Transfer Costs of Human Capital in the English Premier League

Final Thesis

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Abstract

This study will detail the context of the English Premier League transfer market, and how these market constraints affect the movement of human capital within this market. Included within this section will be competitive context, financial context, and regulatory context from the English Premier League transfer market. World soccer lacks a salary cap, which is only similar to baseball in American sports. There are also no trades, only "transfers," which is a team paying another team for the rights to a certain player. Contracts are very different from American sports, meaning soccer is a unique sport to study in terms of human capital costs. Different variables quantifying team and player characteristics will be tested in hopes of creating an equation that predicts transfer fees. The study may also help to reveal which players are bargains and what type of players are overpaid for.

Motivation

As an avid fan of the English Premier League, one of the most interesting times of the year comes when the transfer windows are open, during the summer and in January. During these transfer windows, teams are allowed to buy and sell rights players to improve their team, or in some case their financial standing. The prices that teams pay for certain players are one of the most heated debates amongst pundits of the sport. The debate arises over whether a player is under or overvalued something that is often argued about simply using intuition. This paper intends to rid the English Premier League transfer market of intuition, and put an economic model behind the transfer prices of players. To my knowledge, teams do not currently use economic models to value players in the way that Billy Beane as general manager of the Oakland A's baseball team (Lewis). Many will argue that an economic model to value players is of no use, and the game is played on the field rather than in a model. I believe that a well correlated

model could have future implications for the prices of players, and may lead to a new direction in managing human capital in the English Premier League.

The way that a team values players is going to have a direct impact on their on-the-field performance, as well as their financial performance. The English Premier League is the world's most popular soccer league, with annual total revenues exceeding two and a half billion pounds, and also contains some of the world's richest clubs. Just this past year, English Premier League clubs spend £558,830,800 on transfers, while they only brought in revenues of £265,012,000, creating massive transfer losses, if transfer costs are expensed. Chelsea football club purchased Fernando Torres for £51,480,000, and he has yielded just 6 goals (a miniscule number for a striker with that transfer fee). Meanwhile, Swansea football club purchased Michu for a mere £2,261,600, and he has already netted 12 goals (a fantastic return compared to the average premier league striker). Did Chelsea miss something? Did Swansea see something everyone else did not? My research intends to figure out whether there were variables that Swansea saw in Michu, or if transfer prices are determined outside of the predictable economic realm.

Literature Review

Literature regarding specific soccer transfer fees is not very common, but there are a lot of critical pieces regarding the structure of the English Premier League Transfer market. Because of the complexity of the transfer market, it is important to differentiate individual owner objectives from league objectives to narrow down what clubs are trying to do in the transfer market. It is also important to put the market in a business context, discussing revenue drivers and how financial success translates into sporting success, and vice versa. There is also a regulatory context to the labor market, in particular the English Premier League transfer market regulated by British law. There are different rules for players who are not citizens of the

European Union regarding their work permits. British law also has specific rules over the transfer of youth players, as well as the influence of player agents, and the conflicts that player agents bring into the transfer market.

The Professional Football Players Observatory was established in 2005 to monitor demographic trends in European soccer. Authors Besson, Poli, and Ravenel cover 36 countries and over 13,000 players, and their findings are summarized by Jonathan Wilson. The study shows that the average European club squad is comprised of 24.5 players, of whom 5.2 are 21 or under. Also, 8.1 players are over 1.85 meters tall, while 8.2 players are expatriates. English clubs have the largest squads, along with the largest number of international players on their books. (Wilson 2012)

The average height of a footballer in Europe is 181.96 cm, up .28 cm from 2008. (Wilson) The English Premier League is the seventh tallest league, while interestingly, Barcelona is the shortest (they are often considered the best club team in the world.) The study also shows that the most player stability yields success. Manchester United is currently the most stable club, with players staying an average of 5.71 years. The study figures however do not show a correlation between foreign players and success of English clubs specifically. (Wilson 2012)

PJ Sloane (1969) describes in detail in this work the specifics of transfer law in English Football. In professional soccer, a transfer 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." There is always compensation for a transfer, whether it be monetary or involve another player (1969). Unlike US sports, when a player moves from one club to another, his old contract is void, and he must sign a new one. This makes a player's salary an irrelevant piece of information on transfer prices, whereas in American sports, teams

essentially trade contracts. Players will always undergo a medical examination before their transfer can be completed. If a problem is detected, the transfer is off, and the player returns to his old club under his original contact. Injuries may also play a role in the transfer costs of players.

Carmichael, Thomas, and Ward (1979), test a production function model for Premier League games in their work. They utilize data covering the major skills employed in the sport, both tactically and physically. In essence, they are creating a new match played on a piece of paper, showing how different individual and team actions affect a certain game. Their results emphasize obvious player skills of shooting, passing, tackles, clearances, and block (1979). Indiscipline (committing fouls, receiving yellow/red cards) and pressure contribute to negative outcomes in a match, showing there is a thin line between defending well and being too aggressive. They find that the "professional foul" has become an effective part of a player repertoire. As with many other studies, they find that the Premier League is becoming gradually more monopolized, and this is affecting the competitive balance. The study focuses more on team play, but does shed light on some statistics that contribute to a valuable individual. This work will affect this study in that it shows competitive imbalance, meaning that better teams may overspend, compared to their expected value, on players. It also focuses heavily on the defensive part of the game. (1979)

Dawson and Dobson (2002) attempt to measure managerial performance through the analysis of managers in terms of human capital. Even though it is not directly related to the purchasing of players, it shows that the most important characteristics of managers was their playing experience, international caps, position, age, and managerial experience. The average premier league manager made 400 league experiences in their playing career, and was awarded

approximately 13 international caps (2002). According to Dobson and Dawson, age is the strongest influence on the success of a manager, with younger managers being much less successful. The authors also find that most players who became managers were defenders or midfielders. They also find that managers who come from other countries have longer tenures with their teams then do domestic managers (2002).

Teams will look for different characteristics for managers and players, but some of these variables may translate well to the valuing of players, particularly international caps. However, many characteristics of successful managers and expensive players will be opposites, such as goals scored and international caps, leaving interesting room for future studies.

Every year Deloitte reviews the football finance landscape in their *Deloitte Review of Football Finances*. This is not an academic study, more of a description, but displays new trends and information from team finances. Here are some of the key findings as they pertain to the English Premier League. The top 20 "money league" clubs generated €4.4 billion in revenue in 2010/2011, over a quarter of the European football market (Deloitte 2012). For clubs to be viable in the long term, they must generate revenues to cover their costs. It is unsustainable for clubs with inferior revenue to compete with the bigger clubs in the long term based on player costs. This indicates that larger transfer fees will be paid by bigger clubs. It may be necessary to add a variable to the study that captures the purchasing team's revenues, or their domestic/Champions League success, which will translate directly into larger revenue.

Frick (2007) analyzes the changes in the regulatory regime governing the labor markets, and combines them with detailed information on player salaries, transfer fees, and contracts. The first pertinent discussion he brings up is the Bosman ruling, a court case that liberalized the transfer market and allowed for study of the labor market. The ruling banned restrictions of

foreign European Union (EU) members within the national leagues, and allowed professional soccer players in the EU to move freely to another club at the end of their contract. He also suggests that it is unclear whether transfer prices are more correlated to a player's performance in recent seasons, or over their careers. As a result of this, variables capturing goals and games played last season, as well as a player's total international caps. International caps capture the career of a player, while the other two reflect the most recent season.

Frick also claims that there may be discrimination in European football. He suggests that players from certain areas may have shorter careers, or sell less merchandise (2007). To try to capture this, an "English player" dummy variable, because it has been suggested that English teams pay more for English players. Furthermore, a variable that denotes whether a player is being transferred from a domestic league (within Great Britain), or a foreign league was added. Frick suggests that domestic transfers are more expensive, showing discrimination in the transfer market.

Del-Barro and Szymanski (2009) used data on the performance of football clubs in Spain and England to estimate whether behavior is better modeled by profit or win maximization. They use data from both the English and Spanish leagues and found that win maximization better describes the behavior of teams. Any team that adopted short-run (current year) profit maximization would likely be relegated (sent down a division for poor performance), resulting in future losses. If this were the case then the long run (greater than one year) profit maximizing position would be higher than the short run profit maximizing position. However, even in the long run, they find that win maximization is a better description of club behavior (2009). The connection between del-Barro and Szymanki's work to this is that the authors suggest teams may overpay for players, because they see short term athletic performance as more important than

short term financial performance. The financial gain will come in the future when teams are doing well on the field. It is possible that teams overpay in the January transfer window, based on a player's recent performance, because they see that they need a player quickly to win games. Thus, a "date" (January Transfer) variable was added as a potential indicator of transfer prices being inflated within the January window.

Rosen and Sanderson (2001) discuss in detail the affects of labor demand and supply. Typically, the demand for labor is derived from the demand for the ultimate goods and services that labor is used to produce. Customers, in this case, will be willing to pay more, or more customers will pay for high-quality athletic competition, and thus the demand for player's services depends on their marginal contribution to the quality of the product on the field. In sports, personal contributions are somewhat easily measured, making it very different from the business world. However, performance statistics are not the only determinants of value. Economic output usually includes direct valuation of inputs themselves, but some star athletes develop a cult status that go above and beyond their contribution to simply the quality of a specific game. This "star quality" is difficult to quantify, making it difficult to use in a regression (2001). Another difference between normal supply and demand analysis and this analysis as it pertains to sports is that interactions between teams affect allocations of talent. Demand depends on both the nature and quality of competition among groups of producers. The quality of players on rival teams affects the marginal product of any player (2001). Both this "star quality" and "rival team quality" are figures difficult to quantify, but the "domestic player" and "domestic/international" variables may capture some of this effect.

Szymanski's 2007 work expands on his 2001 article discussing competitive balance and income inequality. Specifically, he talks about how additional revenues for top teams that

compete in the Champions League affects imbalance. Each team retains the gate revenues from its home matches, and half of these teams come from the big five European leagues. The resources that are distributed to these teams are likely to be used to invest in talent. Szymanski uses Manchester United as an example, by saying a modest run to the Champions League quarterfinals is likely to generate around £30 million. By contrast, more than half of the Premier League teams have annual income of less than £50 million (2007).

It appears that the Champions League is furthering imbalance, and UEFA (Europe's soccer governing body) has responded with some new rules. They introduced restrictions in 2005 on the size of squads fielded by Champions League teams, and oblige teams to field at least four players trained by the club, and additionally four players who were trained inside the national association (2007). These UEFA restrictions could have significant effects on the transfer policies of teams playing in the Champions League, and every year, four Premier League teams play in Champions League competition every year.

Szymanski (2001) connects competitive balance to attendance figures using the English Premier League and its partner cup competition, the FA (Football Association) Cup. By comparing same-division fixtures (fixture simply means game, but refers to a specific team being home, while the reverse fixture is the opposite) that occur in both the FA Cup and the league, a natural experiment on the effect of growing inequality can be conducted. Since inter-division (Premier League) inequality has grown faster than intra-division inequality, the FA Cup provides a competition where resources of participants can be very unevenly distributed (2001). Szymanski's data shows that increases in inequality have led to a decline in attendance. In the 1970s, FA Cup matches were often attended at a 50% higher rate than the matching league fixture. However, in 1998, the average attendance at FA Cup matches was lower than the

accompanying league fixture. Szymanski concludes that his natural experiment confirms his hypothesis about the impact of income inequality and competitive balance on the attractiveness of sporting events. The more the English League becomes top-heavy in terms of income, the less people will attend the games. He controls two-way causation by testing the FA Cup matches (2001).

Model

Variable Abbreviation	Hypothesized Coefficient	Variable Description
Transfer Fee		Fee paid for the player in the transfer market, dependant variable
January Transfer	+	Dummy variable denoting whether the player was purchased in January
Age	-	Age of the player at the time of the transfer
Goals	+	Number of goals player scored during previous season
Games Played	+	Number of games player appeared in during previous season
Midfielder	+	Dummy variable indicating whether the player is a midfielder
Striker	+	Dummy variable indicating whether the player is a striker
International Caps	+	Number of national team appearances the player has
Left Foot	+	Dummy variable indicating whether the player is left footed
Height	+	Height of the player in meters
International or Domestic Transfer	+	Dummy variable indicating whether the player was purchased domestically or internationally
English Player	+	Dummy variable indicating whether the player is English
Champions League	+	Dummy variable indicating whether the buying team is in the UCL
Assists	+	Number of assists a player had in the previous season
Team Finish	-	Place the purchasing team finished the previous season

The dependant variable, transfer fee, is a function of a constant and the above variables with the hypothesized coefficients. All of the independent variables were developed from the selected articles in the Literature Review as well as intuition.

Results

Analysis of the data began with running a basic regression of all the independent variables on the dependant variable. Results were mixed, but a few transformations and corrections can be made to improve the regression equation. A description of the independent variables is summarized in the Table 1 below. Refer to Table 2 for variable means and standard deviations.

The most noticeable issue starts with the dependant variable, *trfee*. The smallest transfer fee is as low as £198,000 while the largest transfer fee in the data set is £39,600,000. The mean of the variable *trfee* is £5,711,489 with a standard deviation of 6,062,014. This huge variation in the data set is troubling, so the dependant variable will be changed to *logtrfee* to pull in the higher dependant variable values. Immediately upon transforming the dependant variable, the regression equation does not improve in terms of the R^2. The R^2 from the original regression equation was 0.2796, while the new R^2 was only 0.2405 (see Eq. 1 in Table 3). After transforming the dependant variable to a log, it is important to test for heteroskedasticity. To do so, the Breusch-Pagan/Cook-Weisenberg tests were used to compute chi square values indicating the probability of no heteroskedasticity. The results of the test on the data set are as follows;

Ho: Constant variance
Variables: fitted values of logtrfee
chi2(1) = 5.53
Prob > chi2 = 0.0187

A low probability indicates that there is evidence of heteroskedasticity. Fixing the heteroskedasticity issue can be completed by using a robust regression to limit the effect of

influential outliers. The R^2 remains the same in the equation, but the significance levels for each individual variable do change slightly (see Eq. 2 in Table 3).

The next step was to run a correlation matrix (Table 4) to see if any of the variables were related to one another. In this original equation, no variables showed a high correlation with one other, which makes sense when thinking about what each variable represents.

After these corrections have been made, the next step was removing the insignificant variables from the equation to further develop a predictive model. A significance level of 10% was used for this study, and the following variables were removed; *age, mid, str, lfoot,* and *height.* This equation can be seen in Table 5.

There was some surprise at the removal of some of the variables, even though they did not show statistical significance. Age was possibly the most surprising, for reasons not only related to sport. Younger players have a longer playing life ahead of them, which would seem to cause a buying team to pay more for the player as well as creating a higher asking price for the selling team. The plausible explanation for younger players not causing higher transfer fees is that many are unproven. Teams do not know exactly how a young player will develop, and they also cannot be sure how the player will handle the pressure of the English Premier League in the short term, or even in the future. A quick scan through the data does reveal an interesting piece of information. Younger players who have international experience (*intcap*) or have played a significant number of games in the previous seasons (*goprse*) tend to fetch larger transfer sums. Young players that are unproven internationally or within their domestic league are not expensive on the market.

The *stiker* variable was also removed, which is extremely surprising given that *goprse* is statistically significant. Strikers play the furthest forward out of any position on the field, and

are responsible for the majority of team's goals. Goals are what win games, and it would be expected that teams would pay higher sums of money for goals. What is also interesting is that the coefficient on this striker variable is negative. The only reasonable explanation of this is that strikers that do not score goals are very cheap on the market. There are very few strikers who are successful for prolonged periods of time because of how difficult the art of scoring is. Forwards who are successful for long periods of time such as Robin van Persie and Sergio Aguero demand huge fees on the market, but the variation in success of strikers has to be the cause of the negative coefficient.

The negative coefficient on the *jtrans* variable is also worth looking further into. The transfer window is open for three months during the summer, while Premier League teams are not in season, and the January window, which is open right in the middle of the season. Teams use the January window to improve their roster due to their current league positions, or as a result of injuries that have depleted the squad. Managers must live up to the expectation of the club and its executives, and if they are not meeting these expectations mid-season, managers may be forced to make bold moves during this January transfer window. This means teams could inflate their asking prices for players, while buying clubs could be willing to pay more than a player is really worth.

The negative coefficient is not expected, but could be a result of any of the following conjecture. Teams are not willing to let go of their best players in the middle of the season, so they wait until the summer where they could possibly purchase a cheaper replacement for the player they let go. Another idea revolves around the relegation system that is used in the English Premier League. The three teams that finish at the bottom of the league are relegated to the second division of the English soccer pyramid, losing millions of dollars in television rights and

sponsorships. These relegation threatened clubs see the January transfer window as an opportunity to improve their teams to avoid relegation. However, they are almost always cash strapped clubs who cannot afford to buy expensive players, and thus must purchase bargain priced players and hope they perform. They may even buy a few of these types of players, and situations like these may be the reason that the *jtrans* coefficient is negative.

The first model (Eq. 3 in Table 3) created for this study shed some light into the independent variables that affect transfer fees, but with an R^2 of just .23, it became apparent that there were other places to look. A new variable was created, *teamfin*, which is the buying teams final standing from the last years English Premier League season. Teams that were promoted from the second division, which replace the three teams that were relegated, were ranked 18, 19, and 20th. The team that finished 1st in the second division was given the 18 rank, 2nd place 19, and 3rd place 20. This is not a characteristic of an individual player per se, but could indicate whether consistently good quality Premier League teams are required to pay more for players. After adding in this variable, the equation (Eq. 2) changed significantly. *Intcap* and *intdom* became insignificant, while the new variable *teamfin* had an extreme t-value, improving the R^2 to .33. The new equation is shown in Table 6.

The coefficient on *teamfin* is expected to be negative, and is in this equation. The coefficient is negative as a result of the way the teams are ranked. The best teams have lower rankings in *teamfin* because they finish at the top of the English Premier League, and if they pay higher fees, the coefficient would be negative. Not only is the coefficient negative, the t-value is -6.94. This shows that the higher clubs are paying much higher fees than the clubs below them. This is most likely as a result in the differences in clubs finances. Finishing at the top of the league means more money from sponsors, European competitions, domestic cup competitions,

jersey sales, etc. This money can be used to buy the best players and improve teams that are already at the top of the heap.

After adding the *teamfin* variable, it was important to try to add back in previously dropped variables into Eq. 3 to make sure they are still insignificant. Unfortunately, they all were, so a search for new variables began. The first one that came to mind was *champsl*, a dummy variable indicating whether or not a team took part in UEFA Champions League competition the previous season. The Champions League is a tournament made up of all the best teams from throughout Europe, and the top four finishers in the English Premier League all qualify. The Champions League affects the player transfer market in several ways. The 32 European clubs that reach the group stage are distributed approximately €754 million for their successes. This allows the teams to buy big players because of the new inflow of cash, but it is also imperative that teams buy quality players to keep up with the competition in the Champions League, which is the best in the world. The Champions League also can add between 10 and 20 games to a team's season, meaning they need a deeper squad of quality players to account for injuries and fatigue. Manchester United, Arsenal, Chelsea, Tottenham, and Manchester City have all qualified for the Champions League over the past two seasons. This variable will also help to control the *teamfin* variable by testing the Champions League teams. After adding the *champsl* variable to the equation and running a robust regression the variable turned out to be highly significant. It also made the *age* variable significant again. The plausible explanation for age becoming significant again is the addition of the *Champions League* variable. Champions League teams will want proven players that are durable and have already excelled on the world stage. This would also explain the change in the sign of the *age* coefficient. Here is the newest equation, located in Eq. 5 in Table 3.

Looking at the previous equation shows that almost all facets of the game are covered; club size, player characteristics, and goal scoring. One part of the game that is not included is a players passing ability. Passing ability in soccer is very difficult to quantify, with only the last player to pass the ball before a goal receiving credit for an assist. Any good pass in the lead up to a goal goes unnoticed on the stat sheet. There are statistics such as passing percentage and chance creation, but they also can be skewed. Passing percentages will almost always be highest for more defensive minded players who have more time on the ball, and their passes do not lead to directly to goals most of the time. Chance creation is similar to the assist stat, but accounts for plays in which a goal should have been scored, even when it is not.

Not expecting much, an *assist* variable was added, accounting for a players assists in the previous season. The coefficient on the variable was positive, but did not show significance in either Eq.4 or in an equation with all previously used variables. Assist are not important to all players on the field, so the next step was to create an interaction variable with *assist.* Interactions with both the striker and midfielder variables were tried. Again, neither was significant, somewhat surprisingly for the midfield position. Many midfielders are lauded for their ability to create attacks with great passing, but the assist stat must be too limited to capture that. Strikers are mainly responsible for putting the ball in the net, but their proximity to the goal would make on think that assists could be important for them as well. A combined interaction variable was also included, but lacked significance. The fact that assists is not significant in this equation says more about the stat itself than the transfer fees paid for players. Assists is not a highly discussed heavily by analysts or coaches, meaning a players passing ability is very difficult to quantify.

Conclusion

This study intended to create an equation that determined transfer fees paid for players by rival teams. While the equation did well to explain some of the variation in transfer prices, explaining 37% of variation in cross section data, however it was not able to draw significant conclusions based on statistics alone. The coefficients on *January Transfer* and the change in the *Age* coefficient before and after the addition of the *Champions League* variable were also extremely revealing. More importantly, the study did well to show that soccer is not a game based heavily on statistics, unlike American major sports. Recently, there has been a surge of new statistics being developed for soccer, but they are not yet available for all players. A few years down the road, these statistics could be useful in running a similar study in hopes that they better quantify the sport. Some of these statistics include chance creation, chance conversion, clear cut chances missed, etc. In the meantime, it can be said that soccer is a game that is not played on paper, unlike the "Moneyball" strategy. Transfer fees paid for players are determined through potential, or the way a player fits within a certain squad. Players who can pick a spectacular forty yard pass or dribble through a slew of defenders will be prized on the market. These attributes are not seen on the stat sheet, and as long as that is the case, transfer fees will be tough to quantify.

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Table 1

Variable Abbreviation	Description
trfee	Fee paid for the player in the transfer market, dependant variable
age	Age of the player at the time of the transfer
Assistpre	Number of assists a player had in the previous season
Champsl	Dummy variable indicating whether the buying team is in the UCL
engpla	Dummy variable indicating whether the player is English
goprse	Number of goals player scored during previous season
gpprse	Number of games player appeared in during previous season
height	Height of the player in meters
intcap	Number of national team appearances the player has
intdom	Dummy variable indicating whether the player was purchased domestically (1) or internationally (0)
jtrans	Dummy variable denoting whether the player was purchased in January
lfoot	Dummy variable indicating whether the player is left footed
mid	Dummy variable indicating whether the player is a midfielder
str	Dummy variable indicating whether the player is a striker
Teamfin	Place the purchasing team finished the previous season

Table 2

Variable Name	Mean	Standard Deviation
Log Transfer Fee	6.5373	0.4739
Jtrans	0.2500	0.4341
Age	24.1275	3.4788
Goprse	7.0736	7.7663
Gpprse	36.9951	12.6629
Mid	0.4412	0.4977
Str	0.2598	0.4396
Intcap	16.0909	22.7907
Lfoot	0.2647	0.4423
Height	1.8195	0.0651
Intdom	0.5343	0.5000
Englpa	0.3922	0.4894
Teamfin	10.6716	6.0535
Champsl	0.2255	0.4189

Table 3

	Jtrans	age	goprse	gpprse	mid	str	intcap	lfoot	height	intdom	engpla	teamfin	champsl	Fstat	R^2
Eq. 1	-0.1425	-0.0066	0.0190	0.0064	-0.0296	-0.1657	0.0023	-0.0130	0.0809	-0.1075	-0.0763	-----	-----	5.5	0.24
	-1.97+	-0.63	2.99*	2.13+	-0.36	-1.46	1.37	-0.19	0.16	-1.22	-0.83	-----	-----	-----	-----
Eq. 2	-0.1425	-0.0066	0.0189	0.0064	-0.0296	-0.1657	0.0023	-0.0130	0.0809	-0.1075	-0.0763	-----	-----	6.45	0.24
	-1.75^	-0.62	3.01*	1.91^	-0.36	-1.37	1.52	-0.18	0.16	-1.29	-0.82	-----	-----	-----	-----
Eq. 3	-0.1457	-----	0.0123	0.0076	-----	-----	0.0022	-----	-----	-0.1696	-----	-----	-----	13.28	0.23
	-1.83^	-----	3.18*	2.52+	-----	-----	1.91^	-----	-----	-2.87*	-----	-----	-----	-----	-----
Eq. 4	-0.1559	-----	0.0106	0.0089	-----	-----	-----	-----	-----	-----	-----	-0.0298	-----	26.54	0.33
	-2.06+	-----	3.06*	3.26*	-----	-----	-----	-----	-----	-----	-----	-6.94*	-----	-----	-----
Eq. 5	-0.1274	0.0145	0.0095	0.0079	-----	-----	-----	-----	-----	-----	-----	-0.0176	0.3037	27.79	0.37
	-1.74^	1.78^	2.93*	2.98*	-----	-----	-----	-----	-----	-----	-----	-2.76*	3.51*	-----	-----

Statistically significant at the *1 percent, +5 percent, ^10 percent level

Table 4

	logtrfee	jtrans	age	goprse	gpprse	mid	str	intcap	lfoot	height	intdom	engpla	teamfin	champsl	asspre
logtrfee	1.0000														
jtrans	-0.1842	1.0000													
age	0.1032	-0.1080	1.0000												
goprse	0.3416	-0.0340	0.1475	1.0000											
gpprse	0.3551	-0.1637	0.3057	0.4932	1.0000										
mid	0.0423	-0.1511	-0.0411	-0.1261	0.0742	1.0000									
str	0.0747	0.0504	0.0287	0.6245	0.0780	-0.5237	1.0000								
intcap	0.2592	-0.2207	0.5193	0.2573	0.3086	0.0039	0.0929	1.0000							
lfoot	0.0268	0.0111	0.0371	0.0108	0.0340	0.0238	-0.0723	0.0395	1.0000						
height	0.0050	0.0802	0.0859	-0.0275	-0.0220	-0.3911	0.1199	0.1373	-0.0274	1.0000					
intdom	-0.1810	-0.0713	0.1508	-0.0431	0.0087	0.0421	-0.0150	-0.0458	-0.1280	-0.0577	1.0000				
engpla	-0.2275	0.0210	-0.0146	-0.0884	-0.0602	-0.0907	0.0348	-0.2496	-0.0520	-0.0630	0.6958	1.0000			
teamfin	-0.4051	-0.0083	0.2270	-0.1182	-0.0188	-0.0573	0.0185	-0.1305	-0.1408	0.0579	0.2730	0.2560	1.0000		
champsl	0.4367	-0.0694	-0.2009	0.1304	0.0375	0.0144	0.0058	0.0916	0.0203	-0.1211	-0.1998	-0.1716	-0.6792	1.0000	
asspre	0.3486	-0.2029	0.1387	0.5877	0.5406	0.2062	0.2075	0.2736	0.0744	-0.2050	0.0016	0.0074	-0.1298	0.1649	1.0000