THE CORRELATION BETWEEN PLAYER VALUATION AND THE BARGAINING POSITION OF CLUBS IN THE ENGLISH PREMIER LEAGUE (EPL)

M.J. Swanepoel
North-West University (Vaal Campus), South Africa
E-mail: 10544100@nwu.ac.za

J. Swanepoel
E-mail: juanjack10@gmail.com

─Abstract ─

Soccer is perhaps the most loved game in the world, filled with passion both on and off the field. Literature suggests that the English Premier League (EPL) is one of the most sought after championship in soccer. The study investigates the relationship between player valuation and the bargaining positions of clubs in the English Premier League (EPL). A comprehensive literature analysis illustrates that the bargaining positions of clubs should consider factors such as previous seasons' financial performance, league performance, managerial change and prestige of playing. A quantitative research approach using causality was used to determine the influence of the bargaining position on players' valuation in the EPL. The sample of the study comprises EPL transferred players (n=409) during the period summer 2012 and winter 2015 transfer windows. In determining the results; correlation analysis and analysis of variance (ANOVA) were conducted on the data. The results of the correlation analysis indicate a strong association between the bargaining position of the buying and lower association between the bargaining positions of the selling club in the influence of player valuation. In the analysis of the results of the ANOVA the strength of a relationship had a variance span from non-existent, too weak, to very strong. The ultimate conclusion of this study based on the results is that valuation of EPL players are often influenced by the bargaining positions of buying clubs. The study contributes to the body of knowledge on valuation of EPL players proving that it is demand-driven, therefore the bargaining position of buying clubs is the determinant.

Keywords: *English Premier League, valuation, transfers windows, bargaining position*

JEL Clarification: Z23

1. INTRODUCTION

Soccer is perhaps the most loved game in the world with an estimated 2,08 billion supporters (Premier League, 2016). The English Premier League (EPL) is one of the most sought after championships in soccer, with an estimated inter-continental supporters base of 1,46bn (Premier League, 2016) representing 70% of the total global soccer supporters. Soccer contributes significantly to the global sports industry. Clark (2010) estimates an excess of £83,32bn annually. Professional soccer underpins the sport's economic footing, with the EPL being broadcast in 212 countries worldwide. Premier League (2016) estimates the EPL season will be viewed by 4,7bn viewers in 643 million homes resulting up to 185 000 television hours. These broadcasting hours lead the way to remunerate EPL clubs with combined revenues in the television rights for the next three seasons commencing from 2016–2017 season at an astounding £5,136bn (Premier League, 2016). The financial compensation for clubs staying in the EPL is therefore phenomenal considering the payment of these television rights. Deloitte (2016) concludes that 17 of the 30 Money League clubs are EPL clubs.

Since the EPL's formation in 1992 to replace the First Division (FD) of the English Football League (EFL) professional football players have financially benefitted by playing in the EPL. These financial benefits are mainly due to the introduction of the transfer window practice in 2002. BBC (2015) assesses that the gross transfer spending over a thirteen year period exceeds £7,30bn. Gerrard (2010) argues that a crucial resource of a professional sport team is the money available to spend on playing talent and in doing so it is expected that such teams dominate the leagues in which they compete. The money available to spend on playing talent by teams means the investment in players. Investing in players ultimately mean remunerating them for playing in the team, which will however depend on players' valuation.

Valuation depends on the potential future cash flow (Correia, Flynn, Uliana, & Wormald, 2015). The certainty of the potential future cash flow influences the return and risk of the asset and therefore its valuation. The value is equal to the present value of all the future cash flows discounted at an appropriate discount rate, which reflects the underlying risk of such an investment (Correia *et al*., 2015). If the cash flow is uncertain the value will be less than if the cash flow is certain. The future is uncertain which means that estimated cash flows will be subject to error. This uncertainty is highlighted in the valuation of professional soccer players. Evidence of published researched on factors contributing to player

valuation is discussed in the literature review. However, these models could not predict how Martial, a nineteen year old was signed for £9,5m and the midfielder, De Bruyne transferred for £55m during the 2015–2016 summer transfer window. The inability of the prior research to predict the value lead to the identification of a gap in the literature, namely what drives this valuation? The study aims to establish whether it is the supply (selling clubs) or the demand (buying clubs) that determine the values of EPL players during the transfer periods. The purpose of this study was to investigate the relationship between player valuation and the bargaining positions of clubs in the EPL.

1.1. Player valuation

The transfer system control players' intentions, actions and movement between clubs. It originated in 1885 when the Football Association (FA) introduced a regulation that required all players to be registered to protect smaller clubs by preventing players from club-hopping but it has since become a tradable commodity (Morrow, 2013). It is evident by following the popular press that English clubs are extremely active on the international player transfer market. This makes the two transfer windows namely; the summer transfer, the 12 weeks starting on the 1st of June to 31st of August, and the winter transfer period, the four weeks during January, intriguing weeks on the football calendar.

Greulich (2013) explains that during the transfer windows, teams are allowed to buy and sell players' rights to improve the team. A transfer, in professional soccer, occurs when a player under contract moves to a new team, specifically referring to the transfer of a player's registration to a new club. Players can only be transferred during 'windows'. Greulich (2013) as cited by Sloane (1969) reasons that there is always compensation for a transfer, whether it be monetary or involving another player. Player's valuation form an integrated part of this transfer process.

Valuations are, however, an extremely wide theme; a general understanding of the term is seen as an assessment of the estimate worth of something. Valuations according to Oxford (2006) are an expression of an opinion based on an analysis and evaluation of an assets and its ability to generate income. Correia *et al*. (2015) describe valuation as being qualitative, bias, an estimate, only valid until new information become available and dependent on key variables. Valuation models are a function of the relationship between key variables on the return and risk of any assets (Correia *et al*., 2015), tangible and intangible, and its ability to generate potential future cash flow. The value is equal to the present value of all the future

cash flows discounted at an appropriate discount rate, which reflect the underlying risk of such an investment.

Seminal research by Drucker (1954) suggests that it is almost impossible to predict the future, comparing it to driving a motor vehicle at night on a dirt road without lights and looking out the back window. Acceptable techniques should be used, but to a large extent, valuations are about judgement. The choice of a valuation method depends mainly on the extent of control by stakeholders, as well as the constancy thereof. The study of financial management tries to minimise error (Fouche & Barnard, 2013) by using the appropriated methodology in the calculation of values. The estimated value necessitates the use of various assumptions and a correlation between the discounted future cash flows and market prices.

The literature study identifies a number of variables that influence the estimated value of professional soccer players. Parker, Burns and Natarajan (2008); Oberstone (2009); Gerrard (2010); Tunaru and Viney (2010); Van den Berg (2011); Bryson, Flick, and Simmers (2013) all indicate the variables that may influence the estimated value of professional soccer players as; 1] future player performance, 2] player position and 3] bargaining positions of the buying and selling club. Future player performance depends on; goal-scoring statistics, goal rate, number of games played, player's injury tendency, age, international caps and player nationality. Carmichael *et al*. (2010) explain that player performances are measured by indicators of players' skills and abilities, relative to opponents, together with other characteristics, such as age and experience, and non-playing performance inputs have traditionally included aspects such as squad size and managerial skills, this was also demonstrated by Van den Berg (2011) and Elliott (2014). EPL clubs are only allowed to have 25 players, thus squad size is not a determinant factor (Van den Berg, 2011). Furthermore, Van den Berg (2011) includes three categories namely United Kingdom (UK)-players, non-European Union (EU) players and non-UK EU players. Players' characteristic includes the ability to add value to the club based on speciality performed and players' height and footing; right, left or both footed. From the Carmichael *et al*. (2010) study there seems to be a relationship between the match play performance and the player's characteristics.

Depken and Rajasekhur (2010) also regard player specialities such as playing position forward, defender or midfielder as an influence on the player's contribution to team success. Carmichael *et al*. (2010) proposed the physical

linkage relationships between measures of playing skills and performance and success on the field of play have modelled the contribution of different player skills and abilities by relating output to a range of different aspects of match play performance.

Gerrard (2001); Carmichael *et al*. (2010) and Van den Berg (2011) determined that the clubs bargaining position also influence player valuations. The bargaining positions of buying and selling clubs include stadium capacity, goal difference past season, league position past season, managerial change and relegation. The determination of worth is dependent on financial (performance) as well as non-financial (motive and sentiment) factors, where the latter is sometimes more difficult to quantify.

Van den Berg (2011:27) concludes that the market for football players are inherently irrational where "*value is what fools are willing to pay for it*", implying the existence of a winner's curse in the football transfer market. Soccer being the most loved game lure millions of passionate spectators, it seems that soccer clubs' ultimate goal in decision making is the win motive (non-financial) this is quite evident in the EPL. The aim of this study was to determine whether a relationship exists between player valuation and the bargaining positions of clubs in the EPL to determine whether it is demand (buying club) or supply (selling club) that influence players' value.

2. METHODOLOGY

An extensive literature review of the factors contributing to player valuation in the EPL was conducted. A quantitative research approach using causality was used to determine the influence that bargaining position would have on players' valuation in the EPL.

2.1. Instrument and procedures

Concluding on the findings of the literature review that revealed the phenomenon, the researchers used document analysis. Document analysis "*is the quantitative analysis of qualitative data"* (Welman, Kruger & Mitchell, 2005:221). Bowen (2009) argues that the purposes of using documents in the research process are to (1) gather the background information that enable the understanding of the issue under investigation, and (2) provide the information that help the researcher to generate the data for the research and confirm the findings from other sources. In analysing and interpreting data in order to understand the phenomenon as suggested by Corbin and Strauss (2008) and to systematically evaluate data

(Bowen, 2009). Bowen (2009) explains the choice of documents should contribute to the aim of the study and that the source of the documents influences the authenticity, credibility, accuracy, and representativeness of the study. Swart, Swanepoel and Surujlal (2014) successfully implemented document analysis in their study, using documents obtained from different government departments. The documents used in this study were obtained from Transfermarkt, Totalsportek, Statista and Mail & Guardian, data that were compiled by experts in the field. Creswell (2003) argues that the use of data compiled by experts contribute to the authenticity of the data.

The decision to use the Transfermarkt, Totalsportek, Statista and Mail & Guardian data was deemed most appropriate. The documents not only fulfilled the aforementioned criteria but also contained the EPL clubs' financial and non-financial information as well as EPL players' market value, transfer fee and performance data. Hence, the correlation between player valuation and the bargaining positions of clubs in the EPL could be determined. The information from the documents was identified, classified, measured and interpreted in the context of the study. The contents of the information were carefully analysed by a Management Accountant and a passionate EPL supporter. Players' valuations are dependent on market value, age, nationality, playing position and whether he is already part of an EPL club. The bargaining position of a club is dependent on financial ability, prestige, previous season's performance and managerial change.

The following descriptive statistics have been identified as possible variables in the determination of the relationship between players' valuation and clubs' bargaining positions. Table 1 provides a summary of the descriptive statistics and it also includes the minimum, maximum, mean and standard deviation values.

Table 1 Summary of descriptive statistics

	N	Minimum	Maximum	Mean	Std Dev.
Players					
Market Value – £m	409	0.000	37.500	5.662	6.233
Transfer Fee – £m	409	.118	56.250	7.167	8.005
Age	409	17	33	24	3
Buying Clubs					
Total Revenue – £m	364	15.000	433.000	152.764	101.773
Broadcast Revenue – £m	286	5.000	1111.000	82.181	68.730
Total Wages – £m	364	11.700	233.000	97.908	59.531
Wages/Revenue %	364	40%	163%	68%	18%
Stadium Capacity	409	18439	75653	36225	14374
Goals For	304	28	102	57	17

Goals Against	304	27	70	48	10
Goal difference past season	304	-34	65	9	25
League position past season	304	1	21	9	5
Selling Clubs					
Total Revenue – £m	106	19.600	433.000	153.025	103.903
Broadcast Revenue – £m	88	41.000	140.000	78.369	29.458
Total Wages – £m	106	16.000	215.000	93.275	54.976
Wages/Revenue %	106	40%	93%	65%	12%
Stadium Capacity	124	18439	75653	36700	14770
Goals For	106	28	102	54	16
Goals Against	106	27	82	51	12
Goal difference past season	106	-42	65	3	26
League position past season	106	1	20	10	6

Source: Mail & Guardian, Statista, Totalsportek, Transfermarkt

Table 1 divides the descriptive statistics into three categories; players, buying club and selling club data. It should be noted that the number of observations (n) for buying and selling clubs are ($n < 409$) because some of these clubs were not part of the EPL in the current or previous season. This data were used in order to determine the non-parametric correlations. The results are discussed in the results section.

2.2. Data analysis

Data were captured on an Excel spread sheet and analysed using the Statistical Package for the Social Sciences (SPSS – version 23). Descriptive analysis was used to describe the sample compilation. Spearman's rank correlation was used to find a measure of association between variables that is ordinal scaled or continuous. The strength of the relationship is determined within a range of -1 to +1. A correlation coefficient (r), $r = 0$ indicates that there is no relationship. Vik (2014) assesses a positive correlation ($r > 0$) while $r < 0$ indicates a negative correlation. The relationship between dependent variables (DV) and independent categorical variables (IV) was done using an ANOVA.

3. RESULTS

3.1. Sample composition

The sample of the study encompasses EPL transferred players during the period ranging from 2012 summer to 2015 winter transfer window, seven transfer windows. The transfer periods were chosen as currently 17 of the top 30 Money

League clubs are EPL clubs, Deloitte Sports Business Group (2015) argues the main reason is due to the rise of broadcasting revenue. The broadcasting revenue of EPL clubs increase by 70% that represent the material increase over prior years of only 27% (BBC Sport, 2015), Nesje and Ufs (2015) used three seasons in their attempt to study the determinates behind transfer fees. A total of 409 (n=409) transferred players between the summer 2012 and winter 2015 transfer windows where included in the study. The transferred players exclude free transfers; inter club loans and goal keepers. Table 2 summarises the results of the mean and standard deviation of the Transfer Fee/£m for the transfer widows starting summer 2012 ending summer 2015.

Table 2: Transfer Fee - £m for the transfer widows summer 2012 to summer 2015

Transfer Window	Transfer Fee/£m		
	Means	N	Std Dev.
Summer 2012	5.504	81	5.29
Winter 2013	4.143	26	3.391
Summer 2013	6.991	76	7.439
Winter 2014	7.291	16	8.731
Summer 2014	8.808	85	9.317
Winter 2015	6.133	21	6.393
Summer 2015	8.193	104	9.547

Source: Transfermarkt

3.2. Correlations among variables in the study

In examining the relationship among the constructs (transfer fee, total revenue, broadcast revenue, total wages, wages/revenue % stadium capacity, goals for, goals against, goal difference past season and league position past season), non-parametric correlations using Spearman's correlation coefficients to establish the strength of the relationships among the constructs. Scores for the variables included in the ten scales for the buying club are reported in Table 3.

Table 3: Descriptive and correlation analysis of constructs of the buying clubs

Correlations												
Buying Club			Transfer Fee - £m	Total Revenue - £m	Broadcast Revenue - £m	Total Wages - £m	Wages / Revenue %	Stadium Capacity	Goals For	Goals Against	Goal difference past season	League position past season
Spearman's rho	Transfer Fee - £m	Correlation	1.000	.442**	.403**	.403**	-.188**	.255**	.349**	-.296**	.340**	-.344**
		Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	409	364	286	364	364	409	304	304	304	304
	Total Revenue - £m	Correlation	.442**	1.000	.910**	.908**	-.520**	.498**	.777**	-.656**	.758**	-.735**
		Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000
		N	364	364	286	364	364	364	304	304	304	304
	Broadcast Revenue - £m	Correlation	.403**	.910**	1.000	.779**	-.560**	.253**	.738**	-.597**	.722**	-.662**
		Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.000
		N	286	286	286	286	286	286	245	245	245	245
	Total Wages - £m	Correlation	.403**	.908**	.779**	1.000	-.189**	.548**	.715**	-.602**	.693**	-.684**
		Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000
		N	364	364	286	364	364	364	304	304	304	304
	Wages / Revenue %	Correlation	-.188**	-.520**	-.560**	-.189**	1.000	-.171**	-.330**	.189**	-.300**	.242**
		Sig. (2-tailed)	.000	.000	.000	.000		.001	.000	.001	.000	.000
		N	364	364	286	364	364	364	304	304	304	304
	Staduim capacity	Correlation	.255**	.498**	.253**	.548**	-.171**	1.000	.295**	-.212**	.280**	-.224**
		Sig. (2-tailed)	.000	.000	.000	.000	.001		.000	.000	.000	.000
		N	409	364	286	364	364	409	304	304	304	304
	Goals For	Correlation	.349**	.777**	.738**	.715**	-.330**	.295**	1.000	-.760**	.953**	-.865**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
		N	304	304	245	304	304	304	304	304	304	304
	Goals against	Correlation	-.296**	-.656**	-.597**	-.602**	.189**	-.212**	-.760**	1.000	-.897**	.857**
		Sig. (2-tailed)	.000	.000	.000	.000	.001	.000	.000		.000	.000
		N	304	304	245	304	304	304	304	304	304	304
	Goal difference past season	Correlation	.340**	.758**	.722**	.693**	-.300**	.280**	.953**	-.897**	1.000	-.905**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000
		N	304	304	245	304	304	304	304	304	304	304
	League position past season	Correlation	-.344**	-.735**	-.662**	-.684**	.242**	-.224**	-.865**	.857**	-.905**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	
		N	304	304	245	304	304	304	304	304	304	304

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Hauke and Kossowski (2011); Puth, Neuhauser and Ruxton (2015); Rebekie, Loncaric, Petrovic and Maric (2015); all argue that the most commonly used correlation coefficients models are Pearson and Spearman. Spearman's correlation is most frequently used and is a non-parametric measure of the relation between variables. The variables using ranks to calculate the correlation and are therefore not limited by the assumption of normality. The scores for the variables included in the ten scales of the selling club are reported in Table 4.

Table 4: Descriptive and correlation analysis of constructs of the selling clubs

Correlations												
Selling Club			Transfer Fee - £m	Total Revenue - £m	Broadcast Revenue - £m	Total Wages - £m	Wages / Revenue %	Stadium Capacity	Goals For	Goals Against	Goal difference past season	League position past season
Spearman's rho	Transfer Fee - £m	Correlation	1.000	.015	-.008	-.096	-.123	.030	-.006	-.138	.049	-.019
		Sig. (2-tailed)		.877	.944	.327	.208	.742	.951	.159	.621	.847
		N	409	106	88	106	106	124	106	106	106	106
	Total Revenue - £m	Correlation	.015	1.000	.926**	.928**	-.615**	.735**	.746**	-.692**	.790**	-.818**
		Sig. (2-tailed)	.877		.000	.000	.000	.000	.000	.000	.000	.000
		N	106	106	88	106	106	106	106	106	106	106
	Broadcast Revenue - £m	Correlation	-.008	.926**	1.000	.847**	-.732**	.542**	.669**	-.616**	.687**	-.742**
		Sig. (2-tailed)	.944	.000		.000	.000	.000	.000	.000	.000	.000
		N	88	88	88	88	88	88	88	88	88	88
	Total Wages - £m	Correlation	-.096	.928**	.847**	1.000	-.341**	.816**	.759**	-.672**	.784**	-.826**
		Sig. (2-tailed)	.327	.000	.000		.000	.000	.000	.000	.000	.000
		N	106	106	88	106	106	106	106	106	106	106
	Wages / Revenue %	Correlation	-.123	-.615**	-.732**	-.341**	1.000	-.275**	-.260**	.256**	-.297**	.356**
		Sig. (2-tailed)	.208	.000	.000	.000		.004	.007	.008	.002	.000
		N	106	106	88	106	106	106	106	106	106	106
	Staduim capacity	Correlation	.030	.735**	.542**	.816**	-.275**	1.000	.548**	-.554**	.607**	-.630**
		Sig. (2-tailed)	.742	.000	.000	.000	.004		.000	.000	.000	.000
		N	124	106	88	106	106	124	106	106	106	106
	Goals For	Correlation	-.006	.746**	.669**	.759**	-.260**	.548**	1.000	-.725**	.932**	-.901**
		Sig. (2-tailed)	.951	.000	.000	.000	.007	.000		.000	.000	.000
		N	106	106	88	106	106	106	106	106	106	106
	Goals against	Correlation	-.138	-.692**	-.616**	-.672**	.256**	-.554**	-.725**	1.000	-.900**	.812**
		Sig. (2-tailed)	.159	.000	.000	.000	.008	.000	.000		.000	.000
		N	106	106	88	106	106	106	106	106	106	106
	Goal difference past season	Correlation	.049	.790**	.687**	.784**	-.297**	.607**	.932**	-.900**	1.000	-.932**
		Sig. (2-tailed)	.621	.000	.000	.000	.002	.000	.000	.000		.000
		N	106	106	88	106	106	106	106	106	106	106
	League position past season	Correlation	-.019	-.818**	-.742**	-.826**	.356**	-.630**	-.901**	.812**	-.932**	1.000
		Sig. (2-tailed)	.847	.000	.000	.000	.000	.000	.000	.000	.000	
		N	106	106	88	106	106	106	106	106	106	106
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

3.3. Analysis of variance (ANOVA)

An ANOVA was used to determine the effect of categorical variables on the transfer fee. The identified (IV) includes; playing position, managerial change and relegation of buying and selling clubs. The dependent variable is the transfer fee. For the ANOVA, $\alpha = 0.05$ is considered as the significance level and followed by post hoc tests multiple comparison (Tukey HSD). In order to establish whether playing position influence transfer fees ANOVA's with a p-value < 0.05 is summarised in Table 5.

Table 5: Playing position influence on Transfer Fee/£m

Playing Position	Transfer Fee/£m			Post-hoc test: Tukey's HSD; (p < 0.05)		
	Means	N	Std Dev.	Midfielder	Forward	Defender
Midfielder	8.117	171	9.404		0.962	0.015

Forward	7.828	107	7.686	0.962		0.063
Defender	5.839	131	5.699	0.015	0.063	

Table 6 indicates the influence of the transfer fee as a result of managerial change using an ANOVA with a (p-value < 0.05), buying clubs (p = 0.000001) and selling club (p = 0.456465).

Table 6: Managerial change influence on Transfer Fee/£m

Managerial change	Transfer Fee/£m			Post-hoc test: Tukey's HSD; (p < 0.05)		
	Means	N	Std Dev.	Not in EPL	No	Yes
Buying Clubs						
Not in EPL	3.816	106	2.866		0.00003	0.00399
No	8.971	194	9.302	0.00003		0.21449
Yes	7.214	109	7.913	0.00399	0.21449	
Selling Clubs						
Not in EPL	6.988	305	7.952			
No	6.884	59	7.112			
Yes	8.627	41	9.767			

The results of the influence of relegation on the transfer fee are reported in Table 7 using an ANOVA with buying clubs (p = 0.000001) and selling club (p = 0.540166).

Table 7: Relegation influence on Transfer Fee/£m

Relegation	Transfer Fee/£m			Post-hoc test: Tukey's HSD; (p<0.05)		
	Means	N	Std Dev.	Not in EPL	No	Yes
Buying Clubs						
Not in EPL	3.884	103	2.875		0.00009	0.92372
No	8.456	290	9.006	0.00009		0.40304
Yes	4.926	16	3.544	0.92372	0.40304	
Selling Clubs						
Not in EPL	6.988	305	7.952			
No	7.968	87	8.785			
Yes	6.273	17	3.586			

In the analysis of variance to determine the relatedness of transfer window and influence on Transfer Fee/£m it was found that there are no statistical significance.

4. DISCUSSION

4.1. Correlation analysis

The results of the correlation analysis indicated mostly strong and positive associations between transfer fees and 1] total revenue ($r = 0.442$; $p< 0.01$); 2] broadcast revenue ($r = 0.403$; $p < 0.01$); and 3] total wages ($r = 0.403$; $p < 0.01$) of buying clubs. These findings confirm the literature that the bargaining position of buying clubs influences the value of professional soccer players. However, the study did not find such a correlation for the selling clubs, which contradict the findings of Carmichael & Thomas, 1993; Tunaru, Clark & Viney, 2005 and Pujol, Garcia-del-Barrio & Elizalde, 2007. Other factors that include the buying club's performance also indicate a correlation to the transfer fees spend on players.

A moderate, positive association between goals for ($r = 0.349$; $p < 0.01$) and goal difference ($r = 0.340$; $p < 0.01$) where found. However, goals against ($r = -0.296$; $p < 0.01$) and league position past season ($r = -0.344$; $p < 0.01$) indicate a moderate, negative association towards transfer fees. These indicate that the better a team perform, the higher the revenue will be that is available to spend in the next season to better the team. The more money available the more the club will be willing to spend on transfer fees to strengthen the team to keep playing in the EPL. The strength of the relationship between the variables raised an interest regarding the relatedness of the variables.

4.2. Analysis of variance

An ANOVA was used to determine the relatedness of categorical variables. The researcher identified the following three independent variables (IV); playing position, managerial change and relegation of the buying and selling clubs. The dependant variable (DV) transfer fee influenced the IV in different proportions. The transfer fee (DV) was compared to the playing position (IV). The playing positions consist of midfielders, forwards and defenders. In the sample of $n = 409$ EPL players, 42% are midfielders, 32% are defenders, while 26% are forwards.

In examining the ANOVA it seems that out of the 409 EPL players, midfielders are the most sought after commodity, not just in number of transfers but also the most highly paid. Table 4 shows the transfer fee mean at £8.117m and the standard deviation is a staggering £9.404m. Table 4 also indicates that the transfer fees of defenders are statistically less than midfielders and borderline less than forwards.

On examining the influence of managerial change (IV) and the transfer fee (DV) in Table 5 it was found that the ANOVA p-values of buying and selling clubs were significantly divers; buying clubs ($p = 0.000001$) and selling club ($p = 0.456465$). Managerial change of the selling club has no statistical significance of the transfer fee as the p-value exceeds the $p = 0.05$. From Table 5 it can be deduced that the transfer fee of managerial change on clubs not in the EPL is statistical less than for clubs with or without managerial change of clubs in the EPL. Although Szymanski (2001) suggests that the fear of relegation (IV) influence clubs in this study but revealed that only buying clubs not part of the EPL have a statistically significant influence on the transfer fee of players.

Finally, a positive relationship exists between player valuation and the bargaining positions of buying clubs, in the EPL as indicated in Tables 4, 5 and 6. However, it is evident from these tables that there is not a statistical significance found in transfer fees being paid for EPL players to selling clubs.

5. CONCLUSION

The purpose of this study was to investigate the relationship between player valuation and the bargaining positions of EPL clubs to determine whether demand or supply determinants are the driving force. The preliminary results seem to indicate that player valuation is determined by player performance, club performance as well as the nature and quality of completion. The EPL was found to be the top soccer completion with 70% of all soccer supporters supporting this league. Revenues for broadcasting rights are making it imperative for clubs to stay part of the EPL, while some star players obtain cult status. Clubs need to be in the league to attract players and supporters. These clubs are willing to pay astronomical amounts to secure players' services. Economical demand and supply curves that influence player valuation are being skewed by the inequality of clubs' revenue.

The skewing of the demand and supply curves became evident in the performance of an ANOVA to establish the effect of variables on players' transfer fees as well as the results of the correlation analysis. Findings of this study confirm the findings of previous studies. However, this study determined that there is not such a correlation for selling clubs as suggested by the literature. These results indicate that the valuation of EPL players are often being influenced by negotiations between bargaining clubs and that the correlation between player valuation and the buying club's bargaining position are statistically more significant than that of the selling club.

REFERENCES

BBC Sport. (2015). BBC Sport, Premier League TV rights. http://www.bbc.com/sport/0/football/31357409. Accessed on 9 Dec. 2015.

BBC. (2015). Premier League: Transfer window proves richest ever at £870m. http://www.bbc.com/sport/football/34118289. Accessed on 9 Dec. 2015.

Bowen, G.A. (2009). Document analysis as a qualitative research method. Qualitative Research Journal, 9(2), 27-40.

Bryson, A., Flick, B. & Simmers, R. (2013). The returns to scares talent: Footedness and player remuneration in European soccer. Journal of Sports Economics, 14(6), 606-628.

Carmichael, F. & Thomas, D. (1993). Bargaining in the transfer market: theory and evidence. Applied Economics, 25(12), 1467-1476.

Carmichael, F., McHale, I. & Thomas, D. (2010). Maintaining market position: Team performance, revenue and wage expenditure in the English premier League. Bulletin of Economic Research, 63(4), 464-497.

Clark, J. (2010). Back on Track? The Outlook for the Global Sports Market to 2013, PriceWaterhouseCoopers, May, London.

Corbin, J.A. & Strauss, A. (2008). Basics of Qualitative Research (3rd ed.). Thousand Oaks, CA: Sage.

Correia, C., Flynn, D., Uliana, E. & Wormald, M. (2015). Financial Management. 8th Edition. Cape Town: Juta & Company Ltd.

Creswell, J.W. (2003). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (2nd ed.). Thousand Oaks, CA: Sage.

Deloitte (2016). Deloitte Football Money League 2016 http://www2.deloitte.com/uk/en/pages/sports-business-group/articles/deloitte-football-money-league.html. Accessed on 22 Jan. 2016.

Deloitte Sports Business Group. (2015). Commercial Breaks - Football Money League. Manchester.

Deloitte. (2008). Annual Review of Football Finance: Sterling Silverware. Manchester: Deloitte.

Depken, C.A. & Rajasekhur, R. 2010. Open market valuation of player performance in cricket: Evidence from Indian premier league. http://dx.doi.org/10.2139/ssrn.1593196 . Accessed on 9 Dec. 2015.

Drucker, P. (1954). The practice of management. New York: Happer & Row.

Elliott, R. (2014). Brits aboard: A case study analysis of these British footballers migrating to the Hungarian Soproni Liga. Soccer & Society, 15(4), 517-534.

Fouche, J. & Barnard, J. (2013). Financial Management: Turning theory into practice. Cape Town: Oxford University Press.

Gerrard, B. (2010). Analysing Sporting Efficiency Using Standardised Win Cost: Evidence from the FA Premier League, 1995 – 2007. International Journal of Sports Science & Coaching, 5(1),13-35.

Gerrard, B. (2010). Analysing Sporty Efficiency from the FA Premier League, 1995 – 2007. International Journal of Sports Science & Coaching, 5(1), 13-35.

Gerrard, B. (2001). A new approach to measuring player and team quality in professional team sports, European Sport Management Quarterly, 1(3), 219-234.

Greulich, K. (2013). Transfer costs of human capital in the English Premier League. http://business.pages.tcnj.edu/files/2013/07/Greulich-thesis-2013.pdf. Accessed on 9 Dec. 2015.

Hauke, J. & Kossowski, T. (2011). Comparison of values of Pearson's and Spearman's correlation coefficients on the same sets of data. Quaestiones Geographicae 30(2), 87-93.

Morrow, S. (2013). "Football club financial reporting: time for a new model?", Sport, Business and Management: An International Journal, 3(4), 297-311.

Mail & Guardian. https://www.theguardian.com/football/premierleague. Accessed on 12 Mar. 2016.

Nesje, T. & Ufs, K.T. (2015). The Price is Right? A study of EPL clubs' behaviour in the transfer market. Masteroppgave i Økonomi og Administrasjon, Høgskolen i Oslo og Akershus, Fakultet for samfunnsfag. Oslo.

Oberstone, J. (2009). Differentiating the top EPL football clubs from the rest of the pack: Identifying the keys to success. Journal of Quantitative Analysis in Sport, 5(3), 1-27.

Oxford English Dictionary. (2006). Oxford: Oxford University Press.

Parker, D., Burns, P. & Natarajan, H. (2008). Player valuations in the Indian Premier League. Frontier Economics, 1-17.

Premier League. (2016). http://www.premierleague.com. Accessed on 17 Aug. 2016.

Pujol, F., Garcia-del-Barrio, P. & Elizalde, J. (2007). ESIrg Report on Media Value in Football: The English Premiership Extends its Supremacy. Universidad de Navarra.

Puth, M., Neuhauser, M., & Ruxton, G.D. (2015). Effective use of Spearman's and Kendall's correlation coefficients for association between two measured traits. Animal Behaviour, 102, 77-84

Rebekić, A., Lončarić, Z., Petrović, S., Marić, S. (2015). Pearson's or spearman's correlation coefficient – which one to use? Poljoprivreda, 21(2), 47-54.

Rosen, S. & Sanderson, A. (2001). Labour Markets in Professional Sports. The Economic Journal, 111(469), 47-68.

Sloane, P.J. (1969). The Labour Market in Professional Football. British Journal of Industrial Relations, 7(2),181-199.

Statista. http://www.statista.com/statistics/384458/premier-league-stadium-capacity/. Accessed on 2 Mar. 2016.

Swart, J.J., Swanepoel, M.J & Surujlal, J. (2014). A critical analysis of government spending on sport: Mass participation and school allocation. African Journal for Physical, Health Education, Recreation and Dance (AJPHERD), October 2014 (Supplement 2:2), 251-265.

Szymanski, S. (2001). Income Inequality, Competitive Balance and the Attractiveness of Team Sports: Some Evidence and a Natural Experiment from English Soccer. The Economic Journal, (111) 469, 69-84.

Szymanski, S. (2007). The Champions League and the Coase Theorem. Scottish Journal of Political Economy, 54(3), 355-73.

Totalsportek. (2016). 2015 Premier League Financial Report Of All 20 Clubs – Released. http://www.totalsportek.com/money/premier-league-financial-report-of-all-20-clubs/ . Accessed on 22 Jan. 2016.

Transfermarkt. http://www.transfermarkt.com/premier-league/startseite/wettbewerb/GB1. Accessed on 15 Mar. 2016.

Tunaru, R., Clark, E. & Viney, H. (2005). An Option Pricing Framework for Valuation of Football Players. Review of Financial Economics, 14, 281-295.

Tunaru, R.S. & Viney, H.P. (2010). Valuations of soccer players from statistical performance data. Journal of Quantitative Analysis in Sport, 6(2), 1-21.

Van den Berg, E. (2011). The Valuation of Human Capital in the Football Player Transfer Market: An investigation of transfer fees paid and received in the English Premier League. (Master thesis) Erasmus School of Economics.

Vik, P. (2014). Regression, ANOVA, and the general linear model: A Statistics Primer. Sage Publications, Inc. California.

Welman, C., Kruger, S.J. & Mitchell, B. (2005). Research methodology. 3rd ed. Cape Town: Oxford University Press.