($DEA_{-CCR} = 1$) clubs are also pure technical efficient ($DEA_{-BCC} = 1$), signifying that the dominant source of inefficiency is scale. In 2014/15 seasons, another six clubs (Arsenal FC, Chelsea FC, Manchester City FC, Southampton FC, Swansea City FC and Tottenham Hotspur FC) for example were ($DEA_{-BCC} = 1$) efficient due to their managerial capabilities and skills. Other clubs that worth examining in the period researched are those whose $SE = 1$, but $DEA_{-BCC} < 1$ and $DEA_{-CCR} < 1$ (highlighted in grey in table 6.5). These clubs include Sunderland FC, Hull City FC,

Bolton Wanderers FC, Portsmouth FC, Charlton FC and Fulham FC while minimising inputs to produce best possible outcomes. These clubs were DEA inefficient in both DEA_{-BCC} and DEA_{-CCR} model but were very efficient in their scale of operation. This indicates that the size of the operation was optimal in those seasons. Therefore, any increase or decrease in their operational size will mean a drop in efficiency. It is fair to conclude that those clubs operate at an optimal return to scale as it is with the likes of Aston Villa FC, Wigan Athletic FC, Wolverhampton FC, Blackpool FC, Swansea City FC, West Bromwich Albion FC, Burnley FC and Stoke City FC in few seasons during the period analysed.

Third, clubs that are scale inefficient (SE < 1) during the period researched operated under decreasing returns to scale (DRS) and that they seem to be too large. Therefore, their scale sizes should be reduced to improve their efficiencies as decreasing returns to scale prevailed (Barros and Leach, 2006a).

The general conclusion is that most English Premier League football clubs may be argued to be better managed in 2014/15 season as depicted by highest average efficiency score in all DEA models (DEA_{-BCC}, DEA_{-CCR} and SE) using input or output orientation. Though there were dimensional differences and therefore some clubs experienced decreasing returns to scale (DRS). DEA identifies inefficient football clubs in the sample and identifies the slack for the inefficient clubs and thus gives it to a reference set (peer group) which permits some specific recommendations to improve efficiency. On the overall, using output or input orientations, EPL clubs between 2005 and 2016 seasons could be regarded as being highly inefficient (Output oriented – DEA_{-BCC} (70%) and SE (89%); Input oriented – DEA_{-BCC} (70%) and SE (86%), while they were (89%) DEA_{-CCR} inefficient whether input or output orientation.

6.8 Conclusion

The current focus on business orientation and commercialization; financial and economic situations of football clubs call for knowledge on how football clubs could manage their productive resource to improve sports performance and reduce wastage in other to be more efficient. The increase in capital outlay and the uncertainty surrounding its outcomes

which further increase the stakeholders' risks remain major reasons why scholars are more interested in analysing performance and efficiency of professional football clubs. Extant literature presents a wide range of methodologies applied by previous studies of which the current study has opted for a combination of DEA and Naturalistic Approach (NA).

Arabzad, Ghorbani and Shirouyehzad, (2014); Kadarova, Mihok and Turisova, (2013) and Zhao, (2013) have highlighted DEA strengths to include identifying efficient and inefficient decision-making units (DMUs), sources and amount of inefficiency, peer group or reference sets for benchmarking and suggests improvement measures for inefficient units. To test the consistency, reliability and generalizability of the results of this study, a naturalistic approach which incorporates the views of different stakeholders in football industry using questionnaire/mini-interview is analysed in next section to confirm or refute the findings of DEA analysis. Phenomenology requires interactions with some domain of knowledge or practices to establish the existence a phenomenon.

In this section, technical efficiency (TE); pure technical efficiency (PTE) and scale efficiency (SE) of the oldest, richest, most competitive and most lucrative football league in the world (EPL) has been estimated. Considering 240 football clubs that played 4,560 matches in the English Premier League over twelve seasons (2004/5 to 2015/16) using larger data set than any previous study, allows the current study to evaluate the change in efficiency and reveals interesting conclusions for the seasons analysed.

EPL champions are always DEA_{-BCC} efficient (PTE), but DEA_{-CCR} and SE inefficient (TE and SE) except for Leicester FC in 2015/16 season. This signified that EPL champions do not waste resources but were technically inefficient exposing their managerial incompetence. Though EPL ranking is found to be 66.67% correlated with DEA ranking confirming the submission of Haas, (2003a) when they submitted that EPL ranking was significantly correlated with efficiency score, unfortunately, EPL seems not to evaluate the efficiency of operational scale.

Aston Villa FC could be regarded as the only team coming out efficient in all DEA models and specification and could maintain a level of performance over the period analysed. This performance by Aston Villa might have been driven by moderate expenditure on players and coach. Of the eight clubs that participated in the window analysis, Aston Villa has the

least average cost per league point (£0.318m). In contrast, the performance of the *Big Four* clubs (Arsenal FC, Chelsea FC, Manchester United FC and Liverpool FC) surprisingly was below expectations as they were all technical and scaled inefficient. It could be concluded that their results were mainly driven by squads, which was supposed to be of highest quality considering their average cost per league point (£2.532m, £3.007m, £2.239m and £2.591m) respectively. Unfortunately, they do not produce corresponding success.

The 2014/15 season saw teams like Queens Park Rangers FC (QPR), Burnley FC and Hull City FC being relegated at the end of the season. Contrary to that, DEA analysis suggested that Sunderland FC should have been relegated instead of Burnley FC. It further recommended that teams like Liverpool FC and Sunderland FC would have to reduce the value of their squads to be efficient going by the performance in 2014/15 season. Though commercial outputs of clubs on EPL could be improving, several clubs need to improve their commercial output by about 26.47% to get efficient.

Lastly, efficiency scores revealed that most EPL clubs in 2014/15 (best season out of twelve seasons analysed) operated close to optimal scale, indicating that global technical inefficiency was because of the inefficient operation. It further confirms that clubs' inefficiencies on EPL between 2005 and 2016 could mainly be attributed to the wasteful use of resources resulting from differences in managerial capabilities rather than differences in tactics.

The *on or off-the-field* dichotomy in professional football has not been easily appraised and remained a highly contentious issue in recent years. However, Plumley, Wilson and Ramchandani, (2014) somewhat recognised some links between sporting and non-sporting performances of sports clubs. They argued that possible relationships between sporting success and economic success may include; first, that higher profits might automatically trigger better team performance and vice-versa without any conflict between the desire to satisfy fans' success and that of profit by shareholders. Second, that the pursuit of profit would not interfere with sporting success or vice-versa, indicating that the multifaceted objectives might be unrelated. Finally, that sporting success might be achieved alongside

with lower profits, automatically triggers shareholders' preferences for the appropriate trade-off between financial and non-financial performance.

In the next section, the qualitative data obtained through a survey (questionnaires/mini-interview) are presented and analysed using discourse analysis in NVivo to complement DEA technique.

CHAPTER SEVEN

QUALITATIVE DATA ANALYSIS, INTERPRETATION AND DISCUSSION

7.1 Introduction

This chapter presented the analysis and the findings of the qualitative study undertaken through naturalistic approach (NA) using the semi-structured questionnaires/mini-interview since the philosophical position of social order and its meaning could better be established through the actions of social actors themselves. Supporting this view is the ontological position of social research which stems from the existence of what is being, thus, incorporates the views of social actors to establish the exact knowledge about a phenomenon.

The social order in football environment is believed under this philosophical assumption to be in a constant state of change; a social setting where football activities are culturally and communally influenced. National football leagues' worldwide and their administrations, governance, rules, regulations and guidelines, though influenced by the global institute like (FIFA), they are always in a constant state of reviewing, realignment and reorganisation (Bryman, 2012) reflecting the changing order which is a product of social actions.

This inductive approach is rooted in the belief that social order is constructed by social actors and that social phenomena are better understood through direct participation of those actors themselves. In the context of this study, social actors include the different groups of stakeholders and particularly agencies among others. Table (7.1) below presents specific research questions which this qualitative data analysis seeks to address.

Table 7.1 Research Questions Seeking Qualitative Data Analysis

Research Questions	Method of Analysis	Research tools
RQ1. Which EPL club(s) can be regarded as the most efficient using both DEA and Naturalistic Approach?	Qualitative and (Quantitative)	Questionnaire/ mini-interview and (DEA models)
RQ2. To what extent does EPL ranking evaluate efficient performance and what factor responsible for such outcomes?	Qualitative and (Quantitative)	Questionnaire/ mini-interview and (DEA models)
RQ3. Could it be argued that the existing methodology in ranking EPL football clubs needs modification to align with the recent transformation in managerial focus within football industry?	Qualitative	Questionnaire/ mini-interview
RQ4. How does the social value of football club impact on the stakeholders' assessments of clubs' performance and efficiency?	Qualitative	Questionnaire/ mini-interview
RQ5. How can the current method of assessing clubs' performance be improved?	Qualitative	Questionnaire/ mini-interview

7.2 Qualitative Data Analysis Technique

To analyse and report patterns or themes within the qualitative data, text analysis in NVivo 11 is adopted. This choice of the method is because it enables the identification of major patterns found in the textual data being analysed. The NVivo text analysis is therefore considered appropriate for this study since it enables the researcher to decipher, examine and interpret frequently used patterns which emerged from data collected (Malhotra, 2010). The adoption of NVivo 11 model for the analysis conforms with the pragmatism position followed in this study which emphasises analytical methods that are research-question driven.

7.2.1 NVivo Text Analysis Procedure

Using NVivo text analysis, recorded interviews need be transcribed verbatim; data from semi-structured questionnaire/mini-interview were organised into easily retrievable forms via survey monkey for questionnaires and with speech recognition device (Olympus Digital Voice Recorder) for the *face-to-face* interviews and imported into the NVivo application. Each questionnaire/mini-interview is then coded accordingly using a unique identification number and saved in a secured file on the computer. The following steps were then followed for the text analysis in NVivo 11 model:

- Data Familiarisation

A careful reading of the transcribed data, questionnaire/mini-interview was undertaken to identify coherent patterns within the data. The organised survey was arranged according to the research questions to ensure that data collected were appropriate and familiar before the actual analysis began. This step spans from data gathering (questionnaire/mini-interview) to the transcription/input phase to enable effective coding.

- Data Coding

Initial coding was guided by the key research question using tools embedded in the NVivo Software. Coding questionnaire/mini-interview responses with general themes were carried out in the NVivo analyse interface using *Code in Vivo* which contains the information about functions and procedures on the relevant concepts.

- Searching for Themes Based on Initial Coding

Each research question was explored to identify thematic patterns within the questionnaire/mini-interview responses. All texts/responses considered to be associated with specific research question were grouped and examined together to enable comparison between different responses.

- Theme Review

A continuous theme review based on research question were carried out to facilitate second coding emerged from data. Nodes were then created for the new codes that emerged from theme application on selected text extracts as the entire dataset was carefully checked for thematic analysis.

- Themes Defining and Labelling

This process entails revisiting the research questions and data collected to ensure that themes are well defined and labelled. Thus, clear data patterns and data relationships emerged for reporting and documentation.

- Reporting

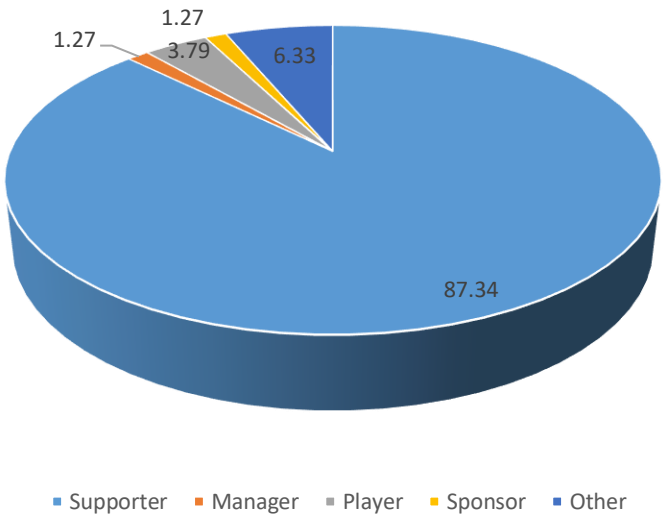
This stage is presented in this chapter following data analysis and it includes some anonymous verbatim reports of respondents that were instructively revealed.

7.2.2 Analysis of Questionnaires/mini-interviews

In this section, major themes of the respondents were analysed presenting the characteristics of different classifications of stakeholders whose views, knowledge and experiences were targeted at addressing the specific research questions presented in table (7.1) above. This goes a long way in describing the quality of data collected from the nexus of stakeholders, displaying how erudite and well informed the stakeholders are in footballing. In living research of this nature, the views of those practically involved are extremely necessary to align theories with the practice in the real world. The questionnaire/mini-interview was in two parts. The first part concentrates on who the stakeholders are, what interest they have, their favourite football club, how long they have been involved in footballing and what has kept them involved. The second part of the questionnaire/mini-interview addresses issues relating to football management, performance, efficiency and ranking. Figure (7.1) below presents the percentage analysis of the first part of the questionnaire/mini-interview.

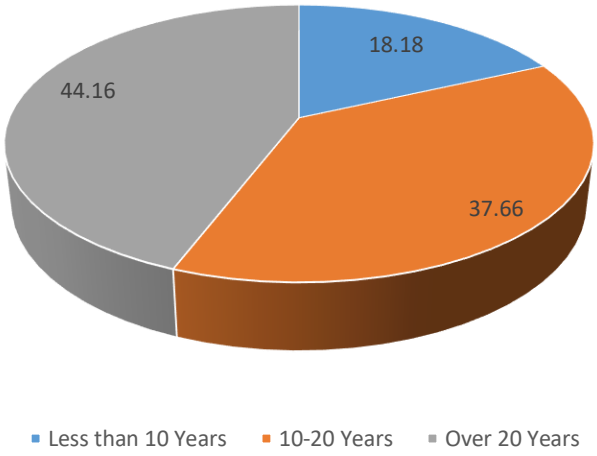
Eighty-two respondents were received, of which 3 could not specify their classification as requested in question two of the questionnaire, i.e. Which of the followings best described you? Sponsor, Supporter, Manager, Player and Others. The remaining seventy-nine respondents were analysed below:

Figure 7.1 Percentage Analysis of Respondents



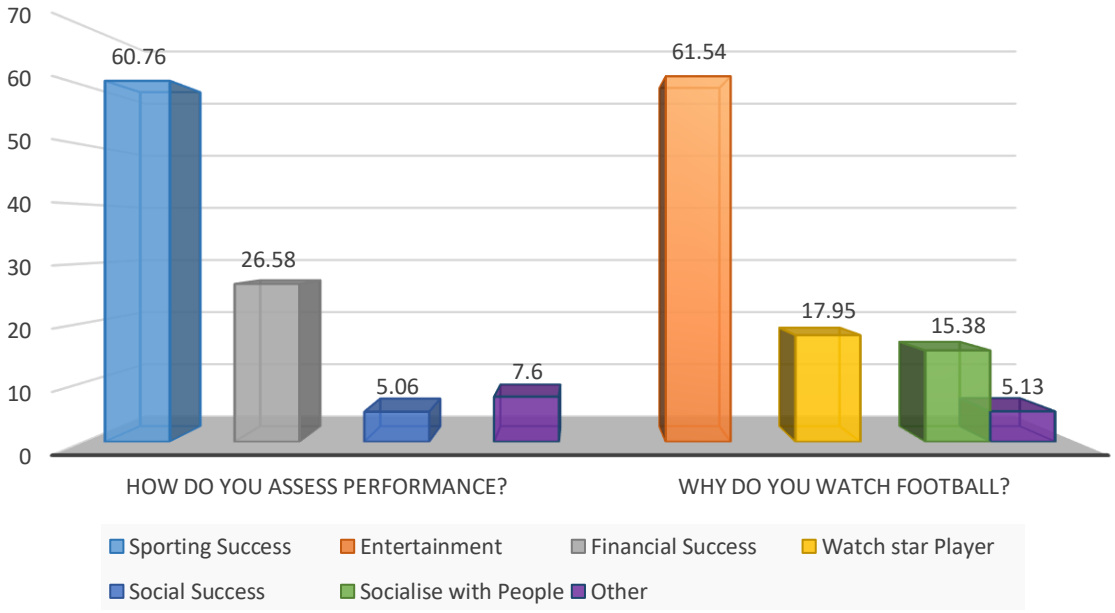
Others (6.33%) in the percentage analysis include the casual observer, employee, shareholder cum-supporter and people that have no affiliation with any club/team. Though most of the respondents (87.34%) were supporters of various clubs (mostly academicians and professionals from all works of life), sponsors and managers represent (1.27%) each of the respondents and (3.79%) were players. Looking at the respondents' favourite clubs, out of the seventy-eight respondents that answered this question, Arsenal FC, Manchester United FC and Chelsea FC were followed by 43.59%, 14.10% and 24.36% respectively. Liverpool FC and Tottenham Hotspur had 2.56% followers each, while the remaining 12.83% were shared among other clubs which include Aston Villa FC. It could be observed from Figure (7.2) that over 81% of the respondents have been involved in the football industry for 10 years and above while less than 19% had below 10 years involvement. This showed that respondents are very experienced and well conversant with football.

Figure 7.2 Percentage of Respondents' Experience



Almost 80% of the respondents confirmed that passion and love of the game kept them involved over the years, some simply believed they were influenced by friends, colleagues, kids and even partners. Only a few say, *"career focus and professionalism*", *"means of livelihood"* and *"marketability sense in the English Premier League"*. This means few were interested in the financial performance and achievement of these clubs.

Figure 7.3 Responses to Performance Assessment and Why Watching Football



When asked how best they would assess the performance of their chosen football club, (60.76%) of the respondents opted for sporting success with financial success and social success having (26.58%) and (5.06%) respectively. Further enquiry into why they watch football showed that football attracts loyalists as well as social interest. Whilst 61.54% of the respondents watched football for entertainment purpose, 17.95% were interested in watching star players playing the game, 15.38% watched football to socialise with people. Figure (7.3) above shows how respondents assess the performance of their chosen football clubs and why they watch the football game in percentage.

7.2.3 Performance Analysis

This part of the survey sought to establish respondents understanding of successful performance and whether stakeholders' (mostly supporters) preference for football club has any relationship with the clubs' performances. When asked if the respondents understood the term successful performance, a common disposition towards sportive success could be inferred as respondents overwhelmingly defined successful performance in this regard as the accomplishment of sportive objectives in which they cited and agreed to include winning games; trophies won; league position and perhaps qualifying for international competitions.

Stakeholders like owners and sponsors could relate successful football performance to financial success. These groups though looked at successful performance as the accomplishment of a task but with the minimum possible cost or at best possible returns. They could be referred to as being business-oriented haven established the fact that football management entails managing several inputs (Material, Money and Man) to produce the best possible outcomes in terms of wins, income, etc. to maximise their returns. Only a few of the stakeholders could see football performance as being impacted positively on the immediate environment. They cited leisure centres, provision of public amenities, involvement in charitable activities, economic development and other social development created by these football clubs as consequential effects of accomplishing their respective objectives, but not without mentioning social vices like hooliganism thereby created. Obviously, this section affirms that football management entails the pursuance of sportive, financial and social successes and that any football performance

measurement system should simultaneously incorporate the sportive, financial and social objectives in appraising clubs' performance. This was further deduced from such responses as;

'...oh! I will say winning games, recording high profits, continuity as part of a league or premiership and qualifying for international competitions means successful performance';

'...for me, it's the ability to improve on the past performance' and

'...successful performance means meeting predetermined goals.'

Notably, some well-experienced stakeholders put successful performance as:

'...players achieving more than their perceived value/status would suggest, e.g. Elbas are 'more successful' than Real Madrid, and locally Leicester City have outperformed expectations';

'...there is a blend to this, the success of the team is pivotal, but not at the expense of financial difficulties. Also, there should be a community element for the area around the club itself'.

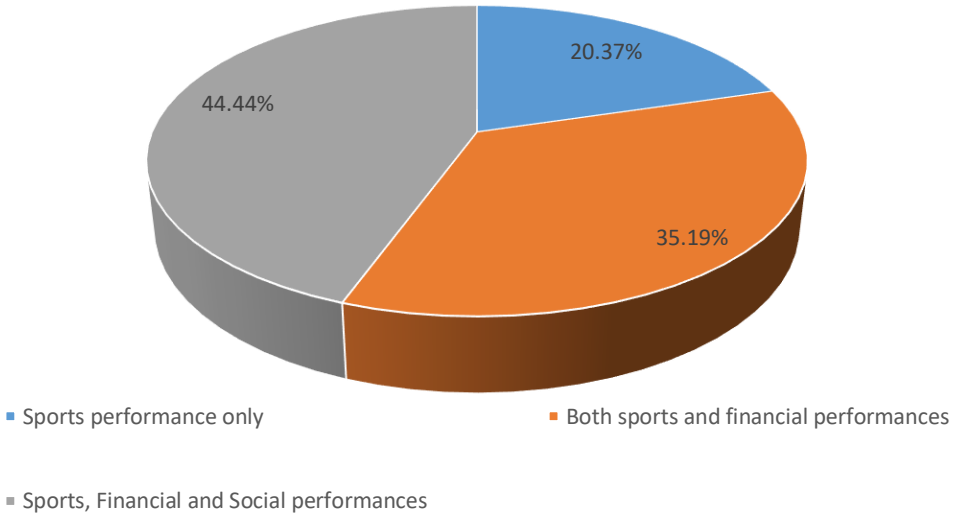
Inferred from the above, it is apparent that nexus of stakeholders assesses clubs' performance differently based on their interest. While fans are interested in entertainments and are so attracted by successful sportive performances, sponsors though are financially inclined and are interested in how successful sportive performances could influence the acceptance of their respective products by the club followers leading to increasing returns in the share of market and profitability. Whilst owners are interested in maximising returns on their investments and increase in wealth, players and managers, on the other hand, want to secure a continuous payment of their wages and salaries perhaps at an increasing rate. Obviously, the community could not be deprived of various social developments arising from clubs' corporate responsibilities. The involvement in these CSR could be inferred as a way of assessing clubs' performances by some members of the community. The more a club is involved in CSR, the higher the club is rated or assessed in the community.

Providing a solution to the research question (RQ1): Which EPL club(s) can be regarded as the most efficient and why? Using NVivo text analysis to search and categorise responses, identify frequently used words and phrases. Arsenal FC and Manchester United FC appeared more frequently than any other football club. Whilst Manchester United FC had 38.98%, Arsenal FC had 37.29% both Manchester United FC and Arsenal FC accounted for over 76% of the respondents. However, the remaining (less than 24%) were

shared among other EPL clubs notably Chelsea FC; Liverpool FC; Tottenham Hotspur FC; Manchester City FC; Swansea FC; Southampton FC; Leicester FC and Crystal Palace FC among others. Respondents used phrases such as *'Trophies won'; 'Consistency on EPL'; 'League position'* and *'fans base'* to support their views. Other phrases include *'Financial strengths'; 'Skills and business model';* and *'Marketability'.* A few respondents pointed at *'Higher ranking per spending power'* and *'Achieve a lot at low cost'* reflecting the efficiencies of their operations. Contrary to DEA analysis, it could be observed that the results of NVivo text analysis indicate that Manchester United FC was the most efficient EPL club over the period analysed followed by Arsenal FC as given by the social actors who directly participated in the activities analysed.

Enquiry into the extent at which EPL measures football clubs' performance and factors responsible for such outcomes (i.e. RQ2), it was observed that about 44.44% of the respondents opine that EPL measures the aggregate of Sports, Financial and Social performances; 35.19% declared that EPL measures both sports and financial performances; while 20.37% submitted that it measures only Sports performance. This is presented in figure (7.4) below. Though sports success determines the league ranking or position as unanimously agreed by the respondents, however, performers are proportionally rewarded taken cognisant of clubs' investments that contributed directly to the generation of the league income and perhaps positively impacted on the local acceptability of both the investing club and the league at large as shown in the 2015/16 EPL prize money table overleaf.

Figure 7.4 Responses on Extent at Which EPL Measures Performance and Efficiency



In 2016 for example, Leicester City FC performed better than other EPL clubs and invariably became the league champion, but Arsenal FC topped the Premier League prize money table with over £100m; a record money prize ever by a club in an EPL season. A relegated Aston Villa FC equally earned over £66m; the highest money prize ever earned by any relegated EPL football club. Further enquiry into the rewarding system reveals that EPL considers several factors which include clubs' TV games; Facility; Merit or League Position; Share of Domestic TV; Share of Overseas TV and Central Commercial.

Table 7.2 Official Premier League Prize Money Payments for the 2015/16 Season

Money rank		League position	Club	No. of TV games	Merit money**	Facility fees*	Equal share*** domestic TV	Equal share*** overseas TV	Central*** commercial	TOTAL payment
1		2	Arsenal	27	£23,605,695	£21,496,762	£21,924,800	£29,415,848	£4,509,152	**£100,952,257**
2		4	Man City	25	£21,120,885	£20,000,918	£21,924,800	£29,415,848	£4,509,152	**£96,971,603**
3		5	Man Utd	26	£19,878,480	£20,748,840	£21,924,800	£29,415,848	£4,509,152	**£96,477,120**
4		3	Tottenham	21	£22,363,290	£17,009,230	£21,924,800	£29,415,848	£4,509,152	**£95,222,320**
5		1	Leicester	15	£24,848,100	£12,521,698	£21,924,800	£29,415,848	£4,509,152	**£93,219,598**
6		8	Liverpool	23	£16,151,265	£18,505,074	£21,924,800	£29,415,848	£4,509,152	**£90,506,139**
7		10	Chelsea	22	£13,666,455	£17,757,152	£21,924,800	£29,415,848	£4,509,152	**£87,273,407**
8		7	West Ham	15	£17,393,670	£12,521,698	£21,924,800	£29,415,848	£4,509,152	**£85,765,168**
9		6	Southampton	12	£18,636,075	£10,277,932	£21,924,800	£29,415,848	£4,509,152	**£84,763,807**
10		11	Everton	18	£12,424,050	£14,765,464	£21,924,800	£29,415,848	£4,509,152	**£83,039,314**
11		9	Stoke	9	£14,908,860	£8,782,088	£21,924,800	£29,415,848	£4,509,152	**£79,540,748**
12		12	Swansea	10	£11,181,645	£8,782,088	£21,924,800	£29,415,848	£4,509,152	**£75,813,533**
13		13	Watford	8	£9,939,240	£8,782,088	£21,924,800	£29,415,848	£4,509,152	**£74,571,128**
14		14	West Brom	10	£8,696,835	£8,782,088	£21,924,800	£29,415,848	£4,509,152	**£73,328,723**
15		18	Newcastle	16	£3,727,215	£13,269,620	£21,924,800	£29,415,848	£4,509,152	**£72,846,635**
16		15	Crystal Palace	10	£7,454,430	£8,782,088	£21,924,800	£29,415,848	£4,509,152	**£72,086,318**
17		17	Sunderland	13	£4,969,620	£11,025,854	£21,924,800	£29,415,848	£4,509,152	**£71,845,274**
18		16	Bournemouth	8	£6,212,025	£8,782,088	£21,924,800	£29,415,848	£4,509,152	**£70,843,913**
19		19	Norwich	9	£2,484,810	£8,782,088	£21,924,800	£29,415,848	£4,509,152	**£67,116,698**
20		20	Aston Villa	11	£1,242,405	£9,530,010	£21,924,800	£29,415,848	£4,509,152	**£66,622,215**
			TOTAL		£260,905,050	£260,904,868	£438,496,000	£588,316,960	£90,183,040	£1,638,805,918

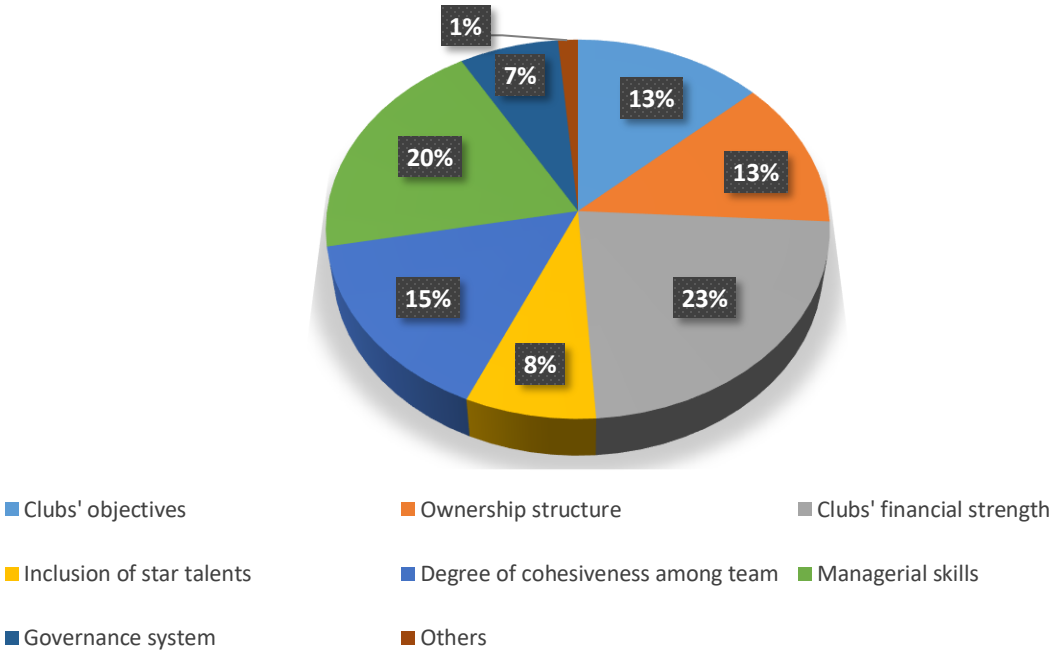
* Each club gets a minimum of £8,782,088 for live TV games, even if on TV fewer than 10 times. PLUS an extra £747,922 for each TV game more than 10.
** Each clubs gets £1,242,405 per place in the table, from that sum for Aston Villa in 20th to £24,848,100 for Leicester at the top.
** Each club gets equal shares of domestic TV income (£21,924,800), overseas TV income (£29,415,848) and central commercial, e.g sponsors (£4,509,152).

Source: Official Premier League website

The 2015/16 EPL money prize table is presented above in table (7.2) showing all the above-mentioned components and their contributions towards total money prize earned by clubs. While analysing table (7.2), it could be deduced that EPL fundamentally assesses and ranks clubs' performances based on sports success and that financial rewards significantly relies on sporting success. Performances of EPL clubs were ranked as shown in the third column based on sporting success while the first column incorporates sports success among other achievements to present the money rank; a system likened to DEA efficiency measure in terms of aggregate assessments.

Respondents equally put their weights in support of such factors considered to be driven efficiency among English football teams. These factors and the responses are shown in figure (7.5) below:

Figure 7.5 Responses on Factors Driven Efficiency Among English Football Teams



Based on responses above, the most vital factor driven efficiency among English football clubs and widely identified by respondents is the clubs' financial strength. Perhaps, the basis of tagging some EPL teams as *Big four* or *Tier 1* clubs (Oberstone, 2009 and Gerrard, 2010). Contrary to this submission, DEA analysis reveals that financially strong clubs are not always efficient. Though, both qualitative and quantitative analyses opine that sports success always leads to financial success but, this isn't the only factor. Other factors identified by respondents based on their weights include Managerial skills; Degree of cohesiveness among team; Ownership structure; Clubs' objective; Inclusion of star talents; Governance system and other factors that are external to the club management. These external factors were classified as general resources available to all firms, i.e. clubs in football industry (Gerrard, 2010). Gerrard's resource-based view (RBV) approach differentiates general resources available to all firms in an industry from the specific resources that are unique to individual firms and that these specific resources are not perfectly replicable by other competing firms. Sporting performance can be influenced by many different factors as identified by respondents. Therefore, it is important to be aware of all these factors as their knowledge drive efficient performance which often changes sports results.

Trninic, Papic and Trninic, (2011) used different correlations and complex constructs to group efficiency driven factors into controllable and uncontrollable factors and distinguish between internal determinants (Controllable factors) and external or exogenous determinants (Uncontrollable factors) of athlete's performance. They identified the internal variables as; Specific (cognitive appraisal and interpretation, motivation, mood state, and personality traits): Kinesiological constructs (motor and functional abilities, morphological characteristics); a cognitive construct that encompasses experience, expert knowledge, skills and strategies and Socio-cognitive constructs (role(s), expectations and beliefs, goals-set). Uncontrollable factors include; Competitive rivalry; Regulatory policies and Environment.

While examining the adequacy of the current EPL performance evaluation system with consideration to the multifaceted goal of the EPL clubs, both quantitative and qualitative analyses pointed at and agreed that the current EPL evaluation system measured clubs' sports success intensively. However, the NVivo analysis conducted with survey data revealed that about 20.37% of the respondents agreed that current EPL system measured only sports success while the remaining 79.63% submitted that elements of sports, financial and social success were considered as revealed by Table (6.2) above. Though $DEA_{\text{-BCC}}$ (output-oriented) analysed in the previous chapter indicated that DEA rank on average for the period researched show some correlation (66.67%) with EPL rank, but both qualitative and quantitative techniques do not totally (100%) agreed. This leaves some relative proportion of the social actors requesting for a modification in the EPL appraisal system.

Examining the responses to questions 11, 19, 20, 21 and 28 of the questionnaire/mini-interview seeking solution to the third research question (i.e. RQ3), respondents were asked whether it could be argued that the existing methodology in ranking EPL clubs needed modification to assess clubs', aggregate performance and got the following responses;

Question 11: *Respondents were asked to consider how clubs use their available resources (Man, Money and Material) to produce success and answer* **"YES *or* NO"** *if*

they would say teams at the upper league level are more successful than those at the league bottom.

Answer: This probing question unveiled respondents belief on how EPL clubs use their human, money and material resources to achieve success. About 68.4% of the respondents answered **"YES".** Further investigation revealed that this group strongly believed that sporting success is usually transformed into financial success. Therefore, they agreed that teams at upper league level have been more efficient in the use of their resources to achieve sporting success. The remaining 31.6% were of different opinions. This group used phrases such as '*point per £m spent*', '*rank per spending on league points*' and '*cost per goal scored*' as better indicators of efficient use of clubs' resources. Thus, believed that most of the EPL clubs at the league bottom could have performed better and more efficient than those at the upper league level. Though this group agreed that sporting success is more likely to bring about financial success, this might not be efficient in terms of spending. Therefore, could it be argued that the existing methodology in ranking EPL clubs needs modification?

Question 19, thus, considered the recent shift in football managerial focus (business orientation and commercialization) and examine if EPL ranking would adequately measure clubs' overall success.

Responses gathered to the above inquisition apparently favoured EPL ranking as 67.2% of the respondents answered **"YES".** This indicates that EPL ranking would adequately measure clubs' overall success.

Many respondents in this group concurred as follows:

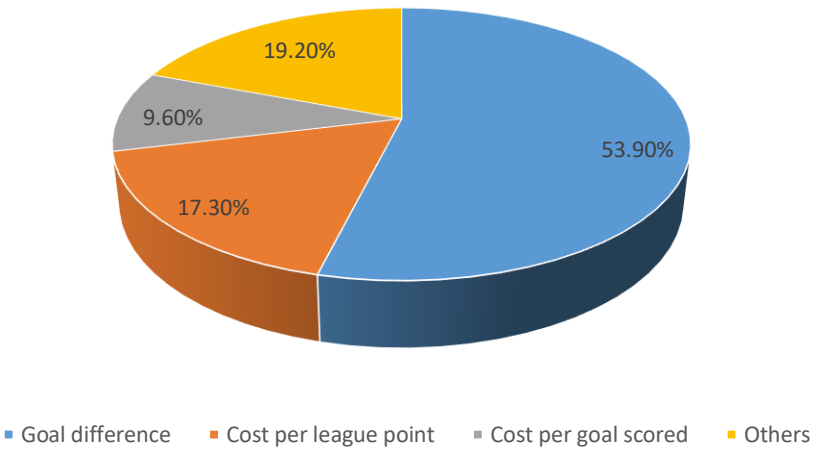
'*Most EPL clubs that have brought honours, dignities and respects to England in any international competition were selected through EPL ranking based on their successful performances……. contributing to their popularities, financial success and serves as inspiration and motivation for me to be part of such club'*.

The group believe that sporting success is the key to overall or aggregate success. They concluded that regardless of how cost-efficient, financially successful and otherwise a football club may be without sporting success, such football club predominantly remains small, unknown and apparently unsuccessful. Conversely, the remaining 32.8% expressed

a negative opinion about EPL ranking. This group submitted that the current EPL ranking system would not adequately measure clubs' overall or aggregate success should the recent business orientation and commercialization of football persists. It is believed that EPL neither inspires nor motivates clubs' profitability unless cost element is introduced in its ranking procedure. The group opined that the introduction of cost element would not only reduce or peg wages but also reduces losses being reported by big EPL clubs occupying top positions on the league table.

Though, in response to question 20 in the questionnaire/mini-interview, respondents unanimously agreed that it is appropriate to award 3 points for winning matches to accumulate points for ranking on EPL. However, it is believed that this unilaterally measures sporting success which forms the basis of EPL ranking. Only about 3% of the respondents suggested '*average goal per league*' or '*2 points for winning and 1 point for a draw*' as alternative performance measures for ranking. It is the belief of the group that such measures will improve competitiveness among EPL clubs. When asked to suggest if there could be any alternative performance measure to the current point appraisal of EPL per question 21 of the questionnaire/mini-interview, the following responses were gathered;

Figure 7.6 Responses on Alternative EPL Performance Measures



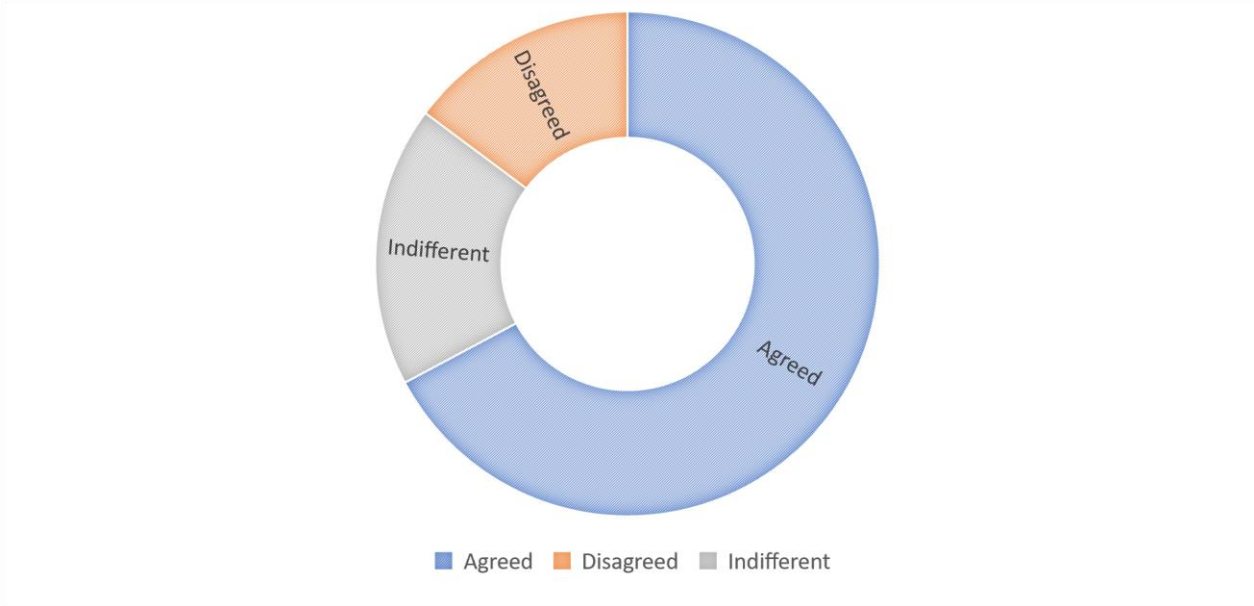
Based on the above responses, it could be opined that the current EPL appraisal measure might be improved or modified to assess clubs' aggregate performance using goal difference; a measure of sporting success could be more appropriate as over 53% of the

respondents were in support of this as against a collective 26.9% in support of introduction of cost element (being 9.6% of cost per goal scored and 17.3% of cost per league point). This further confirms that the EPL ranking predominantly measures sports success. Villa and Lozano, (2016) while assessing the scoring efficiency of a football match used a parallel process network DEA model to account for the defensive and attacking variables of two teams, their respective ball possession percentage and the team's economic value. They opined that their approach provides estimates of how many more goals each team should have scored in each of the matches played in the league season, by averaging the scoring efficiency in the different matches played. They submitted that the approach must be run after every match to monitor the changes in efficiency throughout the season and assist coaches and managers in assessing their team's past performance and planning for next match.

In a vein, like responses obtained from the questionnaire/mini-interview, their model when applied to Spanish First Division teams for the league season 2013/14 assigns a higher number of goals per game to big-budget teams such as Real Madrid FC, Barcelona FC and Atletico de Madrid FC than other medium or small budget teams. Perhaps, Villa's and Lozano's model may be applied in future to monitor players' performance per match played to estimate their real-time values.

Confirming the responses in figure (7.6) above, only 14.8% of the respondents disagreed that the current EPL measurement needs improvement or modification, 18% of the respondents were indifference. The remaining 67.2% agreed to the need for improving or modifying the current EPL ranking measure as enquired by the research question 3. The response is presented in figure (7.7) below.

Figure 7.7 Responses on the Need for Improvement or Modification in the Current EPL Measurement to Assess Clubs' Aggregate Performance.



Enquiry into how social value impacted on the stakeholders' assessments of performance and efficiency of football clubs (Research Question 4) saw respondents reacting differently to several sub-questions leading to the main (RQ4). In response to question 22 of the questionnaire/mini-interview which inquire into who the football stakeholders are and what interest they have, NVivo text analysis searched and categorised responses via frequently used words and phrases as follows:

Question 22: Who are football stakeholders and what is their interest?

Answer: Respondents used the following words and phrases to identify who the football stakeholders are and the interest they stood for:

'*Hem…… I will say the owners, the directors, the coaches, the players, the fans and local businesses with interests ranging from returns on capital employed through salaries and wages, satisfaction, to profits and….so on'.*

'To me, they are players: wages, manager; salaries, supporters; game wins, owners; return on investment, corporate sponsors: increase in market share for their products, government: taxes, football authorities: development and regulations of the game, society; social development and err…… much more'.

'Owners – Finance; Manager - Performance and rewards; Players - Rewards and status; Fans - passion and pride; Community - Benefits of giving back……and even me for satisfaction on money I spent to watch football' and

'*In my view, it should be the spectators and I think most clubs understand that to a point, but it is those that invest that have a greater say'.*

Some say stakeholders are:

'*Everyone that has an interest in football from players to sponsors and supporters.'*

'Manager, players, owners, supporter clubs, Football Association and…. FIFA.'

'The chief executives and their interest are making twice as much as they put in.'

'Fans-Wins, Players/Managers-Salaries, Owners-Profit, Football Association-Control, Government-Tax and Community-Social development.' And

'…Very mixed - increasingly a global commodity leads to global stakeholders with fans in the ground part of the performance.'

Others simply referred to football shareholders as:

'*Individuals and organisations that affect directly or indirectly the success of organisations. Their interest is in the business aspect of the football organisation.'*

'…Every other person and I interested in the success and progress of a football team. The interest of every stakeholder is to see that the football team wins at tournaments, remain and rank high in the league championships, etc.' And

'Shareholders, fans, regulators, championship organisers. Interest is to enjoy the passion of winning, showcasing the best talents to put on a good show to demonstrate quality entertainment, develop and showcase talents. And of course, the commercial side - create a market for advertising……..'

Conforming with extant literature, stakeholder's lists and their interests are inexhaustive, but managers or entrepreneurs need to identify specific stakeholder and annexe their interests for the business to be successful. It could be inferred from the above responses that no stakeholder should be treated in isolation to avoid conflict of interest. However, respondents unanimously agreed that the involvement of stakeholder is paramount to clubs' performance improvement, but the main concern emanating from these responses is how important is each of these stakeholders for the football clubs to be successful. Respondents confirmed that spectators and supporters (Fans) including TV viewers; target of the sponsors (Senaux, 2011), etc. either directly or indirectly are the final consumers of the sports spectacles but opines that their views have not been heard when making decisions concerning players, managers or community development programs and other performance enhancement decisions.

Looking at the impact of football club's performance as it affects the society, respondents were asked to express their views per question 23 of the questionnaire/mini-interview and the following responses were gathered:

'*Oh! It increases economic activities and provides leisure for relaxation……in the community'.*

'… Club performance brings about unity among all race and peace in the society. Ehm….it also brings fame to the society.'

'It creates negative fans behaviour via hooliganism when clubs lose and sometimes when they win. But sporting success in general lifts the mood of communities.'

'Positive - social development, recreational facilities and leisure centre. Negative -hooliganism.'

'Everybody loves football. The game unites all of us. If it goes bad, the whole world will be plunged into darkness and we cannot let it happens.'

'Err … it can generate a feel-good factor, spirit of camaraderie and optimistic view of society in general, especially when the team is successful and vice versa.'

Some respondents were of the opinion that:

'*It allows quick development, free flow of capital and enhances trade.'*

'Hmm....there is an assumption here that everyone is a football fan and they support their home club. Sadly, that is less likely in the modern era. However, a good performance of a local club does create a feel-good factor in the area in my experience.'

'Brings about engagement in social responsibility activities, Patriotism and bonding, increases local pride and form friendly bonds. Negatively, may be prone to violence and hate.'

'Provides entertainment, social development and economic development.'

There seem to exist; a common belief among the respondents that good performance might be a formidable link between the football club and the community to encourage further societal involvement. A further inquiry into how this 'link' (good performance and community schemes/program) impacted on societal assessment of clubs' performance, a popular opinion among respondents was that in a football-loving nation like England where football is more like a 'religion' the clubs depend on the immediate community for support through gate fees and purchase of souvenirs. Where a club is significantly involved in community development activities, it gains fans and community support, loyalty and more patronage in return.

Respondents further emphasise that, though society does not expect more than sports performance (entertainments) from clubs, where clubs reinvest in community development by providing needed amenities, it creates awareness for the clubs which helps them to discover and develop new talents. They believe that if the society is being looked after, people in the society will benefit and thereby creates goodwill among society. Though subjective and depend on individuals, sections or groups, clubs' involvement in community development programs or corporate social responsibilities may form the basis of assessing their performances within such domain.

The foregoing discussion on responses gathered, therefore, overwhelmingly reveals that CSR involvement by the club is a great deal as it would help bring support to the club from the public and positively affect the performance of the club, but this is regional. Thus, opined that such community might base clubs' performance on their involvements in corporate social responsibility within local settings, though subjective as clubs are of unequal financial strengths. Considering the clubs' social value, its impact on the individual assessments of clubs' performance and efficiency, about 55% of the respondents agreed that there might be a possible link between the two but significantly subjective. This was further proved by the submissions of equal proportions (22.64%) of the respondents who either disagreed or indifferent to the existence of any relationship whatsoever between clubs' social value and performance assessments. Francois and Bayle, (2015) researched the role of clubs' administrators in developing alternatives to economic models based uniquely on sporting and financial performance and submitted that it is time to consider CSR as a new approach for regulating professional sports and its ethical blowbacks for ensuring fairer competition within the community. Football performance analysis based on regional differences could provide useful information to explain club's relative performance in the context of European competition given that football clubs are characterised with multiple stakeholders, mixed objectives and an unstable high-velocity environment (Senaux, 2011).

In the bid to contribute to the existing knowledge in team sports' performance and efficiency measurements, the qualitative part of this study is underpinned by the inductively inclined interpretivist and constructionist philosophies, recognising the active roles of stakeholders' construction and study of sports reality. Thus, making claims to

knowledge based on constructivist/interpretivist perspectives, using strategies such as case study, focus groups, narratives and interviews that emphasise words to augment quantitative findings (Bryman, 2012). Therefore, the research question 5 (RQ5) seek to establish how the current method of assessing football clubs' performances might be improved from the stakeholders' view and the following responses were gathered:

Question 16: Respondents were asked to comment in their opinion, how the football association can improve on the selection process to encourage clubs (representing England) improve their performance at international competitions such as UEFA, EUROPA, etc.

Answer: A common pattern ran through the responses gathered as almost 92% of the respondents strongly linked this to the traditional sports performance with only a few (less than 9%) suggested the need for incorporating cost elements to boost clubs' financial performance and reduce incidents of losses reported by football clubs. Though all respondents unanimously agreed that football association needs to improve on the clubs' performance assessment methods, they, however, suggested as follows using phrases such as:

'*Err……..increase the number of clubs on EPL to make the league more competitive...'*

'*The FA and league regulators should introduce flexible league fixtures between local league games and international competitions and ……. perhaps mid-season break.'*

'*Hmm…. football association need to improve on the technical support through performance enhancement technology, enhance training and development for match officials including referees and ……'*

Some respondents believe "*average goal scored per league*" could be used for ranking and selecting clubs to represent England in international competitions.

Among the few respondents that mentioned financial performance, it was submitted that the FA needs to introduce cost element. The common thread identified was:

'*……well, I would rather see "point per £m spent" as an indicator.'*

When asked to suggest the improvement they would probably like to see in the current football performance measurement system (PMS) as per question 25 to provide solution to the research question five (RQ5), respondents believe that the league structure could be modified by removing unnecessary restrictions to allow for broader external participation, encouraging more younger player or imposing age restrictions and above all regulating sports wages and salaries to encourage proportional distribution of sport talents among all cadre of football clubs.

A variety of responses were gathered with each pointing towards modifying the current Performance Measurement System (PMS) either to enhance sporting performance or otherwise. Among these responses is that "*goal difference*" is the single much better statistics. Others include the followings;

'*…….for me, I would like to see clubs winning away games to be awarded 4 points as against the usual 3 points for both home and away to make each match more keenly contested.'*

'*Rating good financial balance with performance.*'

Again, some respondents seek for cost element to be incorporated into the PMS as they opine that:

"*Measures to reduce clubs' cost per league goal or point*", "*Cost per point attained*", "*Ranking based on average goal per league or cost per points*" and "*League point per £ spent*" are among the phrases frequently used.

Though a few believe that societal contribution should be a huge part of performance evaluation system in developing local talents and enjoy a synergic effect of CSR, it is evident from the above that stakeholders' involvement and participation would exact positive improvements not only on clubs' performance and efficiencies but also on the league at large.

7.3 Empirical Findings and Interpretation of Qualitative Data Analysis

Inferred from the qualitative analysis, the concept of the sports club is an umbrella term which describes a great number of bodies, from huge professional organisations to small local sports associations. Therefore, sports clubs in England developed together with the public sector that creates a space for itself in the social and public life of the masses and

more importantly, legitimise its existence as a global business whose products' consumption unify the globe regardless of sex, religion, culture or race. It goes beyond an entertaining activity but defines the aspect of public life touched by each football club (Puig, Martinez and Garcia, 2010). Evidence from the analysis shows that sports supporters are the final consumers of sports spectacles, they cultivate a relationship with clubs through membership dues, gate fees and seasons' tickets which together accounted for about 30% of the average clubs' annual income. Invariably, clubs need to attract more financial resources to develop their activities toward success.

Like Esteve et al., (2011) the qualitative analysis revealed that sports stakeholders made two types of contributions, the financial and non-financial contributions. The nexus of stakeholders – including public organisations, therefore, support the development of sports clubs as a strategy to bringing the sport closer to the society. Contributions made by stakeholders such as fans, sponsors, football associations and local communities etc are not limited to funds, sports clubs often receive fans loyalties, moral supports, facility assistance, sports equipment and technical expertise just to mention but a few. For example, fans-clubs may not fund their specific football clubs directly but may instead follow the club everywhere it plays match or training ground to give moral support to the team which boosts club's performance and enhances club's success.

The quality of relations between sports clubs and their external stakeholders relate positively to the sporting, financial and social performances of football clubs in England. A club's financial strength positively linked to the quality of sports talents possess by the football club. This study presents a major contribution to the management of sports clubs, demonstrating that football clubs must prioritise the management of their external stakeholders. Since the expenses of the sports clubs generally exceed the contributions from fans (Ticket fee), sports clubs must, therefore, raise funds or acquire assets (tangible and intangible) useful for the development of their activities to improve performance and efficiency. Thus, accounts for the recent change in football management which lean towards commercialisation and profit orientations.

The relationship between football clubs and their stakeholders (actual and potential) such as sponsors, football associations, fans, shareholders, players and manager etc is linked to

the contributions received from these stakeholders and how effective it is managed. Sports management scholars are reckoning with the impact of stakeholders on the management of sports clubs using several descriptive perspectives of stakeholder's theory to identify those that have stakes in sports, their impacts on sports performance and how they evaluate sports performance (Leopkey and Parent, 2009; Puig, Martinez and Garcia, 2010 and Esteve et al., 2011).

However, research on the role and impact of stakeholders mostly fans and supporters on the strategic activities such as sports talents (players and managers) acquisitions, risks and performance management is still developing and need further study.

While investigating factors that drive efficiency among English football clubs, this study sees the stakeholders' relations as the 12th player of a football team whose role and impact is felt in every aspect of the club management both on and off the pitch. Since Freeman introduced stakeholder theory into the management lexicon in 1984, diverse stakeholder literature has developed assessing the impact of stakeholder characteristics on the socio-corporate, sporting and financial performance of sports organisations (Esteve et al., 2011).

Not only that the stakeholders' views, most especially fans, have not been heard in the management of football resources, it may be concluded that sports clubs that have good relations with their stakeholders' benefit from high receipt of financial and non-financial resources which if properly and efficiently managed would enhance the sporting performance of the club. It is, therefore, important to acquire adequate managerial skills, knowledge and experience to manage sports resources to achieve sporting success efficiently. Providing solution to one of the research questions, this confirms that clubs' financial success may not always result in sporting success unless efficiently managed.

Performance assessment of this unusual business (football) is complicated by the specific relationship between sports clubs and the stakeholders. In this relation, there is the convergent interest which is a common aim to maximise the sports result and divergent interest to maximise the economic performance of each club. Whilst the club owners particularly with the introduction of Financial Fair Play (FFP), focused their attention on cost containment and revenue growth – depends on sporting performance (Rossi, Thrassou and Vrontis, 2013). Football clubs must find a trade-off between sport and financial

performances. The analyses of data collected from the nexus of football stakeholders confirm that football clubs pursue some complex objectives that encompassed performance in sporting results; customer retention – measured by fans size; community's prestige and profits (Baconi, 2011). Therefore, the notion of measuring clubs' holistic performance (sporting, financial and social) suggested by Substance, (2010) and adopted in this study follows the concepts laid down in the extant literature on efficiency and performance evaluation of sports clubs which have not been properly investigated.

Deduced from the naturalistic approach, stakeholders assess clubs' performances differently using performance indicators such as sports success (League position, Tittle won, Consistency on EPL and Fans base); financial success (Financial strength, Business model or marketability and Cost-effectiveness); Some simply based clubs' performance on their level of satisfaction in terms of entertainments and value for money. Football which started as an entertainment organisation has radically been modified in every aspect, increasingly becoming business corporations. Though a few of the stakeholders relate clubs' performance to the level of clubs' involvement in corporate social responsibility, their socio-cultural role is undisputed and is equally indisputably changing (Thrassou et al., 2012). Clubs that are socially dynamic attract more sponsors to advocate corporate social responsibility (Miragaia et al., 2015; Misener and Doherty, 2014).

The qualitative data examined revealed that football stakeholders unanimously agreed that the present performance appraisal system needs modifications to accommodate the changing perceptions in management orientations. This follows the submission in Kartakoullis et al., (2012) that the transition from pure entertainment organisations to business/profit orientation was realised progressively and necessitated notable changes among practitioners, regulators and fans.

7.4 Conclusion

Several studies have suggested that analysis of the stakeholders may present an effective means of producing feasible solutions to the problems being faced by the football organisations (Miragaia, Ferreira and Ratten, 2017). Therefore, identifying stakeholders and ascertaining their respective stakes and demands might provide significant

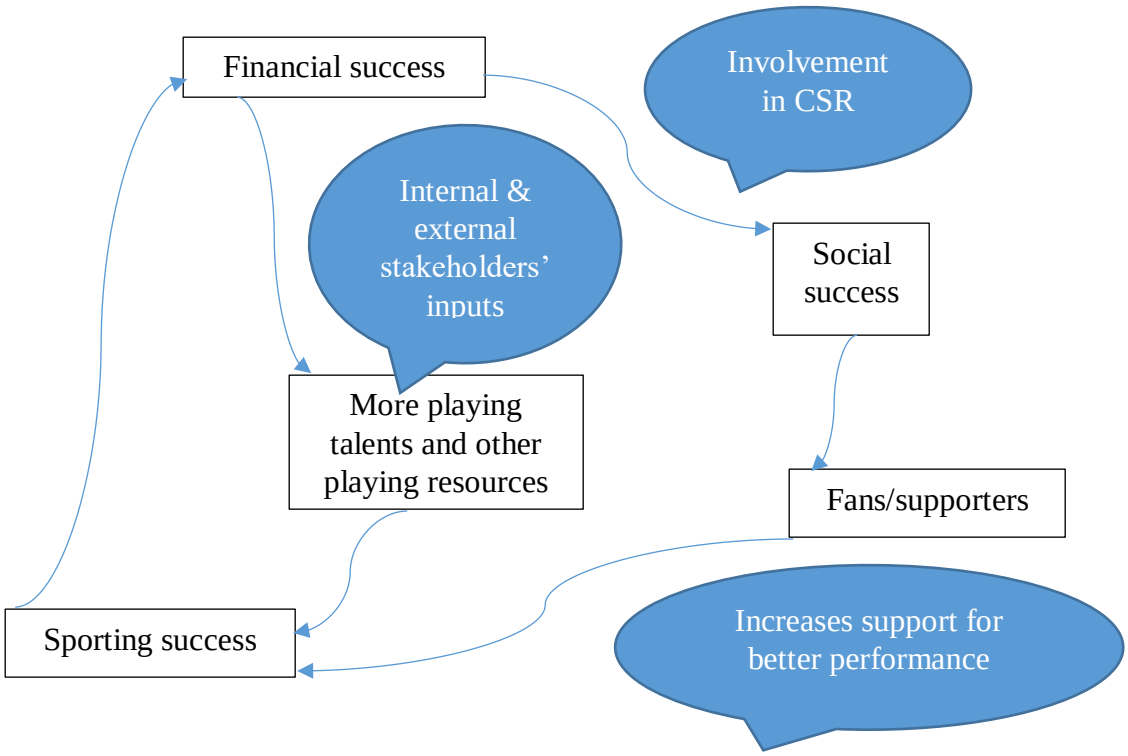
recommendations towards efficient management and channelling efforts to focusing on aspects that are more important for sustainable survival (Wellens and Jegers, 2015).

The strategic stakeholder management used in this study reflects an instrumental approach and opines that stakeholders' concerns are motivated by the desire to improve sports performance management system (SPMS). Reflecting on the naturalistic approach analyses, the intrinsic stakeholders' commitment is inferred to depend on the belief that club's normative or moral commitment to advance stakeholders demands, shapes the club's strategy and influences aggregate performance and efficiency. In the same manner as Soares, Correia and Rosado, (2010) it is found that Board of Directors (BOD) of clubs played a vital role in managing both internal and external stakeholders as they shape club's strategic decisions, objectives and managerial policies to positive performance. This is contrary to the position maintained by one of the top EPL managers when he said;

> *"…. but I think the final decision always belong to the manager to decide who comes in and who goes out because he is responsible for the style of play and results"* (Law, 2013).

The manager declined to work with a director of football because the directors will buy the players and when it does not work the managers are guilty of not using them well. In this view, the concerns of the external stakeholders like fans and supporters could not be overemphasised when it comes to such decision. It is found that sporting success always produced financial success, but financial success needs to be effectively and efficiently managed to produce sporting success as implied in the manager's expression. This is referred to in this study as "the fictitious cycle of performance in football" and is described below in figure (7.8).

Figure 7.8 Fictitious Cycle of Performance



It could be submitted that football clubs need the inputs of their various stakeholders to improve performance, but the club's strategic policies first need to recognise and allow stakeholders participation in decision-making. This analysis reveals that sporting success lead directly and positively to financial success which later dictates the extent of club's involvements in CSR to produce social benefits to the local community. This invariably sought for the increase in community loyalty and patronage of the club; increases fan support and size and positively relates to better sporting performance. Managerial skills; experience; information about players' status; tactics and team selection; including stakeholders' participation will be required to transform financial and other sports resources into sporting success.

Though it is confirmed that a football club pursues multiple objectives that have tendencies of conflicting with one another as stakeholders have diverse demands, however, stakeholders' participation might be enough to harmonise these various claims from the nexus of stakeholders. The next chapter begins with a brief introduction and discusses each

research proposition and problem from DEA and Naturalistic approaches to show the extent to which the research problems have been solved. Policy recommendations will be offered and contributions to the existing knowledge will be clearly stated. While the areas for future investigation will be suggested, the chapter will end with a general conclusion of the study.

CHAPTER EIGHT

CONCLUSION, POLICY IMPLICATIONS AND RECOMMENDATIONS

8.1 Introduction

The anatomy of the empirical findings reported in the previous two chapters in line with the context of the existing bodies of knowledge examined in the literature review chapter concludes this thesis by returning to the initial research questions to confirm the extent to which the problems are resolved. Focusing on performance evaluation and efficiency measurement concepts relating to team sports, particularly football, the empirical works found on efficiency measurement and performance management studies concerning English football industry were examined to provide conclusive solutions to the research questions.

Appraising team sports performances especially football clubs, using efficiency measures for effective ranking of football clubs is a key conceptual issue identified in the literature (Chelmis et al., 2017). Subsequently, this chapter concentrates on discussing the influences of the efficiency measurement and performance management processes that were discovered empirically in the light of the current study, followed by the discussion of the conceptual differences between the existing method adopted by EPL in ranking football clubs and efficiency ranking of football clubs playing in the EPL. From the cues in the literature, this discussion examines whether the concepts could be differentiated by objectives (Sportive, Financial and Social); by the involvements of social actors (Stakeholders - including agencies) and by management actions on measures influencing performance changes following intensive application of theories such as efficiency theory; performance management theory; agency theory; stakeholders' theory and stardom theory as related to football clubs' management.

Having drawn some conceptual reasoning from the previous sections, the discussion continues in this chapter on how the conceptual framework linked the research methodology to provide effective solutions to the research questions, analysing the empirical findings in the context of the current work to infer conclusions about each research proposition or problem, policy recommendations, contributions to the existing

knowledge and suggests areas for further investigation in future arisen from the limitations of the current study. The chapter then concludes with a general overview of the study.

8.2 Overview of Empirical Findings

From the stakeholders' point of view, especially supporters or fans, the *Champion* is the best at the end of the season (Kulikova and Goshunova, 2013). Measuring performance and efficiency of professional football teams playing in EPL and in broader context via DEA, this simple statement need be reversed as champions are not usually efficient. Only about 9% (1 out of 12) in the seasons investigated had an efficient champion (Leicester City FC) others were inefficient. Since Freeman introduced the term stakeholder into the lexicon of strategic management, the concept has attracted the attention of different researchers. Stakeholders according to Freeman, are individuals or group of persons that either affect or are affected by the activities of a specific organisation and Clarkson submitted that stakeholders either have or claim ownership, rights, or interests in an organisation and its activities (Miragaia et al., 2016). Therefore, their views are subjective and self-driven.

Empirical findings from this study reveal that football stakeholders' range from individuals to include organisations, communities and regulatory authorities. It further affirms that these persons or groups have either explicit or implicit contracts with the organisation and are identified according to the anticipated harm or benefit resulting from the activities of such organisation. Therefore, those actors holding legitimacy, demanding urgency and having control by carrying out its fundamental strategic role, thereby, presenting either opportunity or a threat to the organization are regarded as stakeholders. Football stakeholders have been identified in this study to include among others; individual, corporate bodies and huge national and international sports associations, but the underlying principle follows the same pattern as identified by previous researchers, taken cognizance of the needs, interests and influences of persons or groups that shaped the organization policies and operations (Leipnitz, 2014). Stakeholder theory, therefore, systematically responded to a core question; who are the stakeholders that deserve or require attention from the management of an organization?

This study reveals that the management process within a football organisation or club entails; the identification of stakeholders (internal and external) and their stakes; the development of strategies which include organisational objectives and the construction of mutual and ongoing relationship usually facilitated by the agents who harmonise different stakeholders' claims. A football club is, therefore, a multi-objectives organisation; making the evaluation of its performance more difficult. Considering the multi-objective nature of football clubs, it could be opined that a football club is set to achieve sportive, financial and social objectives. Holistically, the current study measures the performance and efficiency of EPL football clubs for 12 seasons between 2005 and 2016 to identify the most efficient club(s) on EPL using variables such as points attained at the end of the season to measure sportive efficiency; clubs' wages and salaries, assets consumed and total clubs' turnovers to measure financial efficiency and clubs' games rate of attraction to measure the rates at which fans or supporters are attracted to the games or football matches, thereby, measures the social efficiency of the club. Though sporting result, i.e. effectiveness - is most striking in every competition, particularly in football but efficiency as affirmed in this study is achieving the stated goals without wasting resources; an essential quality in any organisation (Espitia-Escuer and Garcia-Cebrian, 2010).

Many tools have been proposed in the literature for measuring efficiency; these include traditional Accounting Ratios (AR); Balance Score Card (BSC); logits and more recently Data Envelopment Analysis (DEA). However, DEA has been adopted in this study as it does not require any specific production function while it allows the use of multiple inputs and outputs regardless of the scales of measurement and provides easily interpretable results that were corroborated with the views of social actors through text analysis in NVivo. Thus, combined DEA with the naturalistic approach. This combined methodology has been applied to evaluate the performance of football teams that played in the English Premier League between 2005 and 2016 to enhance the quality, validity, generalizability and the reliability of the study.

Though DEA efficiency scores presented in tables (6.1 - 6.6) neither considered random error nor fit within a normal standard distribution, but it uses real or actual figure, presenting a perfect evaluation model within which actual performances of EPL football clubs were measured. The choice of this league provides a more homogeneous sample of

team-based organisation and all the teams investigated were exposed to common regulatory body, rules, stakeholders and market. Moreover, DEA is a relative measurement tool that compares homogenous units which is why clubs' approach to risk management is not considered in this study. The choice of choosing the English Premier League is to have a more stringent standard of comparison resulting from its' evolvement into a benchmark for other football leagues. The EPL has some of the most followed football clubs in terms of quality and viability and the availability of information. It, therefore, requires more holistic performance indicators that combine sportive, financial and social objectives to measure the overall performance of football clubs.

Analyzing the results separately in each of the seasons provide some cogent findings of performances, efficiencies and rankings of football clubs. First, one could consider that efficient use of the resource is needed to achieve good results in the football context, as the two competing teams collectively have an overall technical efficiency ratio equal to one. Efficiency could accurately be used to qualify and interpret the results of clubs in terms of the resources they possess and use as an evaluation variable. This is apparent in the results analysed in this study, teams that had been league champions had efficiency ratios less than one except for Leicester City FC in 2015/16 season. This conceptual difference could be noticed in the existing method adopted by EPL in ranking football clubs with less consideration for efficient use of resources, but sporting results.

Although the utmost aim of any team is to win the league it participates in, i.e. being effective. However, efficiency values allow teams' performances to be analysed, compared and ranked in terms of the resource used. More relevantly, efficiency could be used to evaluate the performance of those clubs that get the results their potential allows them and to recognise which teams achieve good results by using an excess of the resource. Hence, they are effective but not efficient. Refuting the assertion that clubs with high point scores or league champions tend to have higher efficiency scores than clubs with small point scores. This further validates the submissions of Zambom-Farraresi et al., (2015); Carmicheal, Rossi and Thomas, (2017) and De Freita, Farias and Flach, (2017); that efficiency is not the absolute privilege of national champions or big clubs. It might be that the champions who are often the big clubs spend more per EPL point compare to the small clubs like Leicester City FC whose financial rank in 2015/16 stood at 17th position with

£48.2m spending as league champion, suggesting that EPL point per wage spending or EPL point per cost might be a better measure of performance and efficiency of football clubs and ranked accordingly. This buttress the arguments in Lasek, Szlavik and Bhulai, (2013) that football ranking does not use the information on past results efficiently and it does not react quickly enough to recent changes in teams' performances and submitted that another ranking system or at least improving the current one is necessary.

The five big clubs (Chelsea, Manchester United, Manchester City, Arsenal and Liverpool) that occupied the first 5 positions in terms of spending in England in 2015/16 and 2014/15 seasons with an average spending of £216.3m, £203.5m, £193.9m, £192m and £159.5m respectively had sometimes won EPL titles, but none was efficient in all DEA models whilst they were EPL champions, indicating that financially strong teams are not always efficient. Perhaps, these clubs might have received little returns from big investment. This further shows that there are rooms for league champions to improve their performances and that increase in cost may be a source of inefficiency if not achieved a corresponding increase in output.

Second, the inefficiencies identified in the teams that played in the EPL between 2005 and 2016 might be attributed mostly to the wasteful use of resources rather than using different tactics. This is obvious in high wage rates paid to players and coaches with no corresponding anticipated returns. Where a coach is fired before the expiration of his contract, this does not stop his payments for not doing anything along with the newly hired coach. This double payment represents a gross waste of clubs' resource which contributed to clubs' operational inefficiencies. Examining the overall efficiency across the 12 seasons investigated in this study leads to a conjecture conclusion that no different dominating tactics were detected in different seasons of the English Premier League as the league champions are not always efficient, but there seems to be a general waste of resources in most of the seasons. This is because most of the so called '*big team* (Manchester United FC; Chelsea FC and Manchester City FC) had overall technical efficiency values less than one and teams that have overall technical efficiency values equal to one when considered over a season (Arsenal FC; Tottenham Hotspur FC; Wigan Athletic FC; Wolvehampton FC; Blackpool FC; Swansea City FC; West Bromwich Albion FC; Burnley FC; Leicester City FC; Liverpool FC and Stoke City FC), do not shown similar performances when the

sample covers all 12 seasons considered in this work except for Aston Villa FC. Thus, Aston Villa FC could be regarded as a *Super-efficient* club and the most efficient football club in the EPL during the period investigated.

It may be perceived that there were teams (Arsenal FC; Chelsea FC; Manchester United FC; Liverpool FC and Tottenham Hotspur FC) that maintained high levels of efficiency in all seasons, though may not be efficient, while others suffered significant changes in efficiency scores. The composition of the team or changes in coaching ideology, skills, tactics and experience might justify this, leading to overall technical inefficiencies or pure technical inefficiencies rather than scale inefficiencies. Coaches or managers, physicians and sports directors in the clubs try to achieve maximum team and players' performance by designing competitive strategies and tactics in accordance with the skills of their squad. However, building a winning team takes time, as well as adjusting to changes introduced to cope with temporary circumstances in the league. Therefore, there might be inefficiencies when compiling the team or when changing it, resulting from the boardroom or managerial decisions on which player or manager to engage or disengage based on available club's resource. This is, therefore, recognised in this study as the first stage of football production process exhibiting financial efficiencies. The output, i.e. the formidable team thereby assembled and put forward, forms the input of the second stage which brought about both sporting and social efficiencies.

The way a club becomes a cohesive team would explain the results obtained in this study. One might have opined that there are two circumstances which generate a temporary decrease in the efficiency of football teams; adapting to changing external circumstances and teams picking process. This is understood to be the assimilation of the strategies and tactics of play put into practice by all the players and coaches. Thus, the variations in efficiency values over time has shown by some EPL clubs in the sample studied could be explained by substantial changes in the seasonal league compositions, players and coaches or managers.

However, while teams' sportive and financial objectives were easily identified and measured, the social objective of football clubs is not. Therefore, in appraising the performance of football clubs, the need for knowledge on how efficiently a club uses its

sportive, economic and financial resources is increasingly necessary for effective and unbiased comparison. Furthermore, this analysis is also important to evaluate clubs' holistic performance to justify clubs ranking. Most national football league like EPL ranked clubs' performance based purely on sporting performance, overlooking the impact of economic, financial and social effects of the clubs' performances. The price of labour; the price of capital players; the price of the capital stadium; points gained; attendance and turnover all play a major role in football efficiency (Barros and Leach, 2006a).

Why are some clubs efficient and others are not? Is the teams' ranking in the league at the end of the season correlate with the efficiency scores? What need be done to enhance the efficiency of the team? These research prepositions provide insights for the stakeholders and researchers of English Football League, not only on the sports competition but also on the operations and administration of the clubs.

Base on the variables used in this work and previous studies, it could be submitted that the key variable that determines the efficiency of the football clubs on the input side is the players' wages and salaries while on the output side are the league points at the end of the season and team revenues which do not depend on the performance of the team. In Haas, Kocher and Sutter, (2004) the efficiency scores were not correlated with the EPL ranking of clubs' performances at the end of the season. Although the performance of the team and the efficiency are completely different issues, this study affirms that a correlation range of 0.33 to 0.66 exist between EPL ranking and efficiency scores or ranking depend on DEA model used. It then recommends that when ranking football club, output orientation model of DEA should be used as it gives the higher correlation.

8.3 Conclusions About Each Research Proposition

The study assessed the performance and efficiency of the clubs playing in the world's pioneer football league; the English Premier League (EPL). Considering 240 clubs that played in the EPL over 12 seasons between 2004/05 and 2015/16, the use of a greater number of seasons than any of the previous studies as suggested by Kern, Schwarzmann and Wiedenegger, (2012) and Barros, Peypoch and Tainsky, (2014) allowed the study to draw interesting conclusions for each season as well as for the overall period. First, the study found that EPL champions are not always efficient except for Leicester FC in

2015/16 a relatively smaller club in its second year on premier league. This went further to confirm the submissions of previous studies that national champions and big football clubs are not always efficient. One interpretation of this evidence is that investment in human (players and coaches) skills and ability, buys on-the-field success which may not always correspond with the investment (Kulikova and Goshunova, 2013). The rich or big clubs can afford the supply of star players and quality coaches by spending more than less financially successful clubs. To this extent, there is a causal link between revenue earned and competitive imbalance via investments in players and coaches (Carmichael, McHale and Dennis, 2011). This study, therefore, submitted that sportive success is usually transformed into financial success and that financial success is necessary but not enough to achieve sportive success. However, a football club could attain both financial and sportive success and remain inefficient if such club generates fewer returns on its investment. Thus, cost element is imperative to efficiency measurement.

Second, in the 12 seasons investigated, though EPL operated with high-efficiency rates, only Aston Villa FC was efficient throughout the period in all DEA models. Aston Villa FC is the only club that managed to maintain efficiency, indicating that this is a very difficult task in the most competitive football league. Meanwhile, it is important to note that clubs and the resources employed change from season to season, as well as the opposing teams; hence, a club that is efficient in one season, employing similar resources in the same combinations, may not be so efficient as in another season. Thus, there is no gainsaying that Aston Villa FC is the most efficient EPL club, thereby providing a solution to the first research question in this study.

Nevertheless, some differences in stakeholders' view can be highlighted. About 60.76% of the respondents which cuts across various stakeholders opted for sporting success, 26.58% for financial success while 5.06% think social success is a good measure of club performance. Those supporting financial success believe that football clubs are profit-oriented organisations, thus cost element should be core performance measure. Obviously, supporters' or fans' patronage could not be overemphasised in achieving clubs' objectives but only a few stakeholders could relate clubs' involvements in creating leisure centres, provision of public amenities, involvement in charitable activities, economic development and other social developmental amenities to be impacting on the accomplishment of clubs'

objectives and thereby form a good measure of performance. This means that being efficient is a necessary condition but not enough to be the national champion (Zambom-Ferraresi et al., 2015). Therefore, it is verified that the cost increases with all factors of production except for sports points, signifying that sporting success is a major factor in cost control at the end of the season and that too much expenditure on factors contributes to inefficiency, especially when this expenditure is not converted into sports points.

The number of clubs considered efficient in this study (26 out of 237) leads to the third highlighted submission that there is a high level of inefficiency in the EPL. Observing the seasonal results as analysed, the study found 10.97% of clubs to be efficient while 89.03% were inefficient. Examine the extent to which EPL ranking evaluates efficient performance and factors responsible for such outcomes, it is observed from DEA analysis and respondents' submissions that teams' final league position should depend more on the efficient use of resource rather than on their potentials, since teams that should have been relegated according to point per resource used, otherwise, remained in the EPL and vice versa. From Performance Management (PM) point of view, this implies that it is the teams' ability to make good use of their resources, capabilities and skills of their players and not the teams' potential that proves decisive in the achievement of objectives.

Since the analysis carried out in this study focused on team's overall performance, the bid to improve efficiency means that the resource used should be managed to obtain a greater number of outputs, basically by optimising the coordination mechanisms of the available resources. Inferred from efficiency results, it could be submitted that the two main factors influencing performance on the sports field are the available resource and how they are used. Appraising teams' performance, the study recommends that not just the actual or final position achieved should be considered, but also the position that the team theoretically should have achieved per resource used. This comparison would allow the performance of all the teams in a league to be evaluated rather than the top or bottom teams, as is habitual now.

The need for this study is justified by the fact that soonest, football entities in England may be subjected to evaluation based on economic criteria like every other corporation which informs the argument that the existing methodologies in ranking EPL football clubs

need modifications to align with the recent transformation in managerial focus within football industry. Although the results indicated that there is correlation between efficiency scores and EPL ranking, one of the contributions of this work is to stress the importance of incorporating cost elements in the EPL evaluation system and that the analysis presented in this study considered clubs' holistic performance in terms of sportive, financial and social performances rather than just sportive as presently measured by EPL.

Investigating how the social value of football clubs impacted on the stakeholders' assessments of clubs' performance and efficiency, there is an explicit need for research into business cases about the relationship between CSR activities and clubs' success. This study opened new research into the implementation and performance measurement of CSR and social value creation through CSR by sports organisations. It also built investigation on the use of established models and theories from the consumer behaviour literature to include sociological theories about stakeholders' tension and management decision-making in a conflict situation and strategic choice, agency and different ways to respond to organisational challenges (Breitbarth et al., 2015).

Inferred from the submissions of the respondents, this study opined that the official EPL ranking methodology may not have awarded ranking points in the most efficient manner, and that the attribution of ranking points by the official procedure is not effective enough in the sense that the strength of teams is often over or underestimated (Lasek et al., 2016). Therefore, in the view of the participants and the findings of the DEA analysis, EPL ranking serves as measures of competitive imbalance between teams or individual competitors.

8.4 Policy Recommendations

Within the complex and competitive global business and governance environment, sports managers need to understand efficiency concept as achieving the stated corporate goals without wasting production resources (Man, Material and Money) and identify;

- New media resource relevant to and appropriate for their enterprise;
- Benefits and potential opportunities offered by new technologies;

- Understand the concept and practical dimensions of developing and implementing corporate, social and managerial strategies in a team-based organisation by;
    - Setting corporate goals prior to the commencement of the season;
    - Communicate goals to the stakeholders;
    - Plan the strategies towards the attainment of the goals
    - Evaluate the performance at the end of the season; and
    - Feedback to appraise the process.

Expenditures of team sports activities and sports tourism contribute immensely to the national economies of the respective countries. Inferred from the DEA analysis, the increasing effects of the English Premier League on the economy of United Kingdom cannot be overemphasised. The net expenditure associated with sporting events especially football benefit the economy, spurring the production of goods and services demanded, as well as the production of supplies activities (Amador et al., 2017).

It is obvious from this study that efficient use of the resource is needed to achieve good results and that efficiency can accurately qualify and interpret the results of teams in terms of the resource used and for management evaluation purposes. Inefficiencies identified in the teams that played in the EPL between 2005 and 2016 could be attributed mostly to the wasteful use of resources rather than the use of different tactics.

This study proposed a simple framework for the comparative performance evaluation of EPL football clubs that played in the seasons 2004/05 to 2015/2016 and the rationalisation of their operational activities. The analysis is based on a DEA model that allows for the incorporation of multiple inputs and outputs in determining the relative efficiencies and triangulated with views of social actors in NVivo text analysis. Benchmarks are provided for improving the operations of poorly performing football clubs.

Many useful and interesting managerial insights and implications arising from this study were discussed and the prevailing conclusion is that English football clubs displayed identical managerial skills, being variable returns to scale. However, they do not display

comparable scale and technical efficiencies as financial capabilities of the clubs greatly influenced the qualities of sports talents (Players and coaches) assembled and risk undertaken during the period of this research, signifying that dimension is a restriction to the performance of the small clubs. Only big and financially strong clubs like Arsenal FC, Chelsea FC and Manchester United FC owned stadium - a dimensional measure of turnover. Not all efficient clubs according to the DEA-$_{BCC}$ methodology were scaled efficient, thus indicating that the scale and scope of the club may represent a restriction on the optimal efficiency of smaller clubs.

The two-stage football production process explained in the literature review section provides better insights and allows a more detailed policy description and interpretation of the inefficiencies of a football club. A vital practical value of this study is providing football clubs with information to focus on specific efficiency-enhancing strategies at different stages of the production process. For example, allowing football managers/coaches and board of directors' participation in football talents, make or buyer decision at the transfer market based on their knowledge and perfect information about the market, relative to the club's financial capabilities to put together a formidable team that forms the input of the second stage which eventually produce the final outputs (games). Whether the final outputs meat stakeholders' (fans, sponsors, owners, communities and so on) expectations is measured by the effectiveness of the process, while efficiency relates resource used to the outcome of the process.

Application of theories such as agency theory and stakeholders' theory established the role of stakeholders in the efficiency of football clubs based on the discernment of the board of directors of the clubs. The fact that the prevailing economic conjuncture tends to reduce the income generated from tickets, though duly compensated with TV rights and sponsorship contributions, football clubs should be encouraged to diversify their sources of revenues, mostly through the definition of strategic objectives that will stimulate a substantial increase in their respective social participation. For example, by implementing more social and recreational events while also raising the awareness of stakeholders, thereby fostering community acceptability, increase in fans base and increase revenue through sponsorships in addition to sports activities. Hence, the present-day commercialisation and profit orientation of football industry.

The present study also reports some of the differences observed between the perceptions of club directors at efficient clubs and those of their peers at inefficient clubs. The research findings confirm the importance of stakeholders in achieving club efficiency, mainly in terms of factors enticing financial resource within the aforementioned context - the club management, fans, sponsors and employee including the players and coaches. However, the primary stakeholders have a fundamental role in terms of social efficiency, sportive efficiency and financial efficiency for club's long-term sustainability.

Since football clubs are locally and socially vibrant, the application of DEA methodology may be a useful tool in educating and encouraging managers to acquire and allocate productive resources and capabilities efficiently, to achieve organisational goals. Besides, a thorough understanding of the role of stakeholders might help future directors in carrying out their activities more effectively.

This study is useful for policymakers in team-based organisations such as team sports of which football takes the leading role because it highlights the need for more insights into the relationship between the inputs and outputs (efficiency) and the role of stakeholders in the management and success of such organisation. This could encourage managers or coaches of professional football clubs and other sports administrators to adopt leadership styles more compatible with the social and economic conditions of contemporary society. Sports managers could improve their management policies should they consider the suggestions and involvement of stakeholders as a pedigree for strategic planning programs.

In terms of governance, this study advocate:

- League fixtures to be more flexible and give priority to international matches should a football club has both local and international matches within shortest distance.
- A mid-season break may be appropriate to reduce the impact of team and players fatigue, injuries and other impromptu strategies to enhance team performance.

- Regulates wages and salaries paid to players and coaches, not only to fairly redistribute sports resource among competing clubs but also to reduce the occurrence of huge loses reported in clubs' financial statements.
- Football clubs should be encouraged to improve or at least maintain the quality of the team that qualifies such club for international competition in the prior season by setting out a tolerance range of change in team composition.
- As in other sports like tennis, the use of goal-line technology should be encouraged to enhance field performance and sports outcome. Electronic devices such as sensory armband and Modified Video Assistant Referee (MVAR) that could be initiated by contesting managers or referee might be used to reduce bias decisions in terms of fowls on the pitch and to capture those fowls that seem invisible to the match officials.

Finally, the researcher's home country is expected to benefit tremendously from this study by gearing up both sports and academic leaders in recognising the significance of sports management courses as means to national sports development and therefore, be included in the brochure of courses taught in Nigerian higher institutions of learning.

8.5 Contributions to the Existing Knowledge

Among different tools widely applied in the literature for measuring performance and efficiency, the current study opted for DEA methodology as is more appropriate in accommodating both accounting and non-accounting variables. Kadarova, Mihok and Turisova, (2013); Zhao, (2013); Arabzad, Ghorbani and Shirouyehzad, (2014) and Zambom-Ferraresi et al., (2015) highlighted its ability not only to identify efficient and inefficient units but also the sources and amounts of inefficiency. It also recommends improvement measures for the inefficient units relative to the efficient units within the dataset. For consistency, DEA results were compared with the results of text analysis in NVivo that incorporate the views of the social actors who are the stakeholders in the football industry. It allows for more realistic, replicability and generalisation of findings. Based on method of analysis, it is possible, to sum up, that Data Envelopment Analysis (DEA) has been the most popular method of analysis used in modern research on sports

performance of football clubs. The reason being that analysis of sports performance involves both accounting and non-accounting information which is well accommodated by DEA. In this study, DEA is intensively applied to measure the efficiency of football clubs and its analysis does help to explain why some clubs are efficient and others are inefficient as well as well the factors that affect the efficiency (Pyatunin et al., 2016).

The relevance and uniqueness of the current study could be seen in the following aspects:

- This study remains the first ever to the best of my knowledge to combine DEA with the naturalistic approach in sports performance and efficiency analysis thereby obtained the views of different participating individuals to gain different perspectives and ideas on resource intensive in the assessment of the performance of football clubs. Thus, enhanced the quality, generalisability and validity of the findings therein:

- The study analysed football clubs for 12 seasons; a large dataset as suggested by Kern, Schwarzmann and Wiedenegger, (2012) and Barros, Peypoch and Tainsky, (2014) to provide a more conclusive policy prescription for football management since no study has ever used such large data after Gerrard, (2010) who analysed the state of English football up to 2007. With the present state of art of English football, what Gerrard named as the *Tier 1* (Manchester United FC, Arsenal FC, Liverpool FC, Chelsea FC) and grouped as *big four* by Oberstone, (2009) has been updated by the findings of this study to include Manchester City FC and renamed as the *big five*:

- Unlike previous studies, the uniqueness of this research could be seen at identifying and naming the most efficient club on EPL (Aston Villa FC) during the period investigated after analysing aggregate efficiency scores and efficiency variations among football clubs in EPL for the entire 12 seasons examined. Though this study confirmed the findings of Zambom-Ferraresi et al., (2015) that maintaining efficiency over the large period is a problem among football clubs, it however, declared a contrary opinion to their claim that no club could maintain efficiency by naming Aston Villa FC as the only club to have maintained efficiency on EPL over the 12 seasons;

- Like other studies measuring performance and efficiency of football clubs, this study used existing variables that measure sportive performance (league points), and financial performance (wages and salaries, clubs' turnovers, assets consumed) but introduced *Games Rate of Attraction* as a measure of social performance. It measured fans satisfactions which attract them to watch football games either at games venue or as relayed through media. Thus, reduced the effects of heterogeneity among EPL football clubs in terms of location and its differential population density, differences in the sizes of the clubs' fanbase and its consequential effects to enhance DEA homogeneity assumption for better comparison;

- Like Bakre, Lauwo and McCartney, (2017) declared that accountability is an obligation of persons or entities entrusted with responsibilities and to be answerable for the totality of the responsibilities that have been conferred on them and to report to those that have conferred these responsibilities. Inferred from the theoretical framework, this study submits that for effective management of sports resource; Sports managers or coaches, Top Management Team (TMT) including accountants and auditors must adhere to the existing accounting and auditing rules, good management practices and other regulations to deliver accountability, ensuring a more equitable distribution of sports resources to establish good ground for comparison.

- This study confirmed the existence of a significant link between efficiency scores and the final league rank of EPL football clubs as reported in Haas, (2003a) contrary to Haas, (2003b) and Haas, Kocher and Sutter, (2004). The study found that EPL would better rank clubs' performance should cost element is incorporated. DEA efficiency scores confirmed this stakeholders' view as only the league champion in 2015/16 (Leicester City FC) was efficient among the twelve league seasons analysed. Thus, EPL ranking method needs modification to evaluate clubs' aggregate performance efficiently.

As revealed by stardom theory, this study opines that wages could be systematically linked to playing skills and that while high wage structure of some clubs resulted in greater

success on the field, others could not. Meanwhile, low wage structured clubs sometimes achieve more considerable success on the field, signifying that the impact of managerial and coaching tactical skills on sportive success is beyond the number of star players included in a team which relates positively to high wage expenditure. It is consistent with the fictitious cycle of performance in football relative to success and failure, where the underlying mechanism involves the ability of financially successful clubs to invest more in playing talents (human capital) and increase involvement in social responsibilities. Success on the field is positively linked to both managerial and coaching tactical skills at maximising players performance. Though almost 70% of clubs' revenue is spent on wages (Carmichael, McHale and Dennis, 2011), revenue is significantly correlated with current and previous success on the field. Inferred from the stardom theory, it might be opined that wage bills systematically reflect the quality of sports talents, skills, location, players' performances and increased investment in star player (human capital) to achieve success on the field.

Based on the estimated cost frontier as in Barros and Leach, (2006a) this study found that high wage cost could be a source of inefficiencies where small returns are generated from high investment in playing talents. Thus, too much expenditure on factor inputs adds to inefficiency, especially when the expenditure is not converted into factor outputs. The general conclusion is that success is the principal driver of cost-efficiency. Therefore, this study deduced that football clubs have different efficiency scores reflecting the aggregate success (sporting, financial and social) per resource used. Although sports success is the primary driver in cost control in addition to club capabilities, sports efficiency of football clubs depends primarily on the human capital of players, coaches and other staff costs. Players' talent to produce the qualitative game and the coach's ability to put together a formidable team of talents to achieve the success on the pitch.

In this regard, the current study opines that sports efficiency is influenced by such factors as human capital of players (tenure, age, self-esteem, experience, cohesiveness, training and motivation among others), human capital of the coach (time spent with the club, career goal, experience, skills and many more) and knowledge about oppositions. Like in EPL ranking, sports success usually results in clubs' higher positions on the league rank allowing for participation in the international tournaments and get access to the new

markets of TV broadcasting rights, sponsorship contracts and sales of club's symbols among others. The submissions of football participants or social actors in the NA *vis-à-vis* NVivo analysis, confirm the assertion that EPL ranked football clubs majorly on their field performances. Thus, suggesting the need to incorporate cost element in the form of league point per cost, not only to allow for the measurement of aggregate success but to exercise control on clubs' high wages to reduce losses being reported by football clubs.

This study affirms that financial efficiency, on the other hand, is influenced by factors like wage cost, sporting success, club size, profit orientation and so on. Seeking to maximise the club's income, is caused, as a rule, by the size of the club and its sports efficiency. Although this study discovers that many large football clubs which take leading positions in the national league were economically inefficient, this was because too little returns were achieved on substantial investments given the smaller clubs a comparative advantage in attaining higher sporting success.

The most important discovery of this study is the social efficiency of the football club. Among the nexus of football stakeholders identified in the study are the local community, fans and the society at large whose satisfactions are measured in terms of utilities derivable from clubs' operations and involvement in corporate social responsibilities in return for their loyalty and the community acceptability of the clubs. This further increases the clubs' fanbase and enhances clubs' performances. The satisfaction derived from the consumption of sports product (football game) is often difficult to measure and such product is usually non-rivalry in consumption as others are not prevented from its simultaneous consumption. Special products like the game do not submit to the economist's first law of demand. The football game is inelastic in demand, hence, increase in game's price does not reduce its consumption. This explains the steady increase in football income over the years resulting from the steadily increasing in satisfaction derivable from the societal consumptions of football games.

The theoretical and practical contributions of this study provide another approach to the understanding of sport organisational behaviour through the DEA methodology to evaluate performance and efficiency and the importance of CSR involvement to the way society appraise club's performance. Therefore, this presents an opportunity to optimise

applied research through investigative case studies, thus, providing relevant information to directors who decide about sustainable strategies of their organisations. This study also provides conceptual and empirical support to the notion that the ontological perspective offers a deeper understanding of what happens when CSR measures are included in management appraisal and reward systems. Thus, including CSR measures in the EPL rewarding system for measuring and managing performance is necessary to transform performance measures into managerial information.

8.6 Theoretical Contributions

This thesis straddled among multidisciplinary studies informed the applications of numerous theoretical contributions and assumptions. The following have been discussed in detail:

- Theory of Performance: A collaborative efforts of sports resource; integrating skills and knowledge to produce a valuable result. Supporting Sulaiman, Almsafir and Ahmad, (2013) this study attested that performance at a higher level may be a source of satisfaction with feelings of mastery and pride. It further highlighted the axioms for improving effective performance to include: Performers' mindset; Immersion in an enriching environment and Engagement in reflective practices. Inferred from this theory, performance at high-level increases service or product quality, capability or capacity, skills and knowledge, identity or motivation and reduces cost.

- Theory of Efficiency: Relating football contest or operation to the production process; a rational firm theory indicates that performance measures should integrate goals or aims of decision makers with economical use of production resources while providing a given level of satisfaction. The theory concludes that the referent for a measure of efficiency is output rather than a target as postulated by effectiveness. Thus, EPL evaluation system measures the effectiveness of football clubs rather than their efficiencies.

- Stakeholders' Theory: The most difficult task during strategic decision process is the interface among various competing demands of the nexus of stakeholders in

relation to the organisation's strategic goals. Stakeholders' theory is another conceptualised framework in football performance management, designed to identify relevant stakeholders, develop management strategies and explore the impact of stakeholders' dynamics on performance evaluation within football industry relative to strategic goals.

- Agency theory: The importance of this theory is seen in unifying the claims of different stakeholders. The conflicts often arise from self-interest usually includes incentives and rewards, risks attitudes, make or buy decisions, merger or acquisitions, time horizon and cultural background.

The above theories and others like stardom theory and corporate social responsibility framework (CSR) have been incorporated into this study to enhance performance management and efficiency measurement of football operations.

8.7 Areas of Limitations and Future Investigation

Problems embedded in the appraisal framework of a team-based organisation such as efficiency evaluation and performance measurements of football clubs are complex and the current study does not claim to adequately resolve the issues in the field. Though, it contributes immensely to the current discussion about performance and efficiency evaluation of team sports particularly football clubs, the relationship between efficient use of resources and sports outcome must be analysed in the context of performance evaluation of football clubs for effective ranking in the national league.

While analysing the performance of EPL football clubs during the researched period (2004/05 – 2015/16), the study faces specific challenges, one of which derives from the NA at incorporating the views of the social actors. The pressure, the nature and the timing of work at football clubs would not allow most of the managers, sponsors, coaches, players and other sports administrators to grant *one-to-one* interview which led to the use of semi-structured questionnaire/mini-interview incorporating supposed interview questions. Many of these social actors including media practitioners were not available for personal interview and where responses were given to the questionnaire, it could not be ascertained whether such responses were given directly by the target actors. More importantly, clubs

or management exposure to risks and how risks are managed by respective clubs were not considered in this study in order not to jeopardize the homogeneity assumption of DEA methodology. This study recommends that future studies should carry out more triangulation of stakeholders through social actors' participation for better performance and efficiency evaluation in line with phenomenological perspective. Also, more research should be carried out on how the social efficiency of football clubs could be measured not only for ranking purpose but for more CSR involvements. The study also recommends that focus on the actual relationship between stakeholders and club management foster greater and more specific contextualization of stakeholders' importance be paramount to future studies giving cognizance to risk exposures and risk management.

The classification of football incomes under different categories or heading and the adoption of different accounting policies in reporting depreciation poses significant challenges in arriving at bases for comparison among football clubs. It is recommended that future studies should be mindful of the chosen research variables and ensure uniformity among decision units for better comparison of performance analysis. Furthermore, data relating to some variables, particularly those of economic and social origin, were not available because those clubs did not file their annual financial statements with the companies' house and data about clubs' involvement in CSR were not common, thus, were not included in the respective analysis. Future studies should consider CSR information about the clubs to provide a fuller picture of their social performance and efficiencies to guarantee sustainability. Thus, expanding inputs and outputs to include social variables besides the financial and sportive approach is crucial in future research relating to football performance and efficiency evaluation.

Though the primary objective of this study is to investigate how clubs are being evaluated for ranking on EPL, factors affecting sports performances of football clubs and what could be done to improve the present performance and efficiency of EPL clubs with the applications of DEA and NA, the function of DEA is to identify efficient club(s), benchmarking performance and inefficient slacks in term of the inputs and clubs' ranking on national league. While some previous studies employed DEA to measure team sports' performance and efficiency (Espitia-Escuer and Garcia-Celbrian, 2010; Soleimani-Damaneh, Hamidi and Sajadi, 2011; Kern, Schwarzmann and Wiedenegger, 2012; Mavi

et al., 2012; Zhao, 2013; Kulikova and Goshunova, 2014; Carmichael, Thomas and Rossi, 2014; Arabzad, Ghorbani and Shirouyehzad, 2014 and Zambom-Ferraresi et al., 2015), the inputs and outputs for measuring the performance were narrowly defined in term of sportive and financial objectives. DEA can set the benchmark for football clubs based on their inputs and outputs to include social objective, as well as transform performance measures into managerial information. Accordingly, the synergy of NA and DEA can translate the appropriate performance indices into managerial implications. Therefore, more theories are needed to explore how CSR measures compare with sportive measures toward value creation.

The social objective of a sports team (football) is increasingly gaining recognition due to growing body of literature developed in this area. In England, football contributes to the output and employment both at national and regional level. Professional Football League expenditure could be linked to the development of National Income Accounting (NIA), this framework indicates how sport related expenditure flow as income to other sectors in the economy, thereby generate value-added and add to the Gross National Income (GNI). Direct consequences of sports team operations and spending by the fans have a multiplier effect on both national and regional economy. Hence, it is recommended that future studies might use Social Accounting Metrics (SAM) and input-output model to focus on football production process that captures sectoral interdependencies existing in the economy between sports-related activities and the society at large.

Bakre and Lauwo, (2016) describe the accounting concept of fair value as a rational and unbiased estimate of evaluation, which reflects and reinforces a *faithful representation of reality* and enhances efficiency in the global economy through better diffusion of real-time information on real asset and liability valuations. Future studies could apply this concept to enhance the qualities of DEA variables when measuring the performance and efficiency of entities such as football clubs, thereby establishing reasonable grounds for comparison and ensuring objective performance ranking based on rational and unbiased accounting estimation.

8.8 Conclusion

Football management at club level in England has changed remarkably in the last few decades. Unquestionably, major football clubs are now complex businesses, intrinsically concerned with financial matters. Television, particularly satellite television has been a major contributory factor in the new business era of football in terms of much-improved deals and radical alterations to the distribution of media income among clubs. The increasing business orientation of clubs is also evident in other areas like players' status; where alterations to the transfer system have given players greater freedom of movement and contractual bargaining power. However, football clubs remain unusual businesses, judged by what happens on the field as well as its increasing approach to the conventional measure of business performance. Sports performance is an important concept and every athlete's success could be judged in sport through their victories or medals as indicators of the level of their sports performance.

Similarly, football clubs often improve their resources to achieve better results. Performance is better understood and measured when managers identified their resources, their processes or their outcomes to ensure their successes relative to the resource used. Nevertheless, the performance indicators of sports organisations, such as football clubs are usually difficult to identify, measure and manage due to their non-profit and multi-objectives characteristics. For decades, the non-profit nature of these organisations allowed sports managers to avoid focusing on organisational performance (Winand et al., 2010). However, within football context, new pressures have emerged from multi-objective and multi-stakeholders' stand; including local communities which have required these sports organisations to become more performance oriented in building their capacity to manage their organisational performance relative to their resource efficiency. Sports reports; such as the EPL ranking and European Champions League ranking, Football financial reports; like Premier League Prize Money Payments and Football Money League (Deloitte and Touche, 2017) and Social reports; such as Corporate Social Responsibility in Football Business (Briebarth and Harris, 2008), including reports from other International Sport Organizations (ISO), such as the International Tennis Federation, the International Volleyball Federation and the International Olympic Committee have all highlighted the necessity to develop key competencies in managing performance.

The new culture of business orientation and professionalism in the modern-day football efficiency and performance management can be explained by the social, economic and sports stakes which surround the objectives of a football club. The competition they face in society to obtain fans loyalty, all of which require football management to be more accountable and effective. Football is indeed the most popular sport in the world. Recently, football clubs have grown to become large commercial companies with revenues of hundreds of millions of Pounds (Deloitte and Touche, 2016). Like Gerrard, (2010), Zambom-Farraresi et al., (2015) and Zambom-Farraresi et al., (2017), the current study measures efficiency and performance of football clubs in EPL across 12 seasons between 2005 and 2016. The study distinguished itself in its methodology which combined DEA with NA as triangulation to the DEA results via the views of the social actors, hence, its extensive use of stakeholders' theory. This choice can be explained by the fact that football clubs draw maximum stakeholders' attention including media and football fans. EPL clubs grew the sector into an industry with huge revenues running into billions of Pounds. Therefore, it is important to understand how efficiently these clubs use their (3M's) Man, Money and Material resources to achieve sportive, financial and social goals.

Extant literature identified two main approaches to study the efficiency of professional football clubs as financial efficiency measurement and sports efficiency measurement (Kulikova and Goshunova, 2014). This study added social efficiency measurement through clubs' involvements in CSR as a measure of social acceptability of clubs within the local community, thereby accounted for the clubs' fanbase and the rate at which fans were attracted to the clubs' games which this study identified as the main output of football production process and the final product consumed by football customers/fans.

Unlike most previous studies, the changes in efficiency within the period researched were measured to identify club(s) that are consistently efficient between 2005 and 2016 on EPL. Thereby named Aston Villa football club as the most efficient and most consistent football club to have played in the EPL within the period investigated. Aston Villa FC remains efficient in every season investigated. The differences between its GD and TGD stood at zero as measured by DEA window analysis. This showed that Aston Villa FC was relatively stabled in its efficiency scores compared to other football clubs in the dataset during the periods of this research. Aston Villa is, therefore, tagged as a super-efficient

club. Surprisingly, Aston Villa FC was relegated in 2016 even though it was adjudged efficient by DEA result same year, this further confirmed that EPL currently assesses and ranks football clubs purely on the field or sports performance not minding financial and social performances. This study examined the strength of the relationship between the efficiency scores and the research variables. The purpose was to find out which variables best influence the efficiency results. Strong positive correlation means that such a variable is essential for a football club aiming to be efficient. To assess the relationship between efficiency scores and the research variables, Spearman's rank correlation coefficient between efficiency scores and the research variables was calculated with the tools embedded in DEA solver 4.2.0 software which led to the drop of the Number of Employee in the definitive model as it not only negatively correlated but also had the tendencies of overestimating efficiency scores. The highest positive correlation between efficiency scores and the variables were recorded in wages and salaries, therefore, confirming the importance of human factor and the industry to be labour intensive.

This study refutes the submissions of Pyatunin et al., (2016) which submitted that wealthy or big clubs are more efficient than the poor clubs since they have access to most of the tournaments and diverse source of revenues. Big and rich clubs have many sources of income and their financial capabilities gave them an edge at acquiring better resources, but these do not always make them efficient especially when actual outcomes fell short of expectations as evidenced in this study. However, this study did confirm the findings of Keller, (2008); Haas, (2003a and b); Jardin, (2009); Barros and Leach, (2006b); Wyszynski, (2016); Zambom-Farraresi et al., (2015) and Zambom-Farraresi et al., (2017) that efficiency is not an absolute privilege of the national league champions or big and financially strong clubs as there seems to be enough space for improvements. Similarly, it signifies that being wealthy or financially secure would not guarantee sportive success except matched with relevant managerial and coaching skills, knowledge and experience (Kulikova and Goshunova, 2013). Although sportive success is often costly, requiring huge investment and ongoing expenses, it always resulted in financial upliftment or reward (Carlsson-Wall, Kraus and Messner, 2016).

The state of arts in football requires the implementation of these triptych objectives: Financial success, Sporting success and Social success as holistic performance evaluation

of football teams considering the interests of all different stakeholders (Chelmis et al., 2017). Supporting this view, naturalistic approach through social actors submitted that the current EPL evaluation/ranking methods need improvements. This view was also expressed by Lasek, Szlavik and Bhulai, (2013) when they concluded that football ranking does not use information on past results efficiently and opined that another ranking system or improving the current one might be required. In likewise manner, participants or social actors suggest cost element be incorporated in the current evaluation process. Therefore, they proposed league point per cost as a better measure for clubs' ranking.

Analyzing how the social value of football clubs might impact on the stakeholders' assessments of performance and efficiency of such clubs, a few stakeholders relate clubs' performance to the level of clubs' involvement in corporate social responsibility. The socio-cultural role of football clubs is undisputed and is equally indisputably changing (Thrassou et al., 2012). Clubs that are socially dynamic attract more sponsors to advocate corporate social responsibility (Miragaia et al., 2015; Misener and Doherty, 2014). However, sporting success lead directly and positively to financial success which later dictates the extent of club's involvements in CSR to produce social benefits to the local community. Thereby increases community loyalty and patronage of the club; increases fans support and size and positively relate to better sporting performance. However, Plumley, Wilson and Ramchandani, (2014) are sceptical of these possibilities, that higher profits might automatically trigger better team performance and vice-versa without any conflict between the desire to satisfy fans' success and that of profit by shareholders. That the pursuit of profit would not interfere with sporting success or vice-versa indicate that the multifaceted objectives might be unrelated and that sporting success might be achieved alongside with lower profits which automatically triggers shareholders' preferences for the appropriate trade-off between financial and non-financial performance. Thus, the more profitable and financially secure a club is, the more it gets involved in corporate social responsibilities to improve the chances of being rated high by the society in terms of social performance.

Analysing factors responsible for better sporting outcomes, this study submitted that managerial skills; experience; information about players' status; tactics; team cohesiveness and selection; including stakeholders' participation will be required to

transform financial and other sports resource into sporting success. Conclusively, this study revealed that many English football clubs achieved pure technical efficiency during the period researched, displaying similar managerial skills. Meanwhile, scale effects differentiate the football clubs, some clubs displayed scale efficiencies and others could not. Hence, the scale is the main issue in football management. Thus, it could be concluded that the competitive imbalance among EPL clubs is a result of different scales of operation.

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APPENDICES

Appendix I Research Population/Window Sample

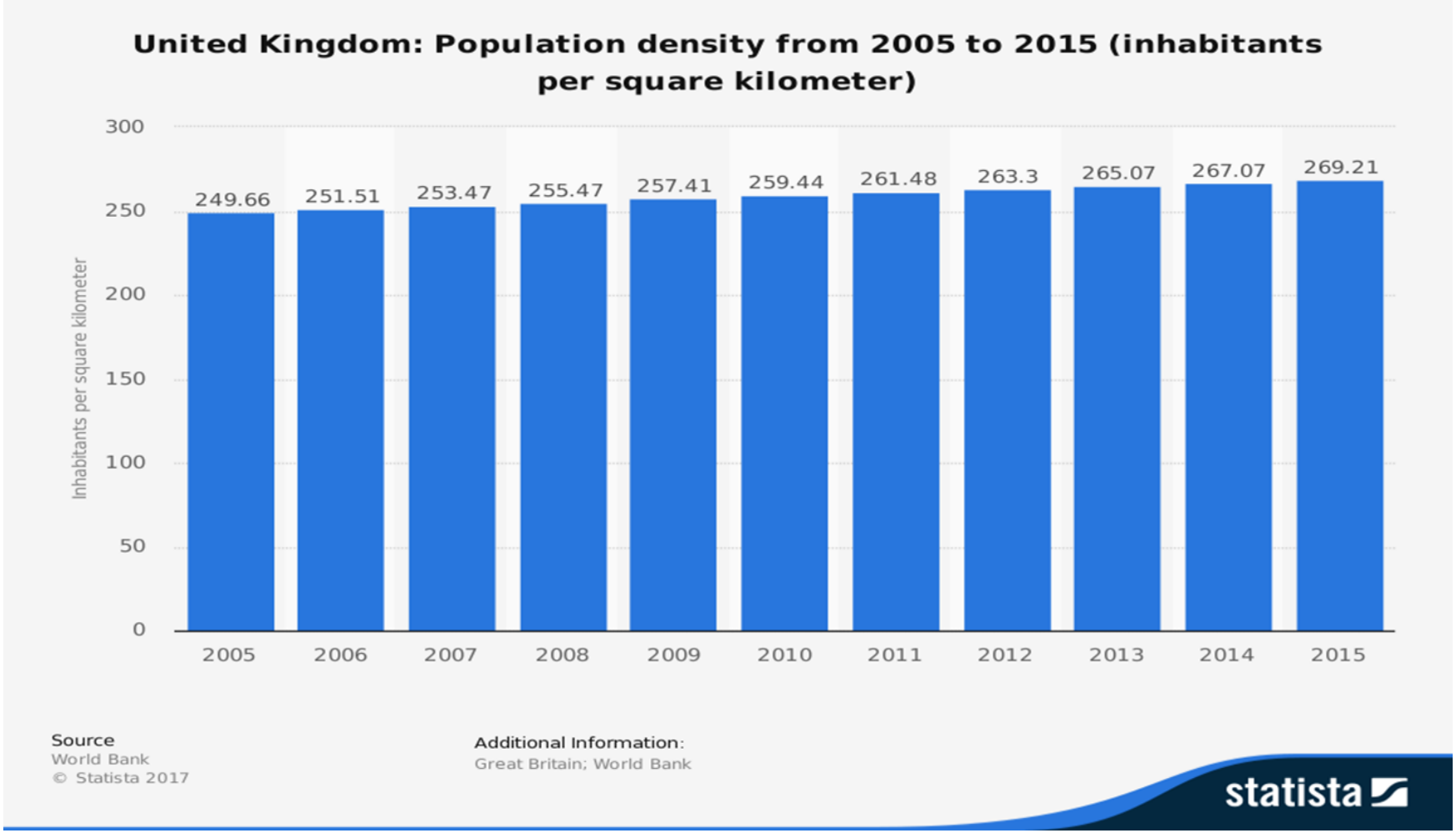
CLUB	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	REMARK	Participation %
Chelsea fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Arsenal fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Man. united fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Everton fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Liverpool fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Bolton wan. fc	*	*	*	*	*	*	*	*	n/a	n/a	n/a	n/a	NI	67.7
Middleborough fc	*	*	*	*	*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	NI	41.7
Man. city fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Totten ham fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Aston Villa fc	*	*	*	*	*	*	*	*	*	*	*	*	WU	100
Charlton at. fc	*	*	*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	NI	25
Birmingham city fc	*	*	n/a	*	n/a	*	*	n/a	n/a	n/a	n/a	n/a	NI	41.7
Fulham fc	*	*	*	*	*	*	*	*	*	*	n/a	n/a	NI	83.3
Newcastle fc	*	*	*	*	*	n/a	*	*	*	*	*	*	NI	91.7

Blackburn r. fc	*	*	*	*	*	*	*	*	n/a	n/a	n/a	n/a	NI	67.7
Portsmouth fc	*	*	*	*	*	*	n/a	n/a	n/a	n/a	n/a	n/a	NI	50
West Bromwich fc	*	*	n/a	n/a	*	n/a	*	*	*	*	*	*	NI	75
Crystal palace fc	*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	*	*	NI	33.3
Norwich city fc	*	n/a	n/a	n/a	n/a	n/a	n/a	*	*	*	n/a	*	NI	41.7
Southampton fc	*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	*	*	*	NI	41.7
Wigan at. fc	n/a	*	*	*	*	*	*	*	*	n/a	n/a	n/a	NI	67.7
west ham united fc	n/a	*	*	*	*	*	*	n/a	*	*	*	*	NI	83.3
Sunderland fc	n/a	*	n/a	*	*	*	*	*	*	*	*	*	NI	83.3
Reading fc	n/a	n/a	*	*	n/a	n/a	n/a	n/a	*	n/a	n/a	n/a	NI	25
Sheffield fc	n/a	n/a	*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	NI	8.3
Watford fc	n/a	n/a	*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	NI	16.7
Derby county fc	n/a	n/a	n/a	*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	NI	8.3
Stoke city fc	n/a	n/a	n/a	n/a	*	*	*	*	*	*	*	*	NI	67.7
Hull city fc	n/a	n/a	n/a	n/a	*	*	n/a	n/a	n/a	*	*	n/a	NI	33.3
Wolver Hampton fc	n/a	n/a	n/a	n/a	n/a	*	*	*	n/a	n/a	n/a	n/a	NI	25
Burnley fc	n/a	n/a	n/a	n/a	n/a	*	n/a	n/a	n/a	n/a	*	n/a	NI	16.7
Black pool fc	n/a	n/a	n/a	n/a	n/a	n/a	*	n/a	n/a	n/a	n/a	n/a	NI	8.3

Swansea city fc	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	*	*	*	*	NI	41.7
Queens p. rangers	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	*	n/a	*	n/a	NI	25
Cardiff city fc	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	n/a	n/a	NI	8.3
Leicester city fc	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	*	NI	16.7
AFC Bournemouth	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	*	NI	8.3
TOTAL	20	20	20	20	20	20	20	20	20	20	20	**20**	**240**	

Note: 'n/a' indicates Not Available, * Represents participating club; NI indicates Not Included in window analysis, while WU represents window units. Therefore, only 8 clubs were included in 'window' analyses.

Appendix II


United Kingdom: Population density from 2005 to 2015 (inhabitants per square kilometer)
Inhabitants per square kilometer
300
250
200
150
100
50
0
249.66
251.51
253.47
255.47
257.41
259.44
261.48
263.3
265.07
267.07
269.21
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Source
World Bank
© Statista 2017
Additional Information:
Great Britain; World Bank
statista

Appendix III

English Premier League Stats: Team Attendance - 2013-14 as @ JANUARY 20, 2014

	Team	Total	Average
1	**Manchester united**	826,969	75,179
2	**Arsenal**	660,195	60,017
3	**Newcastle united**	553,963	50,360
4	**Manchester city**	517,921	47,083
5	**Liverpool**	491,531	44,684
6	**Chelsea**	456,618	41,510
7	**Sunderland**	450,516	40,956
8	**Everton**	407,142	37,012
9	**Aston villa**	406,664	36,969
10	**Totten ham hotspur**	395,585	35,962
11	**West ham united**	379,391	34,490
12	**Southampton**	328,691	29,881
13	**Cardiff city**	302,750	27,522
14	**Norwich city**	295,010	26,819
15	**Stoke city**	283,633	25,784
16	**Fulham**	272,618	24,783
17	**West Bromwich Albion**	272,040	24,730
18	**Hull city**	263,977	23,997
19	**Crystal palace**	260,745	23,704
20	**Swansea city**	223,861	20,351

English Premier League - Unofficial Average Attendance: 36,590

Source: Official English Premier League website

Appendix IV **INTERVIEW SCHEDULE**

Confidentiality: Dear Dr/Prof, I thank you for the opportunity to invest your precious time in completing this questionnaire/mini-interview questions. It is very much appreciated. The questionnaire will take about 20 minutes to complete.

The purpose of this questionnaire/mini-interview is to assess whether significant variability exists in the nature of support clubs received within the English Premiership League. More importantly, how clubs should be ranked and selected for European competitions to ensure they do well in such competitions.

I would like to confirm that the information you will be providing me will be handled in strictest confidence and only for the purposes of my research.

I shall not refer to any individual by name and any quotations included in my thesis will be pseudonyms.

A) Personal Questions

1) What is your favourite Football Club? ☐

2) Which of the followings best described you?

   Supporter ☐

   Manager ☐

   Player ☐

   Sponsor ☐

   Other ☐

   Please specify ☐

3) How long have you been following football?

   Less than 10 years ☐

   10 – 20 years ☐

   Over 20 years ☐

4) What has kept you involved over the years?

   ☐

How best would you assess the performance of your chosen club?

Sporting success ☐

Financial success ☐

Social success (Societal value of the club) ☐

Other ☐ Please specify ☐

5) Why do you watch football games?

To watch the star players performing ☐

For entertainment purpose ☐

To socialise with other people ☐

Other ☐

Please specify ☐

B) Evaluation Questions

6) What do you understand by the term successful performance?

☐

7) How would you measure the successful performance of a football team?

Games Won ☐

Being the league Champion ☐

Turnover/profit level ☐

Remain on premiership ☐

Involvement in community programs ☐

Qualify for international competition ☐

Other ☐

Please specify ☐

8) Comparing the actual performance of your chosen club at the end of the season with your expectations at the start of the season, would you say the club is successful?

Yes ☐ No ☐

9) If your answer above is No, in your opinion, what could have accounted for the differences in your expectations and the actual achievement of your chosen football club?

10) Looking at how clubs use their available resources (Input use; such as staff, Money, and Material) to produce success, would you say teams at the upper league level are more successful than those at the league bottom?

Yes ☐ No ☐

11) How would you evaluate teams' overall achievement in terms of inputs used?

12) Which English Premier League (EPL) team/club would you regard as the most efficient? And why?

13) To what extent does EPL evaluate teams' success?

Sports performance only ☐

Both sports and financial performances ☐

Sports, Financial, and Social performances ☐

14) How would you respond to the assertion that participating in other European competitions like (UEFA, Europa, etc.) affect the performance of English clubs in the national league?

15) How, in your opinion, can the Football Association improve selection process to encourage clubs (representing England) improve their performance at Champion League or Europa competitions?

16) What factors drive efficiency among English football teams? (Tick as applicable)

- Clubs' objectives ☐
- Ownership structure ☐
- Clubs' financial strength ☐
- The inclusion of star talents ☐
- The degree of cohesiveness among team ☐
- Managerial skills ☐
- Governance system ☐
- Others ☐

Please specify

17) Who should be blamed for the club's poor performance?

- Players ☐
- Managers ☐
- Owners ☐
- Other ☐ ,Please specify

18) Looking at the recent shift in football managerial focus (business orientation and commercialisation), would EPL ranking adequately measure clubs' overall success?

Yes ☐ No ☐

19) To accumulate points for ranking clubs, is it appropriate to award 3 points for winning matches or what alternative will you suggest?

20) Would you suggest any of the following performance measures as an alternative?

Goal difference ☐

Cost per league point ☐

Cost per goal scored ☐

Others ☐

Please specify

21) Who are football stakeholders and what is their interest?

22) Others have opined that views of different stakeholders (Fans, sponsors, local community, etc.) have not been heard when making decisions concerning players, managers, or community development by clubs' management; how would you respond to this?

23) How does the performance of football club affect the society?

24) How does the head coach skills affect clubs' performance?

25) How does the community interventions in football clubs' community schemes affect the societal assessment of clubs' performance?

26) What improvement would you like to see in the current football performance measurement system (PMS)?

27) What in your opinion are the causes of failure in your club?

Please tick as appropriate in each of the situation below

28) The involvement of stakeholders is paramount to clubs' performance improvement.

Strongly agree	
Agree	
Indifference	
Disagree	
Strongly disagree	

29) EPL ranking is the current club performance measurement system in England.

Strongly agree	
Agree	
Indifference	
Disagree	
Strongly disagree	

30) In order to assess clubs', aggregate performance, the current measurement needs improvement or modification.

Strongly agree	
Agree	
Indifference	
Disagree	
Strongly disagree	

31) Sporting success is usually transformed into financial success.

Strongly agree	
Agree	
Indifference	
Disagree	
Strongly disagree	

32) Financially successful clubs always take leading positions in football leagues.

Strongly agree	
Agree	
Indifference	
Disagree	
Strongly disagree	

33) Teams that spend more money perform better than those that spend less.

Strongly agree	
Agree	
Indifference	
Disagree	
Strongly disagree	

Could you rate the following (1 - 5) as it influences performance and efficiency of football clubs with 5 being the highest score.

34) How would you rate the performance of your club?

5	
4	
3	
2	
1	

35) How would you rate the following as impacted by clubs' effective performance?

i) Location

5	
4	
3	
2	
1	

ii) Financial status

5	
4	
3	
2	
1	

iii) Objective pursuit

5	
4	
3	
2	
1	

iv) Skills and experiences

5	
4	
3	
2	
1	

v) Star Talents

5	
4	
3	
2	
1	

vi) Stakeholders' involvement

5	
4	
3	
2	
1	

36) Talking about social value, to what extent has it impacted on your assessments of clubs' performance and efficiency?

5	
4	
3	
2	
1	

37) What do you think could motivate fans, supporters, sponsors, and the local community to fully participate and engage in football performance improvement activities?

38) What evidence is there to suggest that managerial policies might have an effect on clubs' performances?

39) Is there any issue yet uncovered that you think might make important contributions to the findings of this study?

Yes ☐ No ☐

If yes, please specify

Thank you for your assistance and contributions towards important issues of my investigation.

S. O. Badmus
Research Student
Student ID No: 08023277
E-mail: olb0204@my.londonmet.ac.uk

Appendix V LIST OF INTERVIEWEE AND INSTITUTIONS

A)	Football Supporters/Fans/Sponsors	13
B)	Spots Management Tutors	6
C)	Football Administrators	3
D)	Football Managers	2
E)	Football Players	3
	Total	27

A)

Football Fans/Supporters	Arsenal Supporters' club	3
Football Fans	Manchester United FC	4
Supporters	Chelsea FC	2
Supporters	Leicester City FC	2
Sponsor	American International Group (AIG)	1
Sponsor	General Motors (CHEVROLET)	1

B)

Academic Staff (Doctors and above)	Sports and Health Management, Queen Mary University, London	3
Academic Staff (Doctors and above)	Sports Management, London Metropolitan University, London	3

C)

Football Administrators	The English Football Association (The FA)	3

D)

Football Managers	The English Premier League	2
Football Manager	English League I	1

E)

Football Player	Tottenham FC	1
Former Football Player	Chelsea FC	1
Former Football Player	Arsenal FC	1

Appendix VI ETHICAL APPROVAL LETTERS

LONDON METROPOLITAN UNIVERSITY
GUILDHALL BUSINESS & LAW

1st June 2016 2016

Letter of Access from PhD Supervisor

Mr/Mrs/Dr/Prof

I am writing to ask you if you would be kind enough to give a research student Mr. Sean Badmus (London Metropolitan University), the opportunity to contact you in connection with his PhD research project.

Sean has spent a considerable amount of time studying, **'An assessment of Performance and Efficiency among team based organizations: Empirical evidence of English Premier League (2005 to 2015)'**

The information that he will be collecting will provide the main source of empirical data, the analysis of which will be an essential part of his research project.

You can be sure that the information collected will be handed in strict confidence and use purely for research purposes. Furthermore, only aggregated results and some anonymous quotations will appear in his project.

Sean's letter is attached for clarification.

If you require any further information please do not hesitate to contact me.

Yours sincerely,

Dr Bode Akinwande
Senior Lecturer in Accounting and Finance,
Guildhall Faculty of Business and Law
London Metropolitan University
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London EC2M 6SQ

E-mail: b.akinwande@londonmet.ac.uk

LONDON METROPOLITAN UNIVERSITY
GUILDHALL BUSINESS & LAW

Letter of Access from Student

Dear Mr/Mrs/Ms/Dr/Professor

I am writing to request your assistance in my project as partial fulfillment of the award of research degree at Metropolitan University, London, UK.

The study assesses the Performance and Efficiency among team based organizations: Empirical evidence of EPL (2005 to 2015)'

I would very much appreciate if you could give me the opportunity to interview you within few minutes duration. Alternatively, I have attached the question schedule, which could be completed at your own convenience.

You can be sure that the information collected will be handled in strict confidence and use purely for research purposes. Furthermore, only aggregated results and some anonymous quotations will appear in the final project.

I can be reached via my email address: E-mail: olb0204@my.londonmet.ac.uk

Your co-operation is sincerely appreciated.

Yours sincerely,

Sean Badmus
Research Student (London Metropolitan University)
Student ID No: 08023277
Contact Phone: +447771652879

E-mail: olb0204@my.londonmet.ac.uk

Appendix VII CSR Programs Implemented in 2010/2011

FOOTBALL CLUB	CSR PROGRAM	No. of programs
ARSENAL	Three National Kickz Awards 2010 (SP); the Elthorne Park Cruyff Court winning the Mayor of London's Safer Parks Gold Award (SIP); and the Double Club education scheme acknowledged for "Outstanding Commitment as Business Language Champions" (EP).	34
ASTON VILLA	Acorns (care for life-limited children, HP); Vila Vitality (children learn about healthy nutrition, EP); KICKZ (reduce anti-social behaviour among 13 - 18-year olds in surrounding hoods, SIP); Armed Forces ("Tickets for Troops" initiative offers discounted price tickets for army troops. Also, The Army, The Royal Navy and The Royal Air Force are financially helped by Villa, FC); Villa in Harmony (encourages race equality and diversity in the community, CIP)	13
BIRMINGHAM CITY	Smoke-free United (a virtual club for smoking quitters, HP), Summer Football Camps (football training units offered during the summer in partnership with local schools, S)	4
BLACKBURN ROVERS	Part of the Crowd (support for disabled fans, SIP); Not Under Our Roof (Combat racial behaviour, CIP); Religious Education Day (one-day visit to a local place of worship so that the children learn the respective religious belief and practices, EP)	20
BLACKPOOL	Soccer Skills Clinics (units aimed at developing the football skills of the children, SP); Soccer Schools (football training sessions, SP)	9
BOLTON WANDERERS	Unity in Diversity (CIP); Student Information (the club offers free information to students who work on research projects, EP); School of Football (local partnerships in the borough of Bolton to help improve grassroots football, SP)	11
CHELSEA	Across all sections: EP: Educational Programs; SP: Sports Programs; SIP: Social Inclusion Programs; CIP: Cultural Integration Programs; HP: Health Programs; CP: Charity Programs.	44
EVERTON	Everton Disability Program (one of the world's largest disability football programs, with more than 10,000 football opportunities for disabled persons yearly. Includes four schemes, SIP); Godson Experience (one-day soccer school at Godson Park – Everton's Stadium – for children aged 5-14, for 50 pounds per session, SP)	16
FULHAM	Aspired2Move (project aimed at socially engaging girls between 14 and 25 years old, SI); Different Cultures - Same Game (anti-racist program, CIP); Active Autism (Program runs each Saturday morning in order to improve the health, concentration, and self-esteem of autism children, HP); Fulham Deaf FC (largest deaf football club in England, SIP)	24
LIVERPOOL	The five areas which are the focus of the Liverpool FC's activities are: education, health, social inclusion, physical activity and charity support	9

WEST HAM UNITED	Asians in Football (a project aiming to integrate Asian people into the British society better, CIP)	7*
WIGAN	Football Sessions (grassroots football sessions for children in Wigan and the surrounding areas, SP); Never Watch Alone Initiative (the initiative enables supporters with disabilities to attend matches next to another fan of Wigan, SIP); Lactic Literacy (program targeting to improve children's interest in reading by using football as a driver, EP)	5
WOLVERHAMPTON WANDERERS	Summer Soccer Schools (grassroots football sessions for children, SP); Tackle Diabetes (£500,000 program for people with diabetes living in Wolverhampton, HP); "Dusk/Twilight/Midnight League" (social inclusion scheme that tackles the problems of crime and social exclusion in and around Wolverhampton through football related activities, SIP); Players Go Back To School (foreign footballers of Wolverhampton join foreign pupils at the Woden Primary School and learn English alongside them, EP); Wolves Aid (charity for persons and organizations in Wolverhampton, C)	18
MANCHESTER CITY	Enterprise City (Manchester City gives young people an insight into how a professional football club is run, helping them better understand the business of football, EP); Getting Manchester Moving (Program aiming at making physical movement an everyday activity for the people in Manchester, HP)	18
NEWCASTLE UNITED	Goalkeeping Centre (goalkeeping coaching centre for children aged 7 to 14 years, SP); Match Fit (project promoting healthy eating among children, HP); Enterprise Academy (program giving children the possibility to improve their business skills while mixing their love for football, EP)	15
STOKE CITY	Stoke City has a general community program that offers grassroots sports coaching sessions, including football, rugby, cricket or athletics and educational programs in 350 schools in the surrounding boroughs.	3
SUNDERLAND	Learning Through Football (scholars visit the Stadium of Light with their teachers and undertake practical learning, EP); Total Football (teaches course participants the morals, ethics and values of football, improving their understanding of the game, EP)	21

Abbreviations: EP: Educational Programs; SP: Sports Programs; SIP: Social Inclusion Programs; CIP: Cultural Integration Programs; HP: Health Programs; CP: Charity Programs. **Legend**: * Clubs which do not present all the sub-programs.

Source: ROSCA, V. (2011) corporate social responsibility in English football: history and present.