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THEORY OF THE BEAUTIFUL GAME: THE UNIFICATION OF EUROPEAN FOOTBALL

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ABSTRACT

European football is in a spiral of intra-league and inter-league polarization of talent and wealth. The invariance proposition is revisited with adaptations for win-maximizing sportsman owners facing an uncertain Champions League prize. Sportsman and champion effects have driven European football clubs to the edge of insolvency, and polarized competition throughout Europe. Revenue revolutions and financial crises of the Big Five leagues are examined and estimates of competitive balance are compared. The European Super League completes the open-market solution after Bosman. A thirty-team Super League is proposed based on the National Football League.

In football everything is complicated by the presence of the opposite team.
—Sartre

I INTRODUCTION

The beauty of the world's game of football lies in its dynamic balance of symbiotic competition. Since the English Premier League (EPL) broke away from the Football League in 1992, the EPL has virtually lost its competitive balance. The rebellion of the EPL coincided with a deeper media revolution as digital and pay-per-view technologies were delivered by satellite platform into the commercial television vacuum created by public television monopolies throughout Europe. EPL broadcast revenues have exploded forty-fold from €22 million in 1992 to €862 million in 2005 (33 percent CAGR). Average annual fees for the 2007-10 rights contract have reached €1.24 billion, excluding bonus money from European competition. EPL fashions itself as the "greatest show on earth," but this may only be true for the top tier of its clubs. The top five clubs in EPL, German Bundesliga and French Ligue 1 currently receive about one-half of their league's revenues, while the top five clubs in Italian Serie A and Spanish la Liga capture two-thirds of league revenues.[1] Revenue

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[1]Over the last decade EPL, Ligue 1 and Bundesliga negotiated TV contracts collectively, while Serie A and La Liga teams negotiated individually. Collective selling of EPL rights has been under constant scrutiny of Office of Fair Trading (OFT) and the European Commission. OFT lost a rare court case in 1999 when the Restrictive Trade Practices Court ruled that neither EPL's collective selling of rights or BSkyB's exclusive purchase of those rights was against the public interest. In 2002 investigation OFT concluded that BSkyB held a dominant position (over 50 percent) in the pay television sports market, but that it did not abuse its position by "squeezing the margin" downstream. EC has twice tried to limit BSkyB's exclusivity by splitting the rights packages in the 2003 and 2006 EPL auctions. In 2003 BSkyB retained exclusivity with the highest bid for all three packages. In 2006 European Commission forced EPL rights to be split into six packages of 23 games each. BSkyB acquired four, and Setanta acquired two. In theory, competitive bidding increases rights fees upstream to EPL and decreases subscription rates to consumers downstream. Given the market power of EPL,

disparity is magnified on the pitch, where dominance of large revenue clubs is certain before kick off. Over the last twenty years Italian Serie A has been the most pre-determined of the Big Five Leagues. There is evidence in this analysis that over the last decade, the EPL has become as predictable as the polarized Italian premier league. Optimal competitive balance remains an empirical question, but when competitive outcomes become certain then the game is dying.

Beyond the national boundaries of provincial leagues lies the grander market-scape of European Economic Unification in 1992. In this wider economic context, the European Court of Justice solved part of European football's competitive imbalance problem in its famous *Bosman* decision in 1995. The Court found that transfer payments for out-of-contract players and foreign player quotas were both sideways with the Treaty of Rome.[2] According to the Coasian *invariance proposition* in sports economics, the transfer decision would have no impact on competitive balance, but it would increase player salaries and reduce exploitation. The quota-illegality part of *Bosman* was potentially more powerful, because it created a single European football labor market. The problem is that while football labor markets were opening, national leagues remained closed. Asymmetric freedom in open labor markets and closed national leagues distorts the distribution of talent among European leagues. The simultaneous emergence of Champions League from a knock-out European Cup tournament since 1992 reflects a series of *ad hoc* concessions of UEFA to quell revolutionary threats of a breakaway European Super-League.[3] It is argued in this paper that UEFA's Champions League distorts domestic league competition, and that a breakaway European Super League is the next logical step toward the inevitable unification of European football.

Theory of professional sports has been preoccupied by the *invariance proposition* that talent distribution among teams is invariant with respect to ownership [Fort and Quirk, 1995; Quirk and Fort, 1992; Vrooman, 1995, 2000]. *Weak-form* invariance holds that competitive balance among teams before and after *Bosman* would be the same, and that the only difference would be zero-sum rent shifting from club-owners to players as wages rise and transfer fees fall. *Strong-form* invariance maintains that labor market restrictions will not affect competitive balance and competitive-balance rules, such as revenue sharing and salary caps, will only lead to greater exploitation of talent. The only way to alter dominance of large revenue clubs is by reducing their home-market monopoly position, rather than increasing their labor market monopsony power. After *Bosman,* European theorists [Kesenne, 2005; Szymanski, 2003, 2004; Szymanski and Kesenne, 2003] claimed that invariance depends on assumptions of closed labor markets (fixed talent with variable wages) that characterize North American leagues. In the open markets (infinite talent at a parametric wage) of

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only the first part holds true in England. OFT/EC notion of welfare concerns number of games televised, more than subscription price. Number of games broadcast has increased from 18 games in 1992 to 138 games in 2007-10.

[2]European Court of Justice 15 December 1995: *Union Royales Belge des Societes de Football ASBL v Jean-Marc Bosman* (Case C-415/93 [1996] (*herinafter Bosman*). Bosman was a journeyman footballer placed on transfer list of RC Liege in Belgian Division 1 for transfer fee €290,000, after expiration of his second contract in 1990. The fee was a multiple of his wage and age. After failing to attract interest from Belgian clubs, Bosman received offer from French Ligue 2 club Dunkerque, but Dunkerque and Liege could not agree on transfer fee. Bosman sued claiming that compensation fees and 3+2 rule (three foreign players plus two five-year assimilated players) against EU players violated Article 48 (revised 39) of the Treaty of Rome, which ensures free movement of workers within the EU without discrimination.

[3]UEFA (Union of European Football Association) is the governing body for European football and runs all European international club competitions Champions League and the consolation UEFA Cup, and national-team tournaments such as European Football Championship (EURO) every four years. UEFA is one of six continental associations of FIFA (Fédération Internationale de Football Association), which is the world association's governing body that runs the World Cup. G-14 is the lobby group for eighteen of the top revenue clubs in Europe (originally fourteen clubs when formed in 2000). G-14 would become the core of a breakaway Super League. G-14 is now suing FIFA for damages to Belgian club Charleroi, whose player was injured in an international match. G-14 is challenging FIFA's authority to make collective decisions for clubs who are not directly represented in the federation. The case is now before European Court of Justice, the same Court that rendered *Bosman.*

post-*Bosman* Europe, it is argued that the invariance proposition does not hold, and that revenue sharing would lead to greater imbalance. The open-market model implies that wages would be lower and competitive balance would be higher than closed markets. In the end, the simplifying assumptions, game-theoretic distinctions and questionable conclusions of the open model do not make any difference in the twisted reality of post-*Bosman* European football.

Both closed and open labor market models are based on assumptions that club-owners are profit maximizers. It is more likely that sports-owners are *sportsmen* who are willing to sacrifice profit in order to win [Kesenne, 1996, 2007; Sloane, 1971; Vrooman 1997a, 2000]. At the limit, sportsman owners are win-maximizers, who seek to win at all cost. The *sportsman effect* is constrained by zero-profit, rather than maximum profit, and the question of whether labor markets are closed or open is irrelevant. If owners are sportsmen, then intuition prevails over paradox, and revenue sharing and salary caps should improve competitive balance. Previous models also assume that revenue functions are strictly concave reflections of the *Yankee/ManU paradox* (fans prefer close wins to blowouts). Post-season championship tournaments introduce convexities that would polarize regular season competition. The *champion effect* should increase as the championship pay-off increases relative to revenue from the regular season. It is argued in this paper that s*portsman* and c*hampion effects* have driven European football clubs to the brink of insolvency, and polarized competition throughout Europe. There is a growing consensus that the European Super League is the open-market equilibrium solution. [Hoehn and Szymanski, 1999; Kesenne, 2007; Szymanski, 2007].

The argument begins with a restatement of the general theory of sports leagues after a decade of debate [Vrooman, 1995, 2000]. The *invariance proposition* is revisited with adaptations for open and closed leagues, *champion effects*, revenue-sharing and salary-caps in profit and *sportsman* leagues. The third section of the paper examines the Big Five revenue revolution and its impact on financial balance. The fourth section empirically compares competitive balance estimates of Big Five European leagues before and after *Bosman.* The paper concludes with a proposed European Super League, built on the solidarity model of the National Football League.

II GENERAL THEORY REVISITED

Open and Closed Case

A restatement of the general theory begins with a two-team league with twin profit functions:

$$\pi_1 = R_1 [m_1, w_1 (t_1, t_2)] - ct_1 \qquad \pi_2 = R_2 [m_2, w_2 (t_2, t_1)] - ct_2 \tag{1}$$

Team 1's revenue R_1 is a function of its home market size m_1 and winning percentage $w_1 = t_1/(t_1 + t_2)$, determined by its relative share t_1 of league talent T, where a zero-sum league requires $\partial w_2/\partial w_1 = -1$. Team 1 sets its profit-max payroll ct_1 by acquiring talent to the point where the marginal revenue product of talent MRP_1 is equal to the cost per unit of talent c, which is assumed to be the same for both teams.

$$MRP_1 = MR_1\, MP_1 = (\partial R_1/\partial w_1)(\partial w_1/\partial t_1) = c \tag{2}$$

Simultaneous profit maximization (mutual best response) for both teams yields:

$$MRP_1 = (\partial R_1/\partial w_1)(\partial w_1/\partial t_1) = c = MRP_2 \tag{3}$$

If $w_1 = t_1/(t_1 + t_2)$, then the marginal product of talent (MP_1) is:

$$MP_1 = \partial w_1 / \partial t_1 = (t_2 - t_1 \partial t_2 / \partial t_1)/(t_1 + t_2)^2 \quad (4)$$

In league equilibrium, the *MRP* of talent for both teams is equal to their mutual cost per unit of talent:

$$MRP_1 = MR_1 \; MP_1 = [\partial R_1/\partial w_1][(t_2 - t_1 \partial t_2/\partial t_1)/T^2] = c = MRP_2 \quad (5)$$

In a *closed league* an inelastic supply of skilled talent T is fixed, and one team's talent gain is another team's zero-sum loss, $\partial t_2 / \partial t_1 = -1$. Substitution of $\partial t_2 / \partial t_1 = -1$ into (5) yields the equilibrium condition for simultaneous profit maximization (mutual best response) in a closed league:

$$MR_1 = cT = MR_2 \quad (6)$$

By comparison, *open leagues* face an elastic supply of talent, infinitely available at a parametric wage c. In an open league, a team's talent acquisition has no effect on the talent of its opponent, and $\partial t_1 / \partial t_2 = 0$. Substitution of $\partial t_1 / \partial t_2 = 0$ into (5) yields the open league solution:

$$MR_1 w_2 = cT = MR_2 w_1 \quad (7)$$

Large Market Dominance

Asymmetric large market advantage of Team 1 can be shown through a common model that generalizes the solutions of open and closed profit-max leagues. The *Yankee/ManU paradox* is the empirical assumption that fans prefer winning an even match over blowing out their opponents. This suggests concave revenue functions with a parameter $\phi \in \{0,1\}$ reflecting fan-preference for competitive balance $\phi < 1$, and a parameter $\sigma > 1$ reflecting $m_1 > m_2$ home-market revenue advantage of Team 1.

$$\pi_1 = \sigma [\phi w_1 + (1-\phi) w_1 w_2] - ct_1 \qquad \pi_2 = [\phi w_2 + (1-\phi) w_2 w_1] - ct_2 \quad (8)$$

The *Yankee/ManU paradox* suggests $\phi = .5$, and the zero-sum league constraint $w_2 = 1 - w_1$ simplifies (8):

$$\pi_1 = \sigma (w_1 - .5 w_1^2) - ct_1 \qquad \pi_2 = w_2 - .5 w_2^2 - ct_2 \quad (9)$$

In a closed league (6), simultaneous maximization of the twin profit functions yields:

$$MR_1 = \sigma w_2 = cT^* = w_1 = MR_2 \quad (10)$$

The *closed league* has a competitive balance of $w_1/w_2 = \sigma$, with winning percentages of $w_1 = \sigma/(1+\sigma)$ and $w_2 = 1/(1+\sigma)$. Total league payroll is $cT^* = \sigma/(1+\sigma)$ with team payrolls $ct_1 = w_1 cT^* = \sigma^2/(1+\sigma)^2$ and $ct_2 = w_2 cT^* = 1/(1+\sigma)^2$. The closed league solution is shown at A in figure 1 for $\sigma = 2$.

Figure 1 about here

By comparison the *open-league* solution is:

$$MR_1 w_2 = \sigma w_2^2 = c^* T = w_1^2 = MR_2 w_1 \quad (11)$$

An *open league* has more competitive balance, $w_1/w_2 = \sigma^{1/2}$; $w_1 = \sigma^{1/2}/(1+\sigma^{1/2})$, and $w_2 = 1/(1+\sigma^{1/2})$, with lower payroll than the closed league, $cT' = \sigma/(1+\sigma^{1/2})^2$. Compare the closed league solution at *A* and the open league solution at *B* in Figure 1 for $\sigma = 2$. At its logical core the open-model assumes that the supply of skilled footballers is infinitely wage elastic, and the closed model assumes that the supply of skilled talent is fixed [Szymanski and Kesenne, 2003; Szymanski, 2004; Kesenne 2005]. As a result Team 1 dominance is twice dampened in an open league by diminishing marginal returns to winning and diminishing marginal product of talent.[4] Given the attendance success of polarized European leagues, optimal competitive balance may be an empirical question. If fans prefer David and Goliath matches, then the *Yankee/ManU paradox* does not hold and the second term vanishes in (8) for $\phi = 1$. In this case, the open league solution becomes identical to the closed market solution $w_1/w_2 = \sigma$ at *A* in Figure 1.

For *closed league* solution at *A,* team-revenue is the area under its respective *MR* curve bounded by its respective winning percentages. Each team's payroll is their win-weighted share of league payroll: $ct_1 = cT^*w_1$ and $ct_2 = cT^*w_2$. Profits for either team are the areas beneath their *MR* curves above respective team payroll. For *open league* equilibrium *at B*, total league payroll is reduced to c^*T because of a reduction in the demand for talent for both clubs. Infinite open-league talent is less valuable than a closed league $c^*T/cT^* = (1+\sigma)/(1+\sigma^{1/2})^2 = .515$ (for $\sigma=2$), because a team in a closed league is twice (1.94 times) improved by simultaneously adding talent and reducing the talent of their opponent. This is why player transactions between direct competitors in American leagues are doubly expensive.

Before and After Bosman

According to the weak-form *invariance proposition*, league equilibrium *A* defines competitive balance and player costs before and after the *Bosman* case, with or without the transfer system. The difference derives from the distribution of player costs between the transfer payments to teams and wage payments to players. Before *Bosman* clubs captured talent rent with the transfer payment. Without the transfer payment rent accrues to the players with higher salaries that approach their *MRP*. The major impact of *Bosman* on league balance derives from the abolition of the 3+2 foreign player quota rule and the integration of football player labor markets in Europe (and overseas after 2001). To see the effect of the abolition of the quota rule, consider a simplified two-league, two-team model, where σ intra-league imbalance between *i*-teams is complicated by σ inter-league revenue dominance between *j*-leagues. Separate league simultaneous π–max for w_{ij} yields the same intra-league balance for both leagues $w_{11}/w_{21} = w_{12}/w_{22} = \sigma$, with inter-league payroll imbalance $c_1T_1/c_2T_2 = \sigma$. The effects of the integration of European football labor markets are straightforward.

Before Bosman: If the native talent pools of domestic leagues are proportional to their country's relative revenue, such that $T_1 = \sigma T_2$ (*R* and *T* are both proportional to population), then the wage is the same between countries $c_1 = c_2$. Champions of the larger revenue league dominate inter-league competition in the same way as their own league, $w_{11}/w_{21} = w_{11}/w_{12} = \sigma$. If native talent pools are equal between countries $T_1 = T_2$, then σ-revenue disparities are reflected in the relative cost per unit of talent, $c_1 = \sigma c_2$, and inter-league championship competition remains balanced.

After Bosman: Open labor markets have one wage rate, $c_1 = c_2$. If native talent pools of domestic leagues are proportional to their country's relative revenue $T_1 = \sigma T_2$, then unification will have no effect on either intra-league or inter-league competitive balance between countries: $w_{11}/w_{21} = w_{11}/w_{12} = \sigma$. If native talent pools are equal between countries $T_1 = T_2$, then $R_1 = \sigma R_2$ revenue disparities will result in an inter-league loss of talent for league 2 such that $T_1 = \sigma T_2$. This accurately

[4] The same conclusion is drawn earlier in *General Theory*: "If the marginal product of playing talent is diminishing …the actual competitive balance solution under profit maximization will be more competitive than that predicted by league revenue maximization solution at A in Figure 1 [Vrooman, 1995, p. 976]."

describes competitive imbalance among European leagues (such as EPL and Ligue 1) since *Bosman* [Kesenne, 2007].

Invariance Proposition

The strong form of the *invariance proposition* holds that competitive balance in sports leagues will be the same, regardless of artificial labor market constraints, and that balancing rules shift rent from exploited players to monopsony owners. The *revenue sharing paradox* can be shown through a simple pool-sharing formula, $R_1' = \alpha R_1 + (1-\alpha)(R_1 + R_2)/2$, where each team blends an α-share of its revenue with an equal solidarity share of a total league revenue pool, $\alpha \in \{0,1\}$. The zero-sum league constraint implies $\partial w_1/\partial t_1 = -\partial w_2/\partial t_1$, and in a closed league the π-max α-sharing σ–solution becomes:

$$MR_1' = \alpha\sigma w_2 + (1-\alpha)(\sigma w_2 - w_1)/2 = c'T = \alpha w_1 + (1-\alpha)(w_1 - \sigma w_2)/2 = MR_2' \qquad (12)$$

which yields the same imbalance $w_1/w_2 = \sigma$ as (10), with payroll reduction $c'T = \alpha\sigma/(1+\sigma)$. The second solidarity-term share in (12) vanishes in both MR_1' and MR_2' at league equilibrium, because of the increased disincentive to win. The total solidarity $\alpha = 0$ solution is shown at A' in Figure 2 for $\sigma = 2$, where invariance holds, and the wage rate has been reduced at the minimum to the reservation wage.

Figure 2 about here

At the other extreme, the invariance proposition also holds for merit-sharing schemes, $R_1^* = \alpha R_1 + (1-\alpha)(R_1 + R_2)w_1$ where the a team's share of the pool is based on its performance w_1. In a closed league the merit-sharing solution becomes:

$$MR_1^* = \alpha\sigma w_2 + (1-\alpha)(\sigma w_2 - w_1)\, w_1 + (1-\alpha)(R_1 + R_2) = c^*T = MR_2^* \qquad (13)$$

Competitive balance remains $w_1/w_2 = \sigma$, but $c^*T = \alpha\sigma/(1+\sigma) + (1-\alpha)(1+\sigma+\sigma^2)/2(1+\sigma)$. In equilibrium the second term in (13) vanishes and $R_T = (1+\sigma+\sigma^2)/2(1+\sigma)$. The winner-take-all merit solution ($\alpha = 0$), is shown at A^* in Figure 2 where invariance holds, and each team spends all its revenue on payroll.

It is argued that solidarity sharing in the open-model leads to decreased competitive balance, and the invariance proposition does not hold. The general solution for open league sharing is:

$$2\alpha(\sigma w_2^2 - w_1^2) + (1-\alpha)(\sigma w_2 - w_1) = 0 \qquad (14)$$

If $\alpha = 1$ then (14) reduces to the open league solution $w_1/w_2 = \sigma^{1/2}$ from (11), but as a league increases its solidarity share $\alpha = 0$ and competitive balance approaches the closed league solution $w_1/w_2 = \sigma$ from (10). Both open and closed revenue sharing solidarity solutions are exactly the same at A' in Figure 2.

Payroll Cap in a Profit League

A league payroll cap constrains team payroll to a constant λ-share of the revenue of the average club in the league: $cTw_1 = \lambda R_T/2$. The constrained payroll cap equilibrium in a closed π-max league is:

$$CAP_1 = \lambda R_T/2w_1 = cT = MR_2 \quad (15)$$

In order for the cap to constrain Team 1 in the σ–model: $\lambda \leq 2w_1^2/R_T = 4\sigma^2/[(1+\sigma)(1+\sigma+\sigma^2)]$, and to achieve 50/50 balance, the cap should be set a $\lambda = 1.33/(1+\sigma)$. This constrained equilibrium is shown at *B* in Figure 3. The effect of the payroll cap on Team 1 is ambiguous, because gains from lower payroll $.5\ c(T - T^*)$ are offset by revenue losses from winning fewer games (the shaded triangle above cT). The effect on Team 2 is unambiguously superior, because it profits from lower payroll and higher revenues (trapezoid beneath MR_2 between *A* and *B*). The effect of the payroll cap on all players is unambiguously inferior, because all gains are derived from talent exploitation. Team 1 has an incentive to circumvent the cap, $MR_1 > MR_2$ at .500. Further, a deadweight revenue loss to the league (shaded triangle between MR_1 and MR_2) suggests that a mutually advantageous side deal exists between the clubs.

Figure 3 about here

One such side deal would be solidarity revenue sharing between teams. Consider the pooled revenue sharing arrangement discussed above in Figure 2 and shown again in Figure 3. As revenue is shared, MR_1 and MR_2 are vertically displaced downward and league payroll cap equilibrium between MR_2 and CAP_1 moves along CAP_1 from *B* to *C*. At payrolls below *C* the cap is no longer a constraint and league equilibrium is restored at $MR_1' = MR_2'$.[5] Below *C*, the invariance principle holds at $w_1/w_2 = \sigma$, and league π-max equilibrium approaches C' when $\alpha = 0$. In essence, revenue sharing compensates Team 2 for losing, so that both clubs can collusively maximize revenue. This leads to the conclusion that when taken alone, a league-wide salary cap will effectively constrain large market teams and improve competitive balance in a π–max league. When the cap is combined with revenue sharing, the disincentive for both teams to win will negate the cap and ultimately the league will return to its original state of imbalance $w_1/w_2 = \sigma$. In order for a combined payroll cap and revenue sharing to increase competitive balance *in a π-max league*, there must also be a payroll minimum set at a proportion of CAP_1.[6]

Recently G-14, the lobbying group for eighteen European "super-clubs," has proposed a salary cap of 70 percent of individual team revenues. The proposed G-14 cap is ostensibly aimed at controlling lavish spending of sportsman owners, such as Chelsea's Roman Abramovich (who is not yet a member of G-14). Unfortunately, the effect of the cap is also to constrain small market clubs, whose payroll revenue ratio is also higher than that of unconstrained larger market clubs. The obvious difference is that in its own interest, the G-14 seeks to constrain relative payroll rather than to equalize absolute payroll. The good news is that this will regulate positive profit margins for the benefactor/sportsman owner and smaller clubs, although both could care less. The bad news is that the proportional cap constraint will adversely affect the ability of smaller clubs to win, while allowing the larger clubs to increase their dominance. The G-14 cap-constrained π–max solution is $\lambda AR_2 = MR_1$, where λ is the payroll share of team revenue. For the σ–model this reduces to $w_1/w_2 = \sigma/(\lambda - .5)$, and implies that team payroll cap leads to increased imbalance for $\lambda < \sigma/(\sigma + .5)$ or $\lambda < .8$ for $\sigma = 2$ (not shown in Figure 3).

Champion Effect

[5] This would occur at $\alpha = [1 + (1+\sigma)/\sigma^2]/3 = .583$ in Figure 3 for $\sigma = 2$.

[6] The NBA has a soft cap (exceptions to keep teams together) of 57 percent of league revenue with a minimum of 75 percent of cap. The NFL has hard cap set at 59.5 percent of revenues after 2005 with a minimum of about 87.5 percent of cap.

Post-season championship tournaments complicate the simplifying assumption of concave revenue functions, because of a redoubled importance of winning. With the additional chance for post-season play, each team must be assembled not only to win its regular (domestic) season, but also to qualify and win the post-season championship tournament. Consider two asymmetric teams playing in two identical regular-season (domestic) leagues ($\phi = .5$), the winners of which will meet in a post-season tournament ($\phi = 1$) with potential revenue equal to a μ-proportion of regular season. Team 1 has $.5w_1^2$ probability of defeating its inter-league twin in the tournament, and $w_1^2 w_2$ chance of success against Team 2's twin. Expected revenue for Team 1 is $R_1 = \sigma [\, w_1 - .5w_1^2 + \mu(1.5w_1^2 - w_1^3)]$. At profit maximum:

$$MR_1 = \sigma w_2 (1 + 3\mu w_1) = w_1 (1 + 3\mu w_2) = MR_2 \tag{16}$$

The *champion* σ-solution is shown at B in Figure 4 for $\mu = .5$ and $\sigma = 2$. As the relative importance of the post-season tournament grows, the regular season (domestic league) becomes increasingly polarized, and beyond $\mu > .5$, domestic league existence is threatened by the insolvency of Team 2.[7] The league's solution is constrained by $MR_1 = AR_2 < MR_2$ beyond AR_2 maximum at $w_1 = (1 + 1/\mu)/4$. The most important implication of the c*hampion effect* is that revenue convexity introduces instability and polarization into profit-maximizing sports leagues.

Figure 4 about here

Sportsman League

In *sportsman leagues*, team owners are willing to sacrifice profit for winning. At the limit, a *pure sportsman* maximizes winning only, and spends all team revenue on payroll, such that $R_1 = ct_1$ and $R_1/w_1 = ct_1/w_1 = cT$. Regardless of whether talent markets are *open* or *closed* (because $t_1 = w_1 T$), the *sportsman league* win-max solution becomes:

$$AR_1 = cT = AR_2 \tag{17}$$

Substitution of (9) into (17) yields the *pure sportsman* σ–model result:

$$AR_1 = \sigma (1 - .5w_1) = cT = (1 - .5w_2) = AR_2 \tag{18}$$

with greater imbalance than either open or closed π–max solution (10) or (11): $w_1/w_2 = (2\sigma - 1)/(2 - \sigma)$; where $w_1 = (2\sigma - 1)/(1 + \sigma)$ and $w_2 = (2 - \sigma)/(1 + \sigma)$. Team 1's total win-max dominance of team 2 is shown at X in Figure 5 for $\sigma = 2$.

The bad news for a win-max *sportsman league* is total dominance of the larger market club at X. The good news is that something can be done about it. To see the equalizing effects of a payroll cap, reconsider the revised cap solution from (15) for a *pure sportsman* win-max league:

$$CAP_1 = \lambda R_T/2w_1 = cT' = AR_2 \tag{19}$$

where λ is the capped payroll share of total revenue. In the σ–model, the cap should be set at λ

[7] All $MR_1 = MR_2$ solutions for $\mu > .493$ lie above $AR_2 = 1 + (1.5\mu - .5)\, w_2 - \mu w_2^2$.

$= 2/(1+\sigma)$ for 50/50 league balance, and for maximum league revenue ($w_1/w_2 = \sigma$), the cap should be set where $\lambda = 4\sigma^2/(1+\sigma)(1+\sigma+\sigma^2)$. A two-thirds payroll cap for $\sigma = 2$ is shown in Figure 5 at *B,* where $CAP_1 = AR_2$. The payroll cap of c^*T^* is superior for both Team 1 and Team 2 revenues. Under the cap constraint, the payroll for Team 1 is reduced to one-half of its revenue, while Team 2 spends all of its revenue on payroll. Superiority of the cap for the teams derives partially from higher league revenue from increased competitive balance, but unfortunately for players, it also comes from a reduction in payroll to c^*T^*.

Figure 5 about here

In a pure sportsman win-max league the invariance proposition for revenue sharing does not hold true either. Reconsider the solidarity revenue sharing formula (12) modified for sportsmen:

$$AR_1^* = [(1+\alpha)\,R_1 + (1-\alpha)\,R_2\,]/2w_1 = \; cT^* = \; [(1+\alpha)\,R_2 + (1-\alpha)\,R_1\,]/2w_2 \; = AR_2^* \qquad (20)$$

If $\alpha = 1$, then (20) reduces to (17) and $AR_1 = AR_2$, but if $\alpha = 0$ in a total solidarity league, then $w_1 = w_2$. Maximum league revenue could be engineered by setting $\alpha = [\sigma^4+\sigma^3-(\sigma+1)] / [\sigma^4+\sigma^3-(3\sigma+1)]$: if $\sigma = 2$, then $\alpha = .636$ for $w_1/w_2 = \sigma$. The solidarity sportsman equilibrium is shown at *A* in Figure 5. League revenue is greater at $w_1 = w_2$ than (18), and obviously it is divided evenly between the clubs. As a result, Team 1 is worse off and Team 2 is better off in terms of revenue, and both have zero profits because they are spending all revenue on payroll. In a sportsman league, the good news is for the players, whose payroll has risen to cT^*. Finally, the joint use of a cap and revenue sharing could effectively clone total equality in revenue ($cT^*/2$) at *A*, payroll $c^*T^*/2$ at *B*, profit and performance $w_1 = w_2$. In this total solidarity case, the payroll cap serves only to control payroll and engineer identical profit margins for both teams. This leads to the important conclusion that revenue sharing in a π-max league has no positive impact on competitive balance and allows increased exploitation of talent, but in a win-max sportsman league the opposite is true. In a sportsman league intuition prevails over paradox, and revenue sharing generates team parity and increased compensation for talent.

III. REVOLUTION IN THE SKY

The Big Five

Revenue in European professional football is highly concentrated in a few elite teams in the five premier leagues in England, Italy, Spain, Germany, and France (Big Five). Big-Five revenues of €6.3billion comprise 54.2 percent of an estimated €11.6 billion Euro-market in 2005.[8] Revenues and payrolls for the Big Five are compared in Table 1for the decade after *Bosman.* Within the Big Five Leagues in 2005, the English Premier League garners 31.6 percent share, followed by Italian Serie A with 21.3 percent, German Bundesliga, 9.7 percent, Spanish La Liga 26.4 percent and French Ligue 1 with 11.1 percent. EPL's share has increased over the decade to the extent that 2005 revenues exceed all of Big Five in 1996. A more immediate concern is the dominance of a few elite teams with each of the Leagues. The top five revenue teams within EPL, Bundesliga and Ligue 1 generate

[8]Source: Deloitte Sports Business Group. Big Five revenues triple the €2 billion revenues of the next seven largest Euro-leagues: England's second division (the Championship at €456 million), premier leagues in Netherlands (Eredivisie at €321 million) and Scotland (Premier at €257 million), second tier Italian (€255 million) and German (€225 million) leagues; Portugal's Super-Liga (€193 million), Ligue 2 in France (€165 million) and Belgian Jupiler premier league (€126 million).

approximately half of league revenues, while the richest five in Serie A and La Liga capture a two-thirds league revenue shares. Indeed, the top three teams in Serie A and La Liga alone produce one-half of their leagues' total revenues.

Table 1 about here

Payrolls in four of the Big Five leagues have predictably grown even more rapidly than league revenues over the decade since *Bosman.* EPL payroll annual growth was 19.1 percent and revenue growth was 16.2 percent. Recent experience shows that a 50-55 percent payroll/revenue ratio is a safe cost coverage margin, and that 60 percent to two-thirds ratio approaches the threshold of risk intolerance. A payroll ratio above 75 percent (Serie A 2001-2004) signals insolvency and financial collapse. These measures reveal inordinate payroll pressure for all Big Five leagues post-*Bosman* except the Bundesliga.[9] Salary escalation is the natural consequence of the abolition of out-of-contract transfer fees in *Bosman* (1996). Salary escalation has pushed all leagues collectively to a threshold of risk intolerance, because the leagues are competing in an open talent market, while being constrained by closed-league domestic product markets [Kesenne, 2007]. Shrinking profit margins also suggest a combination of two events. If club-owners are profit-maximizers, then they are being driven by convex objectives of Champions League revenue hope at the upper extreme and by relegation fear at the lower extreme. Operation of teams at the threshold of insolvency also suggests that club-owners are win-maximizing sportsmen, who are willing to incur debt to finance the quality of their teams. This section briefly investigates the European football revenue revolution and the aftermath of insolvency.

TV-Free Europe

The driving force behind simultaneous revenue revolutions in all European leagues is a series of television rights fees contracts coinciding with new pay-per-view and digital technologies delivered over emerging satellite platforms. These revolutions were deepened by historical constraints placed on the natural evolution of private television by public monopolies throughout Europe. In the mid-to-late 1990's the underdeveloped private European market remained wide-open. A sixteen percent compound annual growth in total EPL turnover since its breakaway from the Football League in1992, was doubled by a 33 percent growth in broadcast revenues. EPL broadcast revenues grew from nine percent of total revenue in 1992 to twelve percent at the time of *Bosman,* and then suddenly exploded to 45 percent by 2004. In 1995 EPL had the lowest broadcast revenue of all Big Five leagues. By 2005 EPL could easily redouble the Bundesliga, La Liga and Ligue 1, and were seconded by Italian Serie A.[10]

The quantum leap directly from broadcast to satellite pay-per-view without cable in both Serie A and La Liga was the confluent result of competitive bidding for individual club rights fees in

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[9]Bundesliga was the exception with payroll growth 12.7 percent and 14.1 percent for revenue. One-half of Bundesliga 2002/03 liabilities are held by two clubs: BVB Dortmund (€231 million) and Schalke 04 (€547 million) [Fricke, 2006]. French Ligue 1 payrolls include 30 percent *charges sociales*, which reduces actual payroll ratios in Table 1 to 50 percent. As the sixth largest, English Football League Championship (Division 1) finds itself beyond the insolvency margin throughout the period, before and after the financial collapse of ITV in 2002.

[10]*EPL:* BBC 1983-88; ITV 1988-92; BskyB/BBC 1992-01; BSkyB/ITV 2001-04; BSkyB/BBC 2004-07. *Ligue 1:* Canal+ exclusive rights1984-99; Canal+/TPS 2000-05. *Serie A:* RAI 1984-93; RAI/Tele+ 1993-99; RAI/Tele+/Stream 1999-2004; Sky Italia (Stream / Tele+) 2003-04. *La Liga:* Canal+ 1990-98 €325million; Via Digital (Antenna3)/(Sogecable) Canal+ 1996-2001 individual PPV contracts. Real Madrid/Barcelona five year contracts 1999-2003 and 2003-08. *Bundesliga:* ARD+ZDF 1983-92; SAT1 1992-97; Premiere/SAT1 1997-2003 Premiere/ARD+DSF+DT 2003-06; Original Kirch Group rights €1.53 billion 2000-04. After financial collapse of Kirch in 2002: replacement contracts for 2002-04 €290million with options 2004-06 €295million and €300 million.. *EPL Division 1* (Championship): ITV overbid €157.5 million in 2000 for rights 2001-04 and then went into administration June 2002.

an under-developed private sector. Competition in La Liga between PPV channels Canal+ and Via Digital for individual club rights increased total fees by over 200 percent from 1996 to 1997. Hyper-revolution in Serie A broadcast fees came in two stages. After the introduction of PPV in1996/97 increased fees by 90 percent, a competitive bidding war between Tele+ and Stream for Parliament-mandated individual club rights increased total fees by 140 percent from 1999 to 2000.[11] Since the revolution began, Serie A has become most heavily dependent on TV money (55 percent of total turnover) of all Big Five leagues. The top three clubs in Serie A and La Liga receive over one-half of their league's broadcast revenue.[12] Distribution of broadcast fees the three Big Five leagues which negotiate contracts collectively is much more egalitarian,[13] but that is rapidly changing as collective rights fees continue to explode.[14]

Breakaway Threat

The English Premier League breakaway from the Football League in 1992 was the unavoidable consequence of the revolution in broadcast rights.[15] The seeds for revolution were sown in 1988 with the dissolution of the BBC/ITV broadcast cartel. ITV bypassed BBC in a plan to form a rebel-ten-team super-league with the *Big Five* revenue clubs (Arsenal, Tottenham, Liverpool, Everton and Manchester United) at its core. In the 1988 broadcast rights auction, a yet to be launched (1989) British Satellite Broadcasting (BSB), joined with BBC to bid €58 million over four seasons

[11]Both of these rapid-revolutions were followed by stasis as competition was consumed by merger In 1999 Italian Parliament decreed that all football clubs would negotiate individually with broadcasters, but that no pay-TV broadcaster could hold more than 60 percent of the rights to Serie A clubs. The 60 percent rule was to pre-empt Rupert Murdoch's incursion into the Italian TV market. Murdoch's Sky Italia was created from the merger of competitors Stream and Tele+ in 2003. These moves occurred under center-right government of Prime Minster Silvio Berluscon1 2001-06, owner of Serie A club AC Milan. Collective rights are proposed under center-left government of Romano Prodi (2006)

[12]The 2002/03 season in Serie A was delayed because eight Serie A clubs did not have PPV contracts with Stream or Tele+ (Sky Italiia 2003). Serie A Big 3 2004/05: AC Milan €138 million, Juventus €124.4 million, and Inter Milan €103.2 million (€366 million) and La Liga Big Three: Real Madrid €88 million, Barcelona €79 million and Valencia €44 million (€211 million). Real Madrid and Barcelona shares could approach 60 percent with new individual seven-year contracts 2006-2013 for €1.1 billion and €1.0 billion, respectively.

[13]In 2005 Bundesliga broadcast revenue shared 77.5 percent Bundesliga 1 and 22.5 percent, Bundesliga 2. Within Bundesliga, 50 percent shared equally, 37.5 percent based on merit over the last three years and 12.5 percent based on current standings. In French LFP, broadcast split is 81 percent: 19 percent between Ligue 1 and Ligue 2. Ligue 1 takes all between €450 and €550 for 2005/2008 TV deal with Canal+. Beginning in 2005, Ligue 1, 50 percent shared equally (solidarity), 30 percent based on league finish (25 percent current season, five percent last five seasons) and 20 percent based on appearances (15 percent current and five percent last five seasons). Ligue 2 split is 90 percent solidarity and ten percent merit. Before 2005, Ligue 1 split of 83 percent solidarity, ten percent merit and seven percent appearances. Increased merit sharing under *Charte 2002 des clubs de football* justified on premise that large revenue Ligue 1 clubs have a disadvantage in international competition (Champions League), because of solidarity sharing. Merit sharing was increased for the €1.8 billion 3-year Canal+ deal 2005-08.

[14] Rights contracts beyond 2005: *EPL:* BSkyB/Setanta/BBC 2007-10 €932 million per year. *Serie A*: Mediaset/Sky Italia 2004-07: €482million, €550million and €560million. *Ligue 1*: Canal+ (after merger with TPS) 2005-08: €1.8 billion: €550million, €600million, €650million. *Bundesliga:* Arena/ARD+DSF+ZDF+DT: €1.26 billion 2006-09. *La Liga:* MediaPro €1 billion Barcelona rights seven years 2006-13 (€125millionyear 2006/08 + €150 million/year 2009/13) and €1.1 billion for Real Madrid rights 2006/13.

[15]The breakaway began in the vacuum created by a five-year English football exile from Europe following the Heysel disaster in the Liverpool-Juventus 1985 European Cup Final. An earlier breakaway threat was avoided in 1986 when the Big Five clubs were satisfied with an increased 50/50 share between Division One and three lower Football League divisions. Before the breakaway the Football League had 92 teams in four divisions: 20 teams in Division 1 and 24 teams in each of lower three divisions. As part of the breakaway agreement, the first division became the Football Association Premier League with 22 teams for four years 1991/1995 and twenty teams thereafter.

1988/1992. In an effort to appease the Big Five clubs, the bid included an increase in Division One's share from 50 percent to 80 percent (20 going to the lower three divisions of the Football League). ITV's original bid of €48 million was only for the rights to the breakaway ten-team league, but it was increased to a winning bid of €66 million for all of English Football League First Division. Division One's revenue share was 75/25 split (previously 50/50 since 1986) with the rest of the Football League. The history of English Premier League broadcast rights revolution is shown in Table 2.

Table 2 about here

When the Premier League breakaway actually occurred in 1992, things did not go according to the plans of ITV and the Big Five clubs. ITV had crafted the breakaway with the Big Five clubs, only to have their €390million bid trumped at the last minute by a second BSkyB/BBC bid of €453 million.[16] The English Premier League revolution began with the exclusionary coalition of ITV and Big Five, but in the end it became a more proletarian tail-wagging-the-dog. The BSkyB/BBC bid was for 60 games, while ITV planned only 30 games. BSkyB/BBC guaranteed the appearance of all clubs and at least €2.24 million to each. Whereas, over the previous four seasons, ITV had carried Big Five matches exclusively. All of the Big Five clubs voted against the BSkyB/BBC bid in 1992, except Tottenham, whose chairman provided satellite dishes to BSkyB. Given the broader support of smaller clubs, the BSkyB/BBC bid received an EPL majority by one vote, 14-6-2.

Since the breakaway, the Football Association Premier League has shared nothing with the Football League and remains connected to the new First Division only through relegation-promotion.[17] As a result, the revenue gap between EPL and the Football League has since widened.[18] Within the EPL, broadcast rights are shared fifty percent for solidarity, 25 percent for merit (standings), and 25 percent for facility fee (based on appearances). A one-half TV share is given to relegated teams for two years, and international media revenues are shared equally. As revenues have soared and leagues have polarized, EPL's redistribution formula has become the model for the rest of the Big Five leagues (including Serie A's probable return to collective rights). In spite of fifty percent TV solidarity sharing, revenue disparity within the leagues continues to be a divisive force, because of revenue convexities from Champions League prize at the top, and the threat of a relegation drop from the foot of the table.

Sportsman Leagues

Relative financial strengths of clubs within leagues can be seen through comparative analysis of revenue and costs within the largest and smallest of the Big Five leagues. Financial results of FA Premier League and LFP Ligue 1 are shown in Table 3 for the 2004/2005 season. EPL revenue

[16]BSkyB/BBC had originally bid €402 million, but increased its bid after the ITV bid was leaked. The merger of Sky Television (News Corporation) and BSB as BSkyB in 1990 was an effective takeover by Rupert Murdoch's Sky.

[17]Later ITV would overbid €157.5 million for annual Football League rights 2001/04 and go into in administration in 2002. The previous BSkyB Division One five-year deal was €186 million 1997-2001. Football League Division One (now called the Championship) currently receives about €75 million in TV rights per season.

[18]After 2001EPL gives six to eight percent to grassroots football, in exchange for FA support of collective selling of TV rights in 1999 OFT Case. The bottom three teams from the EPL are relegated to the Football League Championship and the top two and winner of a playoff of places three through six of the Championship are promoted to EPL. The Championship promotion playoff final is carries the highest prize of any game in Europe. The jump to Premier League is a revenue boost of about €40 million, while the drop is a loss of €30 million. The 3.2 revenue ratio between the average clubs in the top two divisions in the last year of the Football League has risen to 5.2 by 2005. Revenue dominance of EPL over the Football League Championship (sixth largest league) has increased from a ratio of 2.9 (€253 million over €86 million) in 1992, to 4.4 (€1.99 billion over €456 million) in 2005. EPL revenues are three times Football League combined.

dominance over Ligue 1 is reflected in the relative revenue ratio of 2.5 for total revenue and television rights As EPL's lowest revenue club, Crystal Palace at €52 million would place fifth in Ligue 1 revenue, just behind Olympique Marseille (OM). Crystal Palace's EPL-low TV rights of €27.4 million would place them third in Ligue 1 ahead of OM with only €22.1 million in 2005. Highest to lowest revenue ratio within EPL is 2.6, compared to top to bottom ratio in Ligue 1 of 5.7. The intent of increased (50:30:20) merit sharing for Ligue 1 in 2005 was to allow top French clubs to become internationally competitive. At the top, the revenue ratio of Manchester United to Olympique Lyonnais (OL) is more competitive at 1.6. The French exception to the other Big Five Leagues lies in the competitive balance of Ligue 1, in spite of home market revenue disparities. OL has won five consecutive Ligue 1 championships (since 2001/02), but the large market clubs Paris Saint-Germain (PSG) and OM have consistently underperformed. Quality teams like Lille and Auxerre can usually be found in the mid-revenue range of Ligue 1. In EPL and other European Leagues, club-revenue and team-position in the standings are more closely related.

Table 3 about here

On average, both leagues are at the 60 percent risk tolerance payroll margin. Squeezing the margin with payroll ratios above two-thirds is characteristic of low-revenue teams struggling to avoid relegation, and sportsman clubs at the top, trying to qualify for European competition. With obvious exceptions of Chelsea in EPL and OM in Ligue 1, clubs with above average revenues have payroll ratios below the 55 percent risk threshold. Revenue certainty from TV rights fees combined with payroll cost certainty below the risk threshold, make high revenue clubs prime targets for foreign acquisition.[19] With the exception of yo-yo clubs that percolate at the promotion-relegation margin, below average clubs have payroll ratios approaching insolvency.[20] This suggests that both of these are sportsman leagues, where large clubs are constrained by the insolvency of their small revenue opponents. If these are sportsmen leagues, then ownership and financial structures of clubs are linked to the on-pitch performance of their teams [Vrooman, 1997a]. If financial and football decisions are connected, then highly leveraged acquisitions of publicly listed clubs drives payroll escalation to the edge of insolvency.[21] The syndicated sportsman is aggressive because he is playing with "other

[19] Foreign ownership in the EPL: American Tom Hicks owner MLB Texas Rangers and NHL Dallas Stars and Canadian George Gillett owner NHL Montreal Canadiens took over Liverpool (2007) €326 million (€260 million equity + €66 million debt); American Malcolm Glazer owner NFL Tampa Bay Buccaneers (1995) took over Manchester United (2005) for €1,080million; and Randy Lerner owner of NFL Cleveland Browns (1998) took over Aston Villa (2006) €112 million. Russian Roman Abramovich, purchased Chelsea (2003) €201million and Alexandre Gaydamak took over Portsmouth (2006) €77.5 million; and Egyptian Mohamed al-Fayed bought Fulham (1997) €44.7million. Icelander Eggert Magnusson took over West Ham United €161million (€126.7million plus €34.3million debt). In Ligue 1: Olympic Marseilles was sold by main shareholder Robert Louis-Dreyfus (Adidas) to Canadian Jack Kachkar for €115 million in 2007. PSG was sold by Canal+ to a financial syndicate of US firms Morgan Stanley and Colony Capital and French company Butler Capital in 2006 for €41 million

[20] With a prize of €40 million, EPL promotion playoff is the richest game in Europe. Norwich City increased revenue from €21million in 2003/2004 to €56 million in EPL 2004/2005. West Brom increased turnover from €30 million to €54 million. After winning the promotion playoff in 2003/04 Crystal Palace increased revenue from €15 million to €52 million in EPL 2004/05. Southampton revenue fell from €67 million to €38 million in 2006 after relegation. TV rights fell from €30million to €12.1million including a half -share parachute.

[21]Twelve of the 20 EPL clubs in Table 3 are publicly listed companies (PLC). Manchester United de-listed from LSE in June 2005 after take-over by Malcolm Glazer. Aston Villa de-listed October 2006 after takeover by Randy Lerner. Chelsea de-listed in July 2003 after takeover by Roman Abramovich. Under French Law, LFP clubs could not publicly list until 2007. OL was the first of Ligue 1 Big Three to go public with IPO in February 2007 at €24/share to raise €103 million capital for new stadium for 2010. In European football public listing is a common method of raising capital from fans for stadium construction similar to the personal seat license (PSL) in the US.

people's money." The highly leveraged sportsman is just as aggressive, but at the limit he is constrained by the club's debt, often to the point of financial collapse.[22]

Icarus Descending

A deeper understanding of the dynamics of football debt requires comparative financial analysis of four selected EPL clubs for a four-year period preceding the 2005 season. In the first dozen years of its existence, the Premiership was dominated by two clubs. Manchester United won eights championships and Arsenal won three.[23] At the turn of the century two rival mid-level clubs, Leeds United and Chelsea would push the glass ceiling that separated the rest of EPL from the Big Two. Chelsea would succeed and win EPL Championship in 2005 and 2006, but Leeds United would stumble and fall into financial distress and relegation to Division One. The financial record of the rise of Chelsea and the fall of Leeds United is compared to the debt structure of the Big Two in Table 4.

Table 4 about here

Manchester United is one of the most valuable sports franchises in the world, worth an estimated €1.138 billion in 2005.[24] Given this dominant market position, Man-U's exceptionally high payrolls are still less than 50 percent of revenue. Major transfer deficits are easily absorbed by cash flow, and profit margins are well over the 16 percent benchmark 2001-05. Before Malcolm Glazer's €1.08 billion takeover in May 2005, Man-United was debt free. After the highly leveraged transaction, Man-U's 2006 net debt stood at €864 million, an 80 percent leverage ratio. Before the LBO, Man-United's dominance of EPL was beginning to slip on the pitch. Two third-place EPL finishes were accompanied in 2004 and 2005 by two final sixteen disappointments in Champions League. For Man-U debt/revenue ratios over 2.0 are considered risky business.[25] United's debt ratio of 3.6 in 2005 is beyond acceptable debt coverage, and the 80 percent leverage could constrain the Red Devils long run success on the pitch.

Given the competitive pressure on payrolls from rival Man-U, Arsenal's main problem is profit compression that payroll ratios over 60 percent create at the bottom line. One reasonable solution is to increase cash flow with a stadium cash cow. Most of Arsenal's €390 million debt for 2006 is being used to finance the 60,000-seat, 150-suite Emirates Stadium that opened in 2006. A ten percent return suggests that the €580-million stadium should increase match-day revenues by €58 million annually. This new cash flow would increase Arsenal's 2005 match-day take of €55.4 million to more than equal Man-U's match-day receipts of €102.5 million at 76,000-seat Old Trafford.

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[22] EPL 2005 debt: Manchester United €864 million (leveraged takeover), Arsenal €228 million (new stadium), Chelsea €194million (benefactor loans), Fulham €177 million (benefactor loans), Manchester City €164 million (new stadium), Middlesborough €97million, Newcastle United €57million, Blackburn Rovers €42 million, Bolton Wanderers €37 million, Southampton €36 million, Everton €28 million, and nine others with €57 million.

[23]The 1995 Premiership was won by the Blackburn Rovers, the ultimate sportsman club. When home town Blackburn steel baron Jack Walker bought the Rovers in 1991 they were mired in 19th place in the second Division of the Football League. The Rovers were promoted to EPL in its first season 1993 and finished fourth, second in 1994 and won the Premiership in 1995. In the rapid rise to Champions, the Rovers set then English record for transfer payments for Alan Shearer €5 million in 1992 and Chris Sutton €7.5 million in 1994.

[24]*Forbes* estimates NFL Washington Redskins at €1.18 billion as most valuable. MLB's New York Yankees are valued at €851 million. Real Madrid's 2005 value is estimated at €839million, AC Milan at €764 million, Arsenal at €697 million and Chelsea at €421 million. For other NFL and top 30 European Football values, please see Table 8 below.

[25]United's 2005 value is 4.5 times its revenue. This rule assumes a value of 4.0 times revenue and leverage ratio of 50 percent. An average value multiple of 2.4 times revenues suggests a 1.2 revenue/debt coverage ratio rule for European football.

Arsenal's future value should exceed its 2005 estimate of €697 million, four times its 2005 revenue of €172 million. Stadium investment is the positive use of debt, and fortunes of the Gunners should improve on the pitch.

Leeds United PLC was the last champion of pre-EPL Division One in 1992, and finished mid-table in EPL throughout the 1990's. By 2000 Leeds was chasing the Big Two and embarked on a five-year strategy to make Leeds "one of the top clubs in Europe." Leeds finished fourth in EPL 1999, 2001 and 2002, and third in 2000, which qualified Leeds for the 2001 Champions League, where they reached the final four. Leeds' total revenue increased from €78.1 million in 2000 to €128.6 million in 2001. TV money doubled from €26.8 million to €54.5 million. Unfortunately, the strategy assumed the certainty of its own success, and when Leeds failed to qualify for Champions League by one position in 2001 and 2002, revenues crashed and player-transfer deficits rapidly became club debt. Leeds football talent was caught in a revolving door. Transfer spending was €72.6 million for the 2001 season, followed by another €26.8 million for 2002. After the 2002 season, €76.3 million was transferred out, followed by another €24.6 million after 2003. Leeds had refinanced its dream-team with a 25-year securitization loan for €89.4 million backed by future gate receipts in 2001.[26] In 2002 Leeds €116 million debt consumed its €121 million in revenue, and by 2003, Leeds €198 million debt exceeded total club-value of €177 million. By the 2004 season, the fifth year of the Champions League plan, the pubic listing of Leeds United PLC was canceled by London Stock Exchange and the club was relegated to Division 1.

At the time of Leeds collapse, EPL rival Chelsea was under similar financial distress. The red ink for 2002 is roughly the same for each club: €120 million in debt is inadequately covered by €138 million in total revenue, payroll ratio over 60 percent and heavy transfer spending. The 2002 clubs were separated by only two points and one position in EPL standings. The drastic difference in their subsequent fortunes derives from the €208.6 million purchase of Chelsea by Russian oilman Roman Abramovich in 2003. The €88.6 million takeover included assumption of €120.2 million in debt. The difference is that Chelsea debt was financed by zero-interest benefactor loans, while Leeds was tied to zero-tolerance securitization loans on risky gate revenue streams.[27] While Leeds was dumping players and living off transfer fees, Chelsea was overloading transfer markets with record net transfer fees paid: €195.2 million in 2004 and €188.8 million in 2005. Chelsea finished fourth in EPL, 20 points ahead of Leeds in 2003 and qualified for Champions League. In 2004, Chelsea jumped to second in the Premiership ahead of Man U and made the semi-finals in Champions League. In 2005 Chelsea was EPL Champion finishing ahead of the Big Two, and again made the final four of Champions League.[28]

Chelsea spending was distorting transfer markets to the extent that G-14 proposed a cap on team payrolls at 70 percent of team revenue. As discussed above, this cap would constrain small revenue clubs as well as Chelsea. The preferred cap is a percentage of league revenues (revenues of

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[26]Transfers-in for 2001: Rio Ferdinand €26.8 million, Robbie Keane €17.9 million, Olivier Dacourt €10.7 million and Mark Viduka €9.7 million; transfers-in for 2002 Robbie Fowler €16.4 million and Seth Johnson €10.4 million. Transfers-out after 2002: Ferdinand €43.4 million to Man U, Jonathan Woodgate €13.4 million to Newcastle, Keane €10.4 million to Tottenham and Fowler €8.9 million to Man City. Transfers-out after 2003: Alan Smith €8.9 million to Man U, Harry Kewell €7.5 million to Liverpool, DaCourt €5.2 million to Roma and Paul Robinson €2.2 million to Tottenham. By selling players to EPL rivals, Leeds was maximizing returns in a weak transfer market, but also doubling the damage to its standings in the league.

[27]After failing to qualify for Champions League in 2002, Leeds gate revenue was down eighteen percent (number of cup matches fell from 11 to five), and European broadcast revenue was down €16 million, even in first year of BSkyB TV deal.

[28]While Chelsea set EPL records for points and wins in 2005, one-time rival Leeds was mired mid-table in Division 1. In 2006, Chelsea won the Premiership and Leeds lost the Division 1 promotion playoff (the richest game in Europe) to Watford.

the average club), and all clubs have the same payroll cap level, rather than same cap rate. Chelsea's losses of €340 million in 2003-05, 80 percent payroll ratios and debt over €200 million are not sustainable, regardless of the wealth of the benefactor sportsman. Chelsea has a five-year plan to operate independently of benefactor loans. The long-term viability of Chelsea's run at the top of Europe requires expansion or replacement of Stamford Bridge with its limited capacity of 42,000. The conclusion is that with few exceptions, the EPL is a sportsman league characterized by agency effects of syndication and financial leverage. It is also clear that real world economics of European football is distorted by an uncertain promise of Champions League at the top and the threat of relegation at the bottom of every league.

IV DIALECTICS OF FOOTBALL

Invariance Proposition

The economics of sport is unique in that it involves a synergistic coexistence of evenly-matched opponents. This is why the Scottish Football League (SPL) rivals Glasgow Rangers and Celtic have collectively been called the *Old Firm* for the last century.[29] Unfortunately, storied dualism of the *Old Firm* comes at the expense of competitive imbalance within SPL. The two Glasgow clubs generated seventy percent of SPL's €252.4 million in revenue in 2005, and the *Old Firm* has won 90 of 108 Scottish titles since 1890. The *Old Firm* is over-spending to contend in Champions League, and the rest of the SPL is selling its soul to keep up with the Old Firm.[30] The SPL is not alone in its economic determinism. The top finishers in the nine major European leagues are shown in Table 5 for the decades before and after *Bosman*. Each of the Big Five leagues has had three dominant teams, and the smaller four leagues have their two-team equivalent of the *Old Firm.* The question is whether free agency after *Bosman* has made any difference in the competitive imbalance of the beautiful game.

Table 5 about here

The *Bosman* judgment in1995 has two important implications for European Football. The first involved the illegality of transfer payments for players whose contracts have expired moving within the European Union and the second involved the illegality of the 3+2 foreign player quota rule in the EU.[31] After *Bosman,* major transfer fees are still paid for players who are playing out their

[29] *Scottish Referee* in 15 April 1904 issue described the collusive nature of the rivalry as "the Old Firm of Celtic and Rangers LTD." Of the 124 times the *Old Firm* has met in Premier Division play, Rangers have won 42 games and Celtic have won 47, with 35 ties. All-time results: 371 matches, Rangers 143 wins, Celtic 133 wins, 91ties. Rangers have scored 529 goals, Celtic 508 goals as of 24 April 2006. The Old Firm was split in 2006 with second place finish of Heart of Midlothian, after €6 million takeover (plus assumed debt €29 million) by Lithuanian banker, Vladimir Romanov early in 2006. Hearts are the only non-*Old Firm* SPL club to play in Champions League.

[30]Celtic payroll ratios have consistently been around 60 percent since 2000, while Rangers ratios have dropped to 50 percent in 2005 from a high of 83 percent in 2002. Non old-firm SPL payroll/revenue ratios have improved to 60.4 percent in 2005 from 94 percent in 2002, due largely to teams being placed into administration. In 2003 one-half SPL clubs were insolvent.

[31]Football clubs argued that they were due the transfer fees as compensation for training expenses. EC countered that transfer fees were determined more by what a player was paid, than by his development expense, and that development cost recovery is not justified for secondary transfers. FIFA, UEFA and EC reached a vague compromise of transfer regulations in 2001 (*Bosman* II), where compensation was required for players until the end season of their 23rd birthday and transfers were limited to two windows per season. MLB clubs recover their development cost expense after four years [Vrooman, 1996].

contracts, and new variations of the foreign quota rules are being re-introduced in domestic leagues throughout Europe.[32] According to the weak form of the *invariance proposition*, however, competitive balance within European football leagues would be the same, with or without the transfer system. In this Coasian argument, transfer fees allow club owners to capture rent from players through exploitation of football talent [Fort and Quirk, 1995; and Vrooman, 1995]. If owners are profit maximizers, then transfer fees should become a decreasing portion of total wage costs, as rent is shifted to the players, and competitive balance should remain unchanged after *Bosman*. The abolition of the 3+2 rule allows talent to migrate from low revenue provincial leagues to high revenue leagues, and the talent distribution between clubs from low revenue and high revenue leagues should polarize in European competition.

Before and after Bosman

The deterministic process of season to season competitive imbalance is best captured in a simple auto-regressive *beta*-measure of continuity, where $w_t = \alpha + \beta w_{t-1}$. If $\alpha = .500$ and $\beta = 0$, then the league is a random walk from season to season, and if $\alpha = 0$ and $\beta = 1$, then the outcome of the league season is determined. Optimum balance lies between these extremes. Competitive balance *betas* are estimated for the Big Five leagues over the ten years before and after *Bosman,* using interaction binary variables to test for differences between periods and among leagues.[33] The *beta* coefficients and their respective *t*-ratios are shown in Table 6.[34] *Betas* for the two periods are shown along the diagonal of the matrix, and *beta* differences among leagues are shown in respective off-diagonal cells. For example, the EPL *beta* is .568 before *Bosman*, and .769 after *Bosman* and the difference is significant. French Ligue 1's *beta* is .623 before 1995, and .455 *beta* afterwards, and the difference is also significant. In off-diagonal, .052 is the insignificant difference between the *betas* of EPL and Ligue 1 before *Bosman*, and -.314 is the significant difference after *Bosman.* This means that EPL has become significantly more determined after *Bosman* and French Ligue 1 has become less determined. The *beta* matrix leads to the following conclusions. The outcomes of all leagues are largely determined by past performance. The most determined Big Five league is Italian Serie A, and least determined is EPL before *Bosman*, and French Ligue 1 afterwards. The EPL is not statistically different than French Ligue 1 pre-*Bosman*, and not different from Serie A post-*Bosman*. These results generally support the invariance proposition, but the most important finding is clear evidence that EPL seasons have become significantly more determined after *Bosman.*

Table 6 about here

[32]Beginning in 2007, UEFA required at least four homegrown players on 25-man club squads competing in UEFA competitions, including Champions League and UEFA Cup. By 2009 home grown quota will be eight (4+4 rule) with at least four domestic players plus four club-trained players. Top five all-time transfers: Zinedine Zidane €68 million, Juventus to Real Madrid (2001); Luis Figo €55.2 million, Barcelona to Real Madrid (2000); Herman Crespo €52.9 million, Parma to Lazio (2000); Gianluigi Buffon €48.6 million, Parma to Juventus (2001); and Christian Vieri, €47.8 million Lazio to Inter Milan (1999). Top Five EPL transfers: Andriy Schevchenko €44.7 million, Milan to Chelsea 2006; Rio Ferdinand €44.4 million, Leeds to Man U 2002; Juan Sebastian Veron €41.9 million Lazio to ManU (2003); Wayne Rooney €40.2 million, Everton to ManU (2004) and David Beckham €36.5 million, ManU Real Madrid (2003).

[33]Win percentages are the points scored on a two-point per win system as a percent of possible points ($W\% = (2W + D)/2G$. To capture yo-yo futility, average win percent of teams promoted is a function of average win percent of teams relegated.

[34]In results for the next four leagues not shown here: Netherlands Eredivise, before beta is .847 and after beta .773; Portuguese SuperLiga, before beta .839 and after beta .752; Belgian Jupiler before beta .675 and after beta .687; and SPL before beta .712 and after beta .746. EPL beta before *Bosman* is significantly less than Eredivisie and SuperLiga, and Belgian Eerste Afdeling is significantly less than Eredivisie and SuperLiga before *Bosman*. There are no statistical differences between EPL and the other four smaller leagues post-*Bosman*.

Transfer fees, talent movement and quality of competition have all behaved as predicted since *Bosman.* In 1996 total payroll of €243 million shown for EPL in Table 1 was exactly one-half of total player expenditures €486 million, and transfers were divided about sixty/forty between fees paid for English players (28.8 percent of total) and fees paid for non-English players (21.2 percent of total). Payroll has grown by 18.4 percent annually since *Bosman* to €1.68 billion in 2005, and transfer payments have dropped from one-half of total player expenses to thirty percent. English transfers fees have dropped from 30 percent to about twenty percent of the total, and foreign transfers have held steady at 20 percent of total league player expenses of €1.677 billion in 2005. Much of the shift away from home-grown domestic transfer payments is related to the influx of foreign legions of football talent into EPL. In EPL's first season 1993 just over twenty percent of the players were non-English. By 1997, the proportion of foreign players had doubled to over 40 percent. In 2002 the foreign players had assumed the majority, and by 2007 season non-English player concentration approached 60 percent. The flood of football talent into high-revenue leagues has noticeably affected the relative quality of play among European football leagues. Consider the case of high revenue EPL and relatively low revenue French Ligue1. At the time of *Bosman* in 1996, UEFA ranked Ligue 1 second only to Serie A in Europe, and EPL was ranked seventh out of the Big Five leagues, behind Dutch Eredivisie at five, and Portuguese Super-Liga at six. By 2001, UEFA league rankings were completely reversed. Ligue 1 had tumbled to fifth and EPL had jumped to third in Europe, behind Spanish La Liga in first and Italian Serie A in second. The remarkable fact is that the FIFA ranking of the French national team simultaneously had risen from eighth in the world in 1996 to the top of world rankings, ahead of perennial world-leader Brazil in 2001. As the quality of Ligue 1 was crashing, because of the talent exodus for club-league play, the French national team was soaring, because of the development of French grass-roots talent and native Frenchmen playing for higher wages in superior leagues throughout Europe.[35] This is clear evidence of the distortion effects of open European football labor markets, and closed provincial football leagues.

National Football League

To show the determinism of EPL in a much broader context, *beta* coefficients for EPL (Figure 6) and National Football League (Figure 7) are separately mapped for each season since the AFL-NFL merger in 1970. EPL's structural imbalance after 1998 is associated with the confluence of several events, ranging from the media revolution and EPL breakaway and start of Champions League in the early 1990's to *Bosman I* and *II* in the late 1990's.[36] If the media revenue explosion is the cause of increased imbalance, this would lead to the conclusion that EPL club owners are sportsman, rather than profit maximizers. It also brings the TV-revenue sharing merit-distribution formula under suspicion. If recent imbalance is associated with reduced transfer fees within EPL after *Bosman*, then this would also suggest that owners are sportsmen who are constrained by their total revenue. The window of improved EPL balance in the late 1980s reflects controlled absence of the *champion effect*. During this period 50 percent balance, Division 1 (EPL) was exiled form European

[35]UEFA 2006 ranking: 1. La Liga, 2. Serie A, 3. EPL, 4. Ligue 1 and 5. Bundesliga. Since 2000, top three leagues qualify four teams for Champions League. Time lag in league rank because UEFA rank is based on a five-year average of league coefficients. FIFA ranked England 21 in the world in 1996 and seventeenth in the world in 2001 and tenth in 2006.

[36]UEFA made two important changes in evolution of Champions league format. The first was the introduction of the group phase in 1991-92 and the second, multiple national qualifications in 1997/98. In 1997/98 the second place team in the eight top rated national conferences qualified for the tournament. Two teams qualified from Italy, France, Spain, Germany, Netherlands, Portugal, England and Greece. In 1999/2000 the top three European leagues qualified four teams. In 2001 EPL was ranked sixth with three qualifying teams, and in 2002 EPL was ranked third with four. By expanding Champions League format to multiple teams from power leagues, UEFA pre-empted a European Super League in 1998/99.

competition. This contrasts with the onset of 75+ percent determinism in 1998, which coincided with the introduction of multiple teams from top leagues in Champions League. There is increasing evidence that the polarization of the EPL is the combined result of *sportsman* and *champion effects* working within the open labor markets of post-*Bosman* Europe.

Figure 6 and Figure 7 together about here

If the EPL can now be considered among the most deterministic leagues in Europe, then by comparison North America's NFL has become the most random of leagues in the world, by design.[37] A full two-thirds of NFL revenue is shared--about three times the 22.5 percent of revenue shared in EPL.[38] If revenue sharing defeats the logic of the *invariance proposition* then this leads to the conclusion that NFL owners are also sportsmen, but there are two more proximate factors that contribute to randomization of the NFL. In the late 1980's the NFL embarked on a balanced scheduling procedure that matched out-of-conference teams of equal strength.[39] Equal matches led to the first drop of NFL *beta* below .50. The probable cause of greater parity in the NFL was hard salary cap at 64 percent of league-wide revenues in 1994. The only way to avoid the hard NFL cap is to pro-rate player bonuses over the life of a contract, which averages about four years in the NFL.[40] When a player leaves, his pro-rated bonus goes on without him as of dead-money under future caps. Hence the NFL hard cap can be avoided in the short run, but the amount over the cap now must equal the amount under the cap later. Complete randomization of the NFL by 1999 is the direct result of the hard salary cap with a four-year delay. Optimum competitive balance probably lies between 75 percent determinism of EPL and 25 percent parity of the NFL.[41]

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[37]In results not shown here the EPL is significantly more imbalanced than three of four major North American Leagues since 1995. As the most determined N.A. league the NBA is not statistically different than EPL, and more determined than NFL, MLB and NHL. As the most balanced North American League the NFL is statistically more random than the EPL, MLB, NBA and NHL. Since 1995 beta coefficients for N.A. leagues: NFL = .311, MLB = .531, NHL .575 and NBA = .678.

[38]Football Division 1 dropped an 80/20 gate sharing arrangement in 1983 to quiet big revenue clubs. EPL TV money is 45 percent of league revenue and one-half is shared equally. NFL media revenue is about 60 percent of total revenue and is all shared equally. Gate revenue is about 20 percent of the total and is shared 66 percent home and 34 percent visitor, and venue revenue is about 20 percent and not shared.

[39]The NFL has twice as many teams (32 after 2002) than games in a season (16), and European style round-robin schedule is out of the question. Similar to current Champions League format, the 32-team NFL has eight divisions of four teams each. Each conference NFC and AFC has four divisions each. The 16-games NFL schedule is comprised of: six games home and away within the division, four games with another division in the respective conference, and four games with another division in the other conference. The remaining two-games are matches with equal strength clubs form the previous season. In the late 1980's, four of the 16 games were balanced matches.

[40]NBA cap is a soft cap at 57 percent of revenue that can be exceeded to resign a team's own free agent. The *Larry Bird* rule allows NBA dynasty teams to stay together. NBA's marketing strategy seeks optimal imbalance. Although NBA *beta* has historically been around 75 percent, it has recently converged on 50 percent. With few exceptional years (2001-03) MLB's *beta* in has also been 50 percent and revenues are performing well in each league. Since 2002 *CBA,* MLB's local (gate + venue) 66 percent /34 percent revenue sharing formula is similar to NFL.

[41]Too much parity in North American Leagues means two equally bad teams defeating one another. The hard cap in the NFL destroys dynasty teams and fails to reassemble the collective talent elsewhere. Although rights fees for NFL continue to rise, there is evidence in nation-wide telecasts like Monday Night Football that parity makes scheduling of late-season matches impossible. Recent TV rights contracts have clauses where broadcasters reserve flexibility to re-schedule late in the season.

V. UNIFICATION OF EUROPEAN FOOTBALL

League of Their Own

European Champions League has distorted competitive balance throughout domestic European football. Elite teams have long since outgrown their respective leagues, and the small revenue clubs are going under to keep a distant pace. In this final section it is argued that the European Super League (ESL) is an inevitable consequence of a unified European open market. The idea is not new to the pragmatic business side of European football or to sports economic theory.[42] Champions League began in 1991/92 as one of many of UEFA's *ad hoc* solutions to a fundamental economic unification problem. The ESL threat in 1990 forced UEFA to change the old style knock-out format of the European Champions Cup (since 1955) to include a group stage in 1991-92 and by 1995 biggest clubs were insured to make group stage. Two more ESL ideas were afloat in 1998,[43] and top clubs from seven smaller leagues unsuccessfully tried to break away and reform as an international Atlantic League in 2000 to compete with the Big Five.[44] Yet, at the same time UEFA was blaming the *Bosman* decision for growing disparity among European Leagues, it was ever-expanding Champions League to include the vice-champions of eight top leagues in 1997-98, and then qualifying four teams in the top three leagues in 1999-2000. In September 2000, fourteen power clubs made the next political move by forming G-14, a European Economic Interest Group to lobby their collective interests. While G-14 is too exclusive in membership (four clubs were added in 2002), battle lines are being drawn as international clubs challenge the self-proclaimed legitimacy of UEFA and FIFA.[45] Any serious ESL proposal must have G-14 clubs at its economic core.[46]

The Perfect Syndicate

The most important factor that distinguishes sports economic theory from real world sports finance is risk aversion and a quest for revenue and cost certainty by club owners. Failure to realize and adapt for risk is the major cause for the financial collapse of sports clubs throughout Europe. Revenue certainty is what power-club owners are seeking when they are drawn to closed membership

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[42] Hoehn and Szymanski [1999] conclude that "a European Superleague that resembles the Major League Baseball or the National Football league is the market equilibrium." They propose a sixty-team Superleague with four sub-leagues of fifteen teams each. The original real-world proposal of two leagues of nine to ten teams was floated in 1988 with backing of former Italian Prime Minister, Silvio Berlusconi, owner of AC Milan and Mediaset, which controls private TV in Italy.

[43] Both were also associated with Berlusconi: four leagues of ten teams and two leagues of sixteen teams. In the second proposal one league would be closed without relegation-promotion, and there would be a €4.5 million fee to join and a guaranteed cut of €30 million.

[44] The Atlantic League was shot down by UEFA late in 2000. Proposed start was 2002 with members: SPL Old Firm: Ranger and Celtic; Dutch Eredivisie: Ajax, PSV Eindhoven and Feyenoord; Portuguese SuperLiga: Porto and Benfica; Belgian Jupiler: Anderlecht and Brugge; Norway: Rosenberg; Denmark: Copenhagen and Brondby; and Sweden: AIK and Goteberg

[45] G-14 original clubs: Manchester United, Liverpool, AC Milan, Juventus, Inter Milan, Real Madrid, Barcelona, Bayern Munich, BVB Dortmund, Olympique Marseilles, Paris Saint-Germain, PSV Eindhoven, Ajax, and Porto. Four clubs were added in 2002 for eighteen: Arsenal, Bayer Leverkusen, Olympique Lyon, and Valencia.

[46] G-14 clubs have won 41 of 51 Champions Cups since 1954, and Monaco's Champions League loss in 2004 final was the only appearance of a non-G-14 club. Big Five leagues have played in 55 percent of the Champions League matches and have been champions .86 percent, and runners-up 92 percent of the Champions Leagues. Include Eredivisie and Superliga and the big seven have played two-thirds of Champions League games and have been the only clubs in the Championship match.

in the ESL. In North America, the NFL emerged from a grueling rival league war with the AFL in 1960's as the world-model for league solidarity and financial success.[47] The secret to NFL survival lies in what its pioneers called *league-think*, derived initially from collective negotiation of media rights and extensive revenue sharing by necessity.[48] Similar to the explosion of European football, the meteoric rise of the NFL on the U.S. sport-scape was driven by its symbiotic revolution with television.[49] Arguments for and against collective negotiation of TV rights are the same on both sides of the Pond, and soon European leagues, like their North American counterparts, will negotiate as natural cartels with tacit Court acceptance. What makes the NFL unique derives from its egalitarian distribution formula. All of NFL television money is distributed equally among its clubs—there is no merit share.[50] Revenue sharing is so important, because the perfectly negative interdependence of revenues among clubs in a sports league allows perfect diversification of risk among its members. In the 1994 Collective Bargaining Agreement, NFL players gained free agency in exchange for a payroll cap set at 64 percent of league revenues. With revenue certainty from revenue sharing and the cost certainty of the payroll cap, the NFL has virtually become the perfect portfolio. As such, the NFL is the appropriate model for the European Super League.

Revenues and estimated values of the 32 NFL clubs are compared with the 32 richest clubs in Europe for the 2005 season in Table 7. Revenues of the top dozen revenue clubs in Europe compare favorably, but the next twenty teams have revenues below any team in the NFL. In terms of appraised value, only the five top European clubs exceed the lowest valued NFL club. Average revenues of €125 million for the top 32 in Europe are almost 80 percent of €160 million average revenues for NFL clubs, but the average value of €744 million for an NFL club more than doubles €300 million estimate for the most valued clubs in Europe. The major difference between the value/revenue multiple of 4.65 for the NFL and 2.4 for Europe reflects relative financial risks inherent in team revenues and player costs.[51] The NFL's 2005 TV share of €72.4 million was almost

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[47]American Football League began as a rival eight-team league to the twelve-team National Football League in 1960, due to the NFL's failure to expand and reluctance to duplicate large-city monopoly markets. After the ensuing war threatened NFL's monopsony power, a peace accord was reached in 1966 and the leagues merged with common schedules in 1970. Two NFL clubs were added in 1960-61 (14) to counter the AFL. By the time of the merger each league had added two more teams (16+10=26). When the AFL-NFL merger became effective in 1970, three NFC clubs moved to the AFC to make 13 teams in each conference. The merged NFL added two teams in 1976 (28), two in 1995 (30), one in 1998 and one in 2002 (32).

[48]NFL rights for 1960-61 were negotiated by individual clubs. NFL's original pooled agreement with CBS for 1962-63 was ruled as an antitrust violation in *United States v. National Football League*, 196 F. Supp. 445 (E.D. Pa. 1961). 53 ii6 F. Supp. 3I9 (E.D. Pa. 1953). US Congress exempted the joint sale of broadcast rights of four major professional leagues in the *Sports Broadcasting Act* of 1961: 15 USC 1291, later amended to exempt AFL-NFL merger in 1966. AFL had the original 1960-64 pooled rights deal with ABC for €2.56 million per year; and 1965-69 with NBC for €10.64 million per year.

[49] NFL 2006-11 rights were split into five different packages. Total fees of €18.6 billion over six-years from 2006-11 now exceed €3 billion annually. This includes €516 million for AFC on CBS, €497 million for Sunday Night Football on NBC, €591 million for NFC on FOX, €912 million for Monday Night Football on ESPN (cable) and €580 million for Sunday Ticket on Direct TV (Dish). Previous contract €2.16 billion annually over eight years 1998-2005. FOX and DirecTV are owned by News Corporation (BSkyB and Sky Italia parent company) and ESPN and ABC owned by Disney Company. In the same way and same time that BSkyB rocked EPL in1992-93, FOX (also owned by Murdoch's News Corp) surprisingly outbid long-time NFC partner CBS by offering €328 million annually for prized NFC rights. By comparison NBC paid €180 million annually for NFC rights and ABC paid €180 million for Monday Night Football in the €909 million annual three-year deal 1994-97.

[50] In MLB local media and national media are each about 15 percent of total revenue. MLB national media is shared equally and after 2002, 34 percent of MLB local revenue, including media, venue and gate is shared. In the NBA national media is about 30 percent of total revenue and shared equally, while gate and local media are not shared

[51]In these estimates the average risk adjusted discount rate approaches 20 percent for Europe and 12 percent for NFL. If μ is revenue multiple, λR is margin after player costs and ρ is risk-adjusted rate, then $\rho = \lambda/\mu$ from $V = \mu R$, where

equal its payroll cap of €70.9 million.[52] A proposed ESL should use similar revenue sharing and salary cap to jointly maximize club value and fan welfare.[53]

Table 7 about here

European Super League

Consider a Super-League *scheme* of equal revenue sharing of all television rights fees, and a hard payroll cap of 64 percent of league revenue (no exceptions) with a minimum payroll of 75 percent of the cap (48 percent of revenue). Super-League clubs would retain all respective home-gate and venue revenues, and all revenue would comprise the salary cap base (no deductions).[54] Based on Table 7, this would set Super-League 2005 payroll cap at about €80 million, and the minimum payroll at €60 million. It is clear from payrolls in Table 3, that Big Four EPL clubs (Man U, Chelsea, Arsenal and Liverpool) would be constrained by the max-cap, while the rest of EPL and the top four clubs of Ligue 1 would not be affected (see Figure 3). Equal TV-rights sharing would set Super-League TV revenue at €50 million for each club. This cuts EPL's Big Four revenue by about €30 million, while increasing revenues of Eredivisie clubs Ajax and PSV by about €40 million (difference between home TV market and €50 million average). At the top of the Super League, Manchester United would be constrained by the €80 million cap, which would be forty percent of its revenue, and at the margin Ajax would be constrained by the minimum payroll of €60 million, which would be about sixty percent of its Super-League revenue.[55]

Optimal Super-League *structure* proceeds from the premise that a sports league is a quasi-public club, where mutual economies of competition and diseconomies of congestion are equal at the margin [Vrooman, 1997b]. Polarization of competition, rising salaries and diluted talent are all classic symptoms of sports league overexpansion. League members will venture beyond optimal size, if their damages are compensated by an expansion fee. In a revenue-sharing league, large-revenue clubs like Man U would require an indemnity equal to the present value of the difference between the amount of revenue they contribute and the amount they receive from the revenue sharing pool. This fee is also the most that small revenue clubs like Ajax would be willing to pay. If the Super League was to share TV revenue equally, then the optimal fee would be the present value of the difference between

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$V = \lambda R/\rho$.

[52]In 2005 the NFL's salary cap rate was 65.5 percent of defined gross revenues, which was 44.4 percent of total revenues. In the 2006 extension of the NFL Collective Bargaining Agreement, the salary cap rate was lowered to 59.5 percent, but DGR base was increased to more than compensate the players. Under the old formula 2006 cap would have been €78.3 million, with the lower rate it rose to €84.6 million; the 2007 NFL cap was set at €90.4 million

[53] Corporate ownership is not allowed in NFL and PLC's should only be allowed in Super League for stadium finance (France after 2006). Instead of public stock shares, NFL clubs sell personal seat licenses (PSLs) to fans for stadium finance.

[54]This removes incentives for shifting revenue from shared to unshared sources, and capped to uncapped revenues on the part of opportunistic owners cheating the syndicate and avoiding the cap. In the NFL gate revenue is shared and venue revenue is not. In the last 15 years venue revenue (luxury seats) has grown from ten percent of total revenue to 20 percent at the expense of gate revenue, as owners try to shield revenue from sharing. In MLB stadium expenses are deducted from local revenue before the 66/34 sharing formula is applied, and in the NFL a fifteen percent deduction for game expenses is made before the 60/40 formula is applied. Players unions in both NBA and NFL have struggled to include more revenue in the salary cap bases of defined gross revenue (DGR) in NFL and basketball related income (BRI) in the NBA. Venue revenue is usually not included in the cap base, and at one point the NBA had excluded sales of replica player jerseys and apparel.

[55]Actual Ajax payroll in 2005 was €32.4 million, which was 48.6 percent of €66.6 million revenues shown in Table 7.

a club's expected TV revenue inherent in their home market and the TV revenue of the average club in the prospective league.

Based on revenues shown in Table 7, each Super-League club would contribute €100 million (PV multiple of twice €50 million in annual TV rights) to a sharing pool, from which each team would then be paid-back twice its respective TV home-market value. At the financial edge of the league, Ajax and PSV would each bring €20 million worth of Eredivisie TV rights (twice their annual €10 million each), in exchange for an equal share in a TV revenue pool worth €100 million. The net fee for Ajax and PSV would then become €80 million. At the top of the Super League, EPL's Big Four would each receive a net fee of about €60 million for sharing their €160 million market (twice €80 million each in annual TV rights) with clubs below league market average. Once zero-sum indemnities have been shifted from below average clubs to above average clubs, then all teams would share equally in the growth in future TV rights fees for the European Super League (ESL). The ESL must be closed of course, because no club would pay the required membership fee if there was any risk of relegation.[56]

Table 8 about here

The self-governed European Super League would be comprised of thirty of the top-revenue clubs from Table 7 divided into three, ten-team regional conferences.[57] The customary 38-game schedule would have eighteen matches within the conference; and one match each with the twenty teams in the other two conferences. The season would conclude with an eight-team knockout championship tournament with the top two clubs from each conference and two wild cards teams. As shown in Table 8, each of the ESL conferences would be anchored by clubs from the three most powerful European leagues: English Premier League, Spanish La Liga, and Italian Serie A.[58] In the Northern Conference six of the top revenue clubs from England are joined by Scotland's *Old Firm*, and the two top revenue clubs from the Dutch Eredivisie. In the Western Conference four dominant revenue clubs from La Liga are combined with two high revenue clubs from Portuguese SuperLiga, and the Big Four revenue clubs from French Ligue 1. The ESL Central Conference would match five clubs from Italian Serie A and five from German Bundesliga.[59]

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[56] By comparison, NFL expansion fees were €116 million for Carolina Panthers and Jacksonville Jaguars in 1995 (plus one-half of a TV share for five years). Cleveland Browns expansion fee was €312 million in 1999, and Houston Texans paid €580 million to join the NFL in 2002. NBA Charlotte Bobcats expansion fee was €250 million in 2004, and MLB Washington Nationals "expansion fee" was €373 million in 2005. TV base fee of €100 million for ESL assumes annual rights contract in excess of €1.5 billion. In 2005 Champions League TV rights fees were €462 million alone; third behind EPL and Serie A, and ahead of La Liga, Bundesliga and Ligue 1.

[57] Alternative configuration: two conferences with six divisions of five teams, each. This is the current alignment of North America's three 30-team leagues: NBA, NHL and MLB (by quirk there is one six-team ands one four team division in MLB). Replace Tottenham with Feyenoord and divide Northern Conference into five EPL clubs and five from the combination of SPL *Old Firm* and Eredivisie Big Three. Replace Deportivo with Anderlecht or Lille and divide Western Conference into five from top three from La Liga plus top two from Portugal's Super Liga and five from France or four from Ligue 1 plus Anderlecht from Belgian Jupiler. Divide the Central Conference into the five clubs from Serie A and five from Bundesliga.

[58] Table 8 also lists G-14 membership, revenues and average attendance, and two measure of success in international competition. Revenue and attendance for 2004-05, U06 is UEFA seeding index based on coefficients for five years before 2005-06; and UCL is author's index of Champions League performance based on percentage of points won on a two-point system. UCL = $(2W + D)$/total CL games ever played (2616) / total number of teams (93). UCL ratio of one is the benchmark.

[59] Five of eleven EPL clubs of the richest 32 in Table 7 are omitted and replaced by one club each from Bundesliga, Portugal and La Liga. Six clubs from EPL are justified by TV power of the League. Northern Conference toughest choice was Tottenham (London) over Eredivisie's Feyenoord, but Tottenham's revenue is twice that of Feyenoord at €50 million. Obvious omissions are Anderlecht and Brugge from Belgian Jupiler, but revenue for the entire Jupiler was only €126 million in 2005. Western Conference toughest choice: Deportivo over Sporting Lisbon and Lille, but Deportivo

Complete unification of European football requires that the fragmented national-league base be integrated into an association of international leagues. A hypothetical sixty-team Pan-European Football Association (PEFA) is shown is Table 9 with two parallel conferences: the Western Alliance and Eastern Federation, each with three, ten-team divisions. PEFA seasons would have 38 matches within conference, and there would be a post-season play-off tournament matching conference champions. PEFA would be connected by relegation-promotion with lower international divisions through UEFA. The Atlantic Division of the Western Alliance, for example, would be fed by the existing English Football League, a new international league combining top Scottish, Belgian and Dutch clubs, and a unified Royal League combining the best clubs from Scandinavian leagues. Horizontal cross ownership would not be allowed within PEFA, but vertical integration with ESL clubs would be encouraged for player development.[60]

Table 9 about here

VI. CONCLUSION

European football is caught in a continuing spiral of intra-league and inter-league polarization of talent and wealth. Epidemic financial crises after the turn of the century are now abating, but major governance failures continue to distort the natural evolution of the game. Economic theory of sport is in a state of flux. After early preoccupation with the *invariance proposition* and assumptions of profit-maximizing club owners, theorists are now realizing that owners are just as likely to be win-maximizing sportsmen, for whom the invariance proposition does not hold. Champions League effects and relegation-promotion threats have distorted league competition to the extent that new theory must introduce revenue convexity into once simple models. Financial distress from aggravated agency effects of PLC's and securitized debt are so obvious in the cases of Leeds United (EPL) and BVB Dortmund (Bundesliga), that theory can no longer ignore them. The PLC trend of a decade ago has created the environment for the recent reverse trend of foreign-owner LBO's, some friendly and some hostile. So there is good news and bad news for the theory and reality of European football. The bad news is that European leagues are being torn apart, as if by continental drift, but the good news is that something can be done about it. The cause of the great schism in European football is not the underlying continental super-league drift, but rather the ceremonial resistance of its governing agencies UEFA and FIFA that are trying to stop it.

The governance of European football is in a state of denial about its own obsolescence. In UEFA's "*Vision Europe 2005*," control of the world's game is fashioned as a democratic pyramid that is being held together by UEFA's solidarity. This is contrasted with a "US model," in which the top has been blown off the pyramid. Self-governance of super-league clubs certainly does not preclude vertically integrated player development by the clubs themselves. In reality, UEFA perpetuates the vertical segmentation of the pyramid-base into national leagues. UEFA even fought against the original idea of the European Cup in 1954, which it now defends as the Champions

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revenue doubles Sporting and Lille revenues of €35 million each in 2005. Number of La Liga clubs is limited because of unequal revenue distribution. Central Conference toughest choice: Werder Bremen over Hamburger and Hertha Berlin, each with revenues around €70 million. TV-based league may require a club from Berlin. Five clubs are justified from Bundesliga, because of venue renovations for World Cup 2006. Venue capacity of Monaco and Bayer Leverkusen is not a big concern, because match-day revenue is not shared.

[60]In North America, MLB pays all salaries for coaches and players in the vertically integrated player development system with Minor League Baseball. Each MLB club (30) has an agreement with five clubs in a five-tier hierarchy of smaller markets. NHL has a similar "farm system," and NFL and NBA exploit collegiate programs for cost-free talent development.

League. The economic solution is to allow the top tier of European football naturally break away, and then horizontally reunite the politically divided base with open international leagues throughout the European Union.

This is not ugly "Americanization" or greed over grass roots: it is rather the *Europeanization of European Football*. UEFA consistently blames the *Bosman* decision for the great divide between rich and poor clubs in Europe, but *Bosman* is not the problem at all, it is rather the first part of the solution. The *Bosman* decision has opened European labor markets, which now expose gross asymmetry between one labor market and several segregated domestic leagues. The solution is not to retry *Bosman* in the court of public opinion, but rather to open domestic leagues to the inevitable future of international club leagues. UEFA's self-proclaimed motto is "we care about football." In the final analysis, everyone cares about football—it transcends politics and culture. The world's game unifies us all, and that is the beauty of it.

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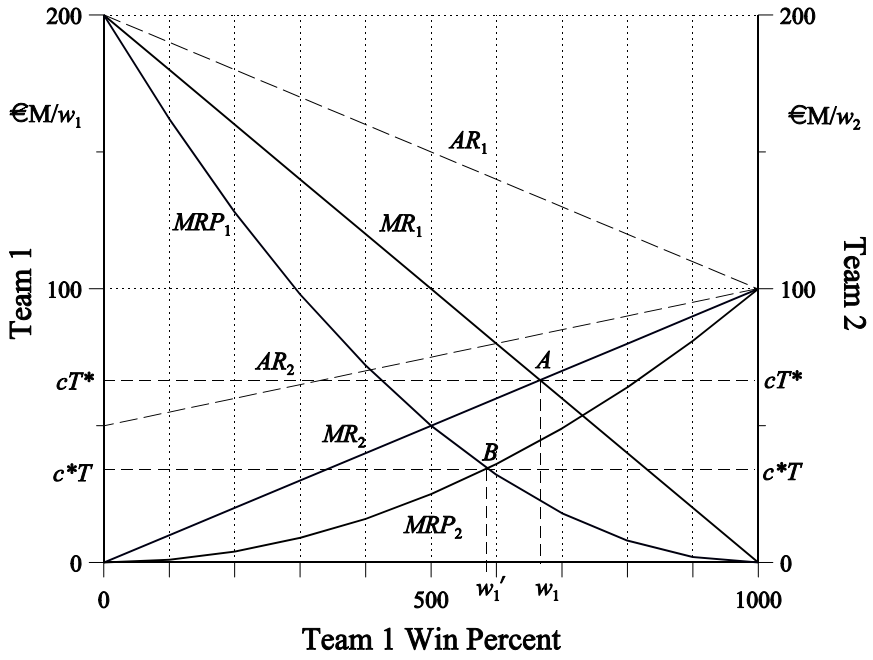

Figure 1. Open and Closed Leagues

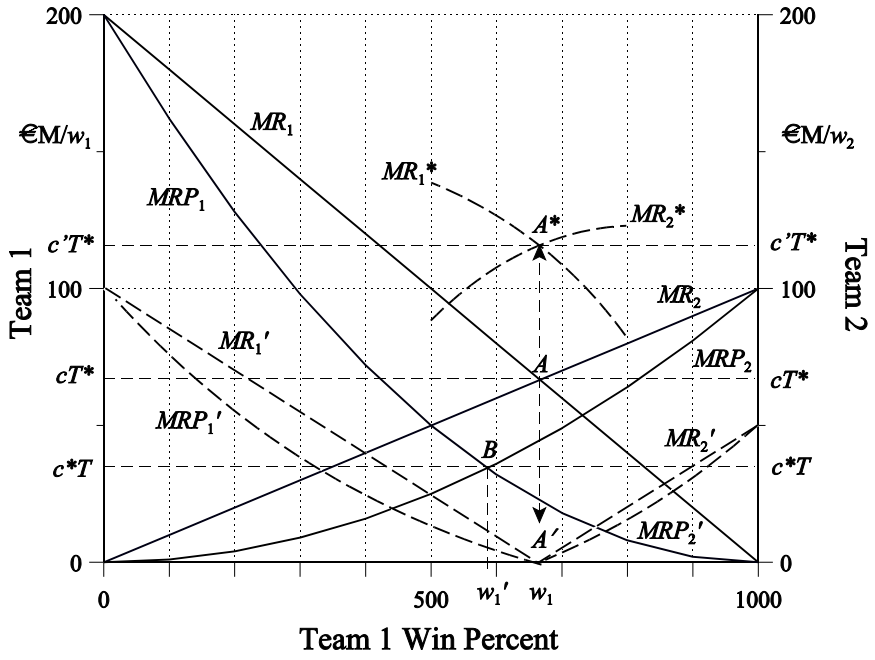

Figure 2. Invariance Proposition

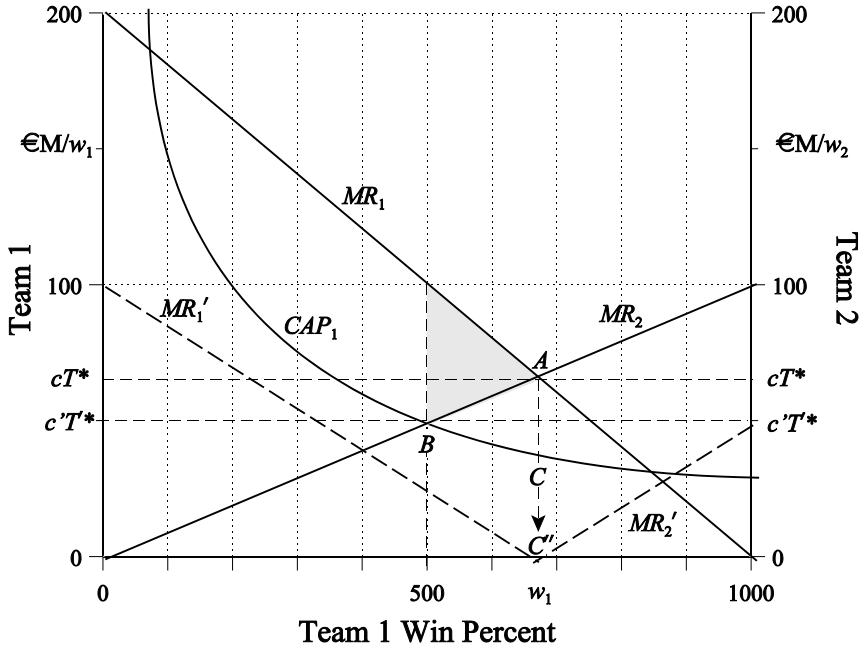

Figure 3. Payroll Cap and Revenue Sharing

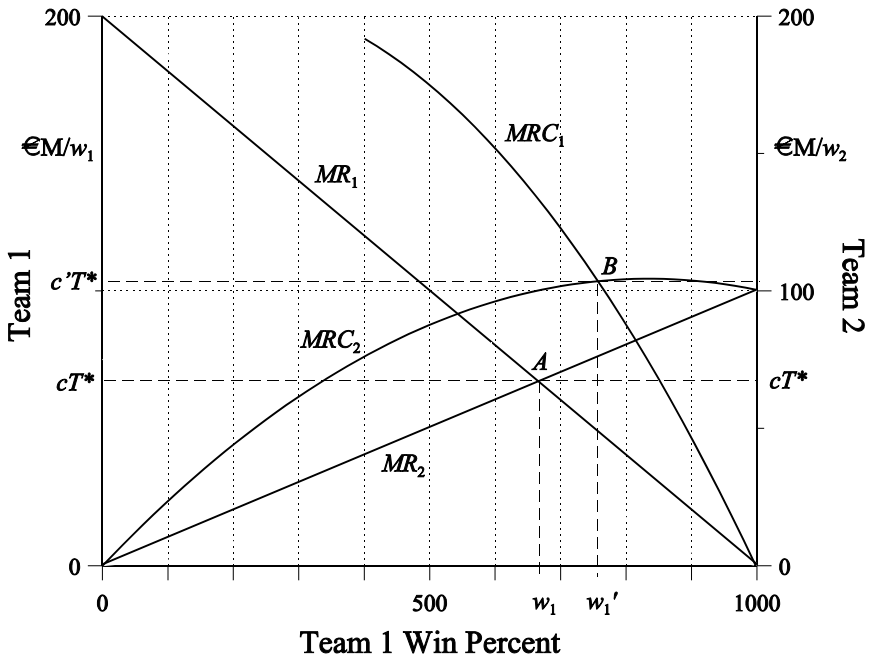

Figure 4. Champion Effect

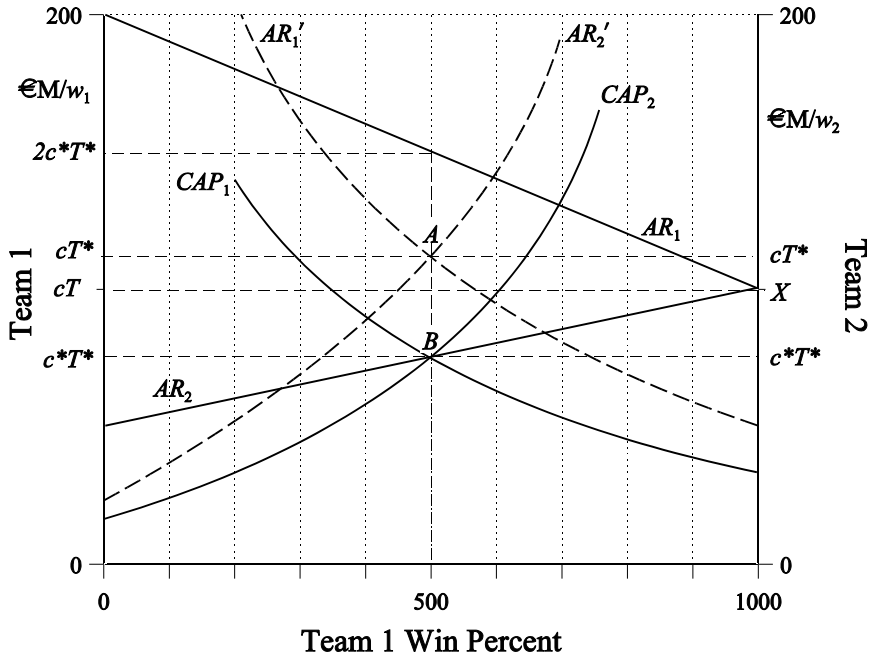

Figure 5. Sportsman League

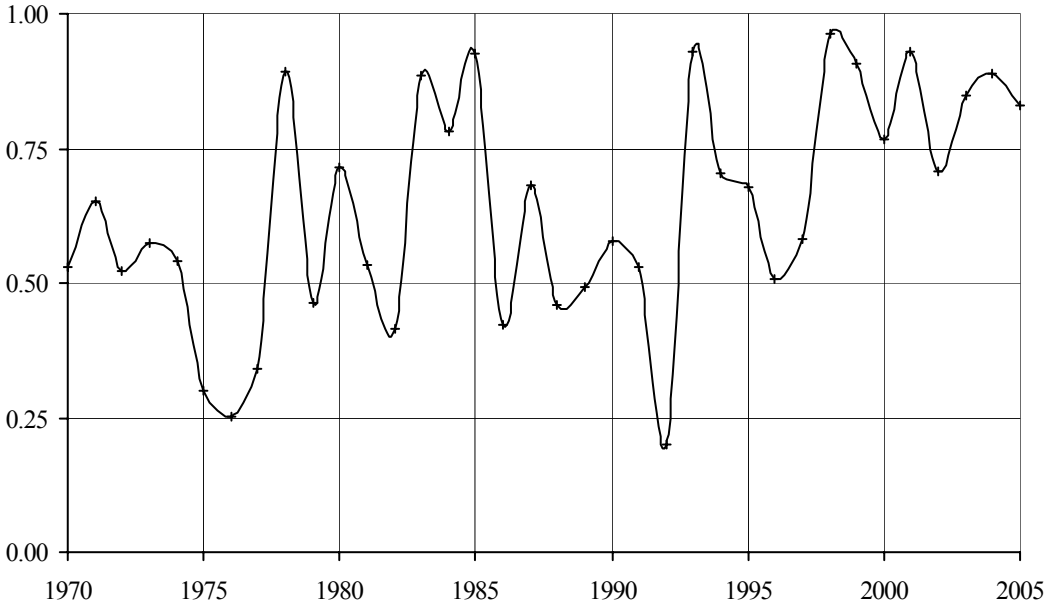

Figure 6. English Premier League Beta

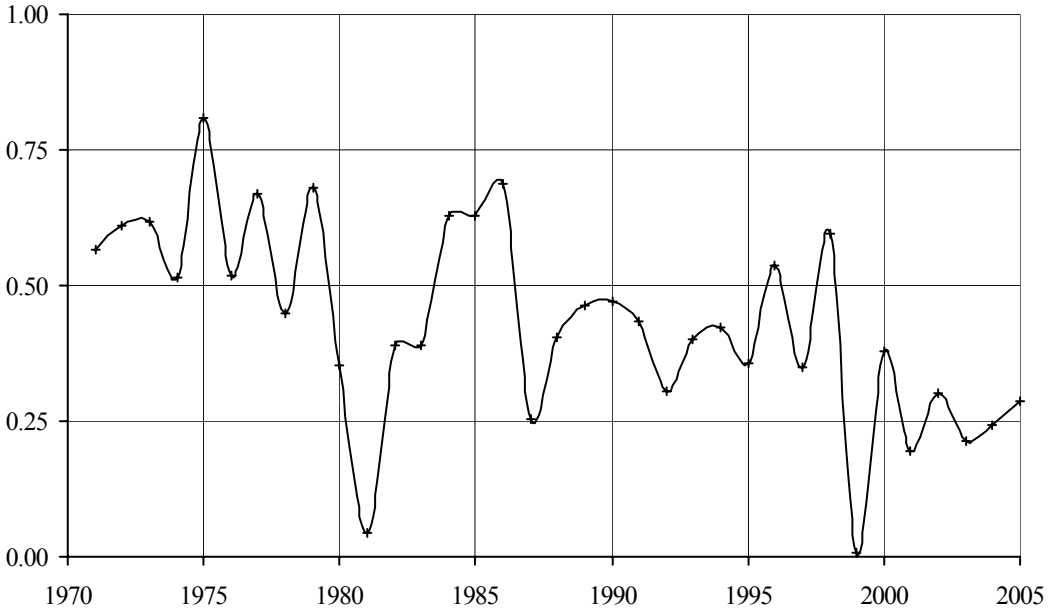

Figure 7. National Football League Beta

Table 1. Big Five European League Revenue Ratios Post-Bosman (€M)

Big Five League/Season End	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Total Revenue										
English Premier League	1,987	1,976	1,857	1,688	1,397	1,151	998	867	692	516
Italian Serie A	1,336	1,153	1,162	1,127	1,151	1,059	714	650	551	452
German Bundesliga	1,236	1,058	1,108	1,043	880	681	577	513	444	373
Spanish Primera Liga	1,029	953	847	776	676	722	612	569	524	328
French Ligue 1	696	655	689	643	644	607	393	323	293	277
English Football League 1	456	428	380	444	306	276	240	277	195	155
Broadcast Revenue										
English Premier League	†862	884	810	†709	537	357	290	†225	145	62
Italian Serie A	‡739	632	642	595	619	‡596	248	241	†199	104
German Bundesliga	321	291	†365	414	†399	212	168	†143	111	84
Spanish Primera Liga	409	‡391	256	251	243	251	237	241	‡222	73
French Ligue 1	[a]344	306	357	333	326	†343	164	137	95	89
Broadcast Percent of Revenue										
English Premier League	43.4	44.7	43.6	42.0	38.4	31.0	29.1	26.0	21.0	12.0
Italian Serie A	55.3	54.8	55.2	52.8	53.8	56.3	34.7	37.1	36.1	23.0
German Bundesliga	26.0	27.5	32.9	39.7	45.3	31.1	29.1	27.9	25.0	22.5
Spanish Primera Liga	39.7	41.0	30.2	32.3	35.9	34.8	38.7	42.4	42.4	22.3
French Ligue 1	49.4	46.7	51.8	51.8	50.6	56.5	44.7	42.4	32.4	32.1
Total Payroll										
English Premier League	1,171	1,209	1,134	1,052	838	712	582	454	325	243
Italian Serie A	830	845	884	1,010	868	660	512	417	317	256
German Bundesliga	549	547	556	553	447	382	317	278	223	187
Spanish Primera Liga	658	608	607	559	491	390	342	303	230	175
French Ligue 1	437	450	467	441	414	324	273	222	178	161
English Football League 1	325	310	340	320	310	258	191	209	130	
Payroll Percent of Revenue										
English Premier League	58.9	61.2	61.1	62.4	60.0	61.9	58.3	52.4	47.1	49.8
Italian Serie A	62.1	73.3	76.1	89.6	75.4	62.3	71.7	64.2	57.5	58.6
German Bundesliga	44.4	51.7	50.2	53.0	50.8	56.1	54.9	54.2	50.2	50.1
Spanish La Liga	63.9	63.8	71.7	72.0	72.6	54.0	55.9	53.3	43.9	53.4
French Ligue 1	62.8	68.7	67.8	68.6	64.3	53.4	69.5	68.7	60.8	58.1
English Football League 1	71.2	72.5	89.4	72.1	101.5	93.5	79.5	75.3	66.4	…

Sources: Deloitte Sports Group, *Annual Football Finance Report;* EPL, Ligue de Football Professionnel, Liga Calicio, Bundesliga, La Liga.
†New pooled TV contract. ‡New individual TV contract. [a] Ligue 1 first year of 50/30/20 equity/merit/facility sharing; TV previous split 83/10/7.
Other 2004/05 Revenues: Dutch Eredivisie: €321million, broadcast ratio 14 percent, wage ratio 61 percent; Scottish Premier League: €257million, broadcast ratio 17 percent, wage ratio 57 percent; Portuguese Super-Liga: €193million, broadcast ratio 24 percent, wage ratio 72 percent and Belgian Jupiler League: €126 million, broadcast ratio 12 percent; UEFA Champions League 2005: total revenue €598 million, broadcasting €472 million with about 72 percent (€439 million) to 32-team Champions League, the rest to European Football. Exchange rate, 1 July 2004: €1 = £ .671 = $1.206.

Table 2. English Premier League Television Rights Fees (€M)

Seasons	Years	Total Rights	Total Annual	Games /PPV	Broadcast		BSkyB	PPV	Highlights		Overseas
					BBC	ITV			BBC	ITV	
1983-85	2	7.8	3.9	10	3.9	…	…	…	…	…	…
1985	½	1.9	3.9	6	3.9	…	…	…	…	…	…
1986-88	2	9.4	4.7	14	4.7	…	…	…	…	…	…
1988-92	4	65.6	16.4	18	…	16.4	…	…	…	…	…
1992-97	5	378.5	75.7	60	…	…	57.1	…	6.7	…	11.9
1997-01	4	1,253.2	313.3	60	…	…	249.6	…	27.2	…	36.5
2001-04	3	2,446.7	815.6	66/40	…	…	546.4	89.9	…	90.9	88.4
2004-07	3	2,114.4	704.8	88/50	…	…	508.6	…	52.2	…	144.0
2007-10	3	3,729.3	1,243.1	92/46	…	…	652.7	194.7	85.2	…	310.5

€1 = £ .671 = $1.206.

Table 3. English Premier League and French Ligue 1 2004/2005 (€M)

English Premier League	Rev	TV	Pay	Pay/Rev	Rank	Points	French Ligue 1	Rev	TV	#Pay	Pay/Rev	Rank	Points
Manchester United †‡	237.5	71.5	114.7	0.483	3	77	Olympique Lyonnais†‡	92.9	45.8	51.1	0.550	1	79
Chelsea †‡	222.0	82.0	162.3	0.731	1	95	Monaco†	85.4	35.2	43.4	0.508	3	63
Liverpool †‡*	181.2	75.5	95.7	0.525	5	58	Paris Saint-Germain†	72.8	31.3	40.7	0.558	9	51
Arsenal†*	171.5	72.4	98.3	0.573	2	83	Olympique de Marseille	66.9	22.1	46.9	0.701	5	55
Newcastle United*	129.6	41.6	74.8	0.576	14	44	Lens	51.9	16.8	24.6	0.474	7	52
Tottenham Hotspur*	105.2	38.0	49.3	0.469	9	52	Sochaux-Montbeliard	44.8	15.9	19.1	0.428	10	50
Manchester City*	90.1	38.7	56.2	0.619	8	52	Girondins de Bordeaux	44.2	12.3	26.3	0.596	15	44
Everton	89.4	44.0	45.9	0.513	4	61	Nantes	37.4	11.8	24.5	0.655	17	43
Bolton Wanderers	79.1	37.7	37.8	0.478	6	58	Saint-Etienne▲	36.7	16.8	15.1	0.412	6	53
Middlesbrough	77.5	36.0	43.2	0.558	7	55	Lille	35.7	20.5	18.7	0.524	2	67
Aston Villa ‡*	76.9	34.0	49.3	0.641	10	47	Stade Rennais	33.1	16.6	21.7	0.657	4	55
Southampton *▼	66.8	30.0	41.4	0.621	20	32	Toulouse	32.4	11.2	12.5	0.387	13	46
Birmingham City*	63.6	31.4	40.7	0.639	12	45	Auxerre	31.8	17.5	21.6	0.678	8	52
Blackburn Rovers*	61.5	30.3	46.6	0.758	15	42	Strasbourg	26.4	13.5	19.1	0.726	11	48
Charlton Athletic*	60.6	32.9	43.1	0.710	11	46	Metz	22.8	9.6	12.2	0.537	16	44
Fulham ‡	58.9	31.2	50.5	0.858	13	44	Nice	21.2	11.4	12.8	0.605	12	46
Norwich City*▼▲	55.7	27.9	25.2	0.452	19	33	Caen ▼▲	21.1	9.4	10.3	0.485	18	42
West Bromwich Albion*▲	54.4	29.0	31.1	0.573	17	34	Bastia ▼	13.9	8.6	11.7	0.842	19	41
Portsmouth○	53.6	29.7	37.3	0.694	16	39	Ajaccio	13.7	9.7	9.6	0.703	14	45
Crystal Palace○▼▲	52.2	27.4	27.6	0.529	18	33	Istres OP ▼▲	12.5	8.1	7.2	0.574	20	32
English Premier Average	99.4	42.1	58.6	0.600	...	...	French Ligue 1 Average	39.9	17.2	22.5	0.580	...	...

Sources: *Deloitte,Annual Review of Football Finance* and *LFP/DNCG 2004/05*; and annual reports for listed EPL clubs.
▲ Promoted for 2004/05. ▼ Relegated after 2004/05. ‡ Foreign ownership. Exchange rates, 1 July 2004: €1 = £ 0.671 = $1.206.
† Champions League revenues included in total revenue. EPL (four teams): Manchester United €16.3million (16), Chelsea €28million (4), Arsenal €23.4million (16) and Liverpool €30.6million (1). Ligue 1 (three teams): Olympique Lyonnais €20.4million (8), Monaco €13.7million (16), and Paris Saint-Germaine €12.4million (32).
* Public Limited Company (PLC); otherwise Private Limited Company (LTD). Manchester United de-listed from LSE in June 2005 after take-over by Malcolm Glazer. Aston Villa de-listed October 2006 after takeover by Randy Lerner. Chelsea de-listed in July 2003 after takeover by Roman Abramovich. Ligue 1, OL's IPO was in February 2007.
# LFP Ligue 1 social charges are about 23 percent of total payroll costs, except for Monaco, where they are about ten percent of total payroll.
○Clubs previously in administration. Portsmouth was taken into administration in 1998 bought by Milan Mandaric in 1999, and then sold to Sacha Gaydamak in 2006 €77.5million. Crystal Palace was placed in administration 1999 sold to Simon Jordan in 2000

Table 4. Rise of Chelsea and Fall of Leeds (€M)

Manchester United

	Season	Revenue	Payroll	Ratio	Transfer	Profit	Debt	Rank	PT3	UCL
	2001	194.6	74.5	.383	-64.5	32.5	-1.8	1	80	8
	2002	220.7	105.5	.478	-18.0	48.1	1.3	3	77	4
	2003	260.6	118.5	.455	-11.8	58.6	42.6	1	83	8
	2004	255.5	114.6	.448	-42.9	41.6	53.6	3	75	16
●	2005	237.4	114.7	.483	3.9	78.1	97.3	3	77	16

● €1.08 billion takeover in 2005 with €864 million restructured debt in 2006.

Arsenal

	Season	Revenue	Payroll	Ratio	Transfer	Profit	Debt	Rank	PT3	UCL
	2001	96.4	60.6	.629	-1.5	46.8	41.9	2	70	8
	2002	135.6	91.6	.676	-4.8	-33.2	0.4	1	87	16
●	2003	154.7	90.3	.584	-24.9	6.7	-89.8	2	78	16
	2004	170.8	104.2	.610	-17.9	15.8	-210.5	1	90	8
	2005	171.5	98.3	.573	-13.0	28.8	-228.4	2	83	16

● €415 million in debt 2003-2005 for €580 million Emirates Stadium. 2006 debt: €390 million.

Leeds United

	Season	Revenue	Payroll	Ratio	Transfer	Profit	Debt	Rank	PT3	UCL
	2001	128.6	64.5	.502	-57.0	-11.3	-58.7	4	68	4
●	2002	121.4	79.9	.658	-26.4	-50.5	-116.1	5	66	...
	2003	95.4	84.3	.884	72.3	-73.8	-197.6	15	47	...
▼	2004	80.5	55.3	.687	24.6	-33.1	-175.8	19	33	...
	2005	46.0	26.8	.583	13.4		-35.8	34	...	...

● €90 million payroll loan in 2002 secured by gate revenue.

▼ Relegated to after 2003/04

Chelsea

	Season	Revenue	Payroll	Ratio	Transfer	Profit	Debt	Rank	PT3	CL
	2001	100.3	74.8	.746	-21.2	-15.5	-99.5	6	61	...
	2002	138.4	83.3	.602	-44.3	-24.7	-120.2	6	64	...
●	2003	138.6	81.4	.587	0.6	-39.5	-112.2	4	67	...
	2004	214.0	171.1	.799	-195.2	-130.8	-204.4	2	79	4
	2005	222.0	162.3	.731	-188.8	-208.6	-193.6	1	95	4

● €88.6 million takeover plus assumed debt €120.2 million 2003. €340 million losses in 2004/2005.
Debt is net financial liabilities minus cash funds. Transfer is net transfer fees paid minus fees received.

Table 5. European-League Top Finishers: Ten Years before and after *Bosman* 1986/2005

Before *Bosman* (1986/1995)					After *Bosman* (1996/2005)				
Club	Win	1	2	3	Club	Win	1	2	3
English Premier League									
Liverpool	0.655	3	3	0	Manchester United	0.736	6	1	3
Manchester United	0.631	2	3	0	Arsenal	0.717	3	5	1
Arsenal	0.607	2	0	0	Chelsea	0.639	1	1	1
Italian Serie A									
Milan AC	0.685	4	2	1	Juventus	0.723	5	3	1
Juventus	0.645	2	3	0	Milan AC	0.647	3	1	2
Napoli	0.621	2	2	1	Inter Milan	0.628	0	2	3
Spanish Primera Liga									
Real Madrid	0.739	6	2	1	Real Madrid	0.666	3	2	1
Barcelona	0.690	4	3	1	Barcelona	0.661	3	3	1
Atlético de Madrid	0.583	0	1	2	Valencia	0.605	2	1	1
German Bundesliga									
Bayern München	0.677	5	3	0	Bayern München	0.722	6	3	1
Werder Bremen	0.628	2	2	2	Bayer Leverkusen	0.619	0	4	2
Borussia Dortmund	0.565	1	1	0	Borussia Dortmund	0.603	2	0	3
French Ligue 1									
Monaco	0.614	1	2	3	Olympique Lyonnais	0.636	4	1	2
Paris Saint-Germain	0.613	2	2	2	Monaco	0.616	2	1	4
Olympique de Marseille‡	0.591	5	2	0	Paris Saint-Germain	0.572	0	4	0
Dutch Eredevise									
PSV Eindhoven	0.782	7	1	2	PSV Eindhoven	0.784	5	4	1
Ajax	0.774	2	7	1	Ajax	0.741	4	2	1
Feyenoord	0.619	1	1	4	Feyenoord	0.700	1	2	5
Portuguese Super-Liga									
Porto	0.823	6	4	0	Porto	0.787	6	3	1
Benfica	0.777	4	5	1	Sporting	0.691	2	1	5
Sporting	0.686	0	1	5	Benfica	0.690	1	4	3
Belgian Jupiler									
Anderlecht	0.775	6	3	0	Club Brugge	0.770	4	6	0
Club Brugge	0.721	3	2	2	Anderlecht	0.735	3	3	2
Mechelen	0.651	1	3	2	Standard de Liege	0.587	0	0	3
Scottish Premier League									
Rangers	0.719	8	0	1	Celtic	0.805	4	6	0
Celtic	0.642	2	1	4	Rangers	0.797	6	4	0
Aberdeen	0.631	0	5	0	Heart of Midlothian	0.539	0	0	4

EPL: 22 teams 1991/95; 20 teams after 1994/95. Serie A, 18 teams; 20 after 2004/05; La Liga, 20 teams; 22, 1995/96 to 1996/97. Ligue 1, 20 teams; 18 from 1997/98 to 2001/02. Eredivisie,18 teams; Portuguese Super-Liga 18 teams; Belgian Jupiler, 18 teams and SPL: 10 teams 1994/2000; 12 teams after 1999/2000. Win = $(2W+D)/2G$

‡ After five consecutive Ligue 1 championships 1988-1993, OM was relegated 1994-1996 and stripped of first Champions League title (1992/93) in match fixing scandal.

Table 6. Big Five Beta Matrix before and after *Bosman*

	English Premier League		French Ligue 1		German Bundesliga		Italian Serie A		Spanish La Liga	
	1986/95	1996/05	1986/95	1996/05	1986/95	1996/05	1986/95	1996/05	1986/95	1996/05
English Premier League	0.568* (8.91)	0.769** (12.35)	…	…	…	…	…	…	…	…
French Ligue 1	0.054 (0.57)	-0.314* (-3.31)	0.623* (8.81)	0.455** (6.33)	…	…	…	…	…	…
German Bundesliga	0.039 (0.41)	-0.220* (-2.40)	-0.015 (-0.16)	0.094 (0.96)	0.607* (8.80)	0.549* (8.14)	…	…	…	…
Italian Serie A	0.135 (1.46)	0.003 (0.03)	0.080 (0.83)	0.317* (3.26)	0.096 (1.00)	0.223* (2.36)	0.703* (10.55)	0.772* (11.74)	…	…
Spanish La Liga	0.107 (1.21)	0.091 (1.84)	0.053 (0.57)	0.142 (1.42)	0.069 (0.74)	0.047 (0.49)	-0.027 (-0.30)	-0.175 (-1.83)	0.676* (10.98)	0.597* (8.57)

*t-ratios significant at .05. **Different than pre-Bosman at .05. Pre-Bosman: N=786 R^2=.512. Post-Bosman: N=847 R^2=.354.

Table 7. European Money-League 2004/05 and National Football League 2005 (€M)

European Team	League	G14	Revenue	Value	TV	UCL	NFL Team	Revenue	Value	Payroll	Pay/Rev
Real Madrid	ESP	●	275.7	838.9	88.0	13.7	Washington Redskins	251.2	1179.7	54.8	.218
Manchester United†*	ENG	●	237.5	1,138.2	71.7	16.3	New England Patriots	207.3	974.9	78.3	.378
AC Milan	ITA	●	234.0	763.5	138.0	26.2	Dallas Cowboys	194.8	972.4	68.1	.350
Juventus*	ITA	●	229.4	569.5	124.4	15.1	Houston Texans	184.0	864.6	67.7	.368
Chelsea	ENG		222.0	421.1	82.0	28.0	Philadelphia Eagles	180.7	848.9	60.3	.333
Barcelona	ESP	●	207.8	364.8	79.0	16.0	Denver Broncos	171.6	808.3	79.1	.461
Bayern Munich	GER	●	185.9	637.5	42.8	18.4	Cleveland Browns‡	170.8	804.1	60.9	.357
Liverpool*	ENG	●	181.2	306.7	75.5	30.6	Tampa Bay Buccaneers†	168.3	791.7	61.2	.364
Inter Milan	ITA	●	177.2	417.8	103.2	14.9	Baltimore Ravens	166.6	784.2	78.5	.471
Arsenal*	ENG	●	171.5	697.2	72.4	23.4	Chicago Bears	166.6	783.4	65.0	.390
AS Roma*	ITA		131.8	218.0	76.5	10.6	Carolina Panthers	165.0	775.9	74.8	.453
Newcastle United*	ENG		129.6	250.4	41.6	...	Green Bay Packers	160.8	755.2	53.6	.334
Tottenham Hotspur*	ENG		105.2	177.4	38.7	...	Miami Dolphins	160.8	756.0	58.8	.365
Schalke 04	GER		97.4	268.6	16.5	...	Seattle Seahawks	156.7	736.2	83.4	.532
Olympique Lyonnais*	FRA	●	92.8	172.4	45.8	20.4	Tennessee Titans	156.7	734.5	50.8	.324
Celtic*	SCO		92.0	162.5	25.3	10.5	Pittsburgh Steelers	155.0	729.5	69.8	.450
Manchester City*	ENG		90.1	184.0	38.7	...	Kansas City Chiefs	154.2	741.1	69.2	.448
Everton	ENG		89.4	114.4	44.0	...	New York Giants	150.9	737.8	68.3	.453
Monaco	FRA		85.4	170.8	35.2	13.7	New York Jets	148.4	726.2	65.8	.443
Valencia	ESP	●	84.6	161.7	44.1	14.5	St. Louis Rams	148.4	697.2	65.4	.441
SS Lazio*	ITA		83.1	166.2	44.1	...	Detroit Lions	147.6	695.5	66.8	.453
Glasgow Rangers*	SCO		81.6	155.0	11.3	...	Buffalo Bills	145.9	626.7	67.1	.460
Bolton Wanderers	ENG		78.6	100.6	37.7	...	Cincinnati Bengals	145.1	683.9	62.0	.427
Bayer Leverkusen	GER	●	78.2	156.7	16.5	13.5	Jacksonville Jaguars	143.4	616.8	69.1	.482
Aston Villa‡*	ENG		76.9	99.5	34.0		Oakland Raiders	141.8	610.1	81.4	.574
FC Porto*	POR	●	77.1	87.9	6.8	8.1	San Francisco 49ers	141.8	608.5	68.7	.484
Middlesborough	ENG		77.0	98.6	36.0	...	Atlanta Falcons	140.9	605.2	81.9	.581
Borussia Dortmund*	GER	●	75.3	116.9	14.9	...	San Diego Chargers	140.9	606.0	65.3	.468
Paris Saint-Germain	FRA	●	72.8	116.0	31.3	12.4	Indianapolis Colts	138.4	693.9	64.2	.463
Olympique Marseille	FRA	●	66.9	190.7	22.1	...	Minnesota Vikings	138.4	596.9	70.8	.511
Ajax Amsterdam*	NED	●	66.6	141.8	8.3	7.8	New Orleans Saints	132.6	611.8	79.6	.600
PSV Einhoven	NED	●	54.5	134.6	8.3	15.7	Arizona Cardinals	131.0	654.1	63.4	.484
European Averages 2005			125.3	300.0	48.6	16.5	NFL Averages 2005	159.6	744.1	67.9	.435

Sources: *Forbes, Deloitte: Football Money League 2006* and author. NFL 2005 payroll cap = €70.9million; TV share = €72.4 million. Exchange rate: €1 = £ 0.671 = $1.206.
† Teams jointly owned by North American Malcolm Glazer: EPL Manchester United €1,177.5 million (2005) and NFL Tampa Bay Buccaneers €159.2million (1995).
‡Teams jointly owned by North American Randy Lerner: EPL Aston Villa €93.3m (2006) and NFL Cleveland Browns expansion franchise €311.7 million (1999).
* Public Limited Company: Manchester United de-listed from LSE in June 2005 after take-over by Malcolm Glazer. Aston Villa de-listed October 2006 after takeover by Randy Lerner. Chelsea de-listed in July 2003 after takeover by Roman Abramovich. Ligue 1's first PLC: Olympique Lyonnais IPO, February 2007.

Table 8. European Super-League

Northern Conference						
Club	League	G14	€Rev	Attend	U06	UCL
Manchester United	ENG	●	237.5	67.7	101.0	4.98
Chelsea	ENG		222.0	41.9	80.0	1.67
Liverpool	ENG	●	181.2	42.6	106.0	1.49
Arsenal	ENG	●	171.5	38.0	102.0	2.67
Newcastle United	ENG		129.6	51.8	76.0	0.57
Tottenham Hotspur	ENG		105.2	35.9	...	...
Celtic	SCO		92.0	58.0	60.0	0.53
Rangers	SCO		81.6	48.7	43.0	0.96
Ajax	NED	●	66.6	48.6	60.6	2.60
PSV Eindhoven	NED	●	54.5	31.7	81.6	1.92
Northern Average		5	128.7	46.7	78.9	1.84
Western Conference						
Club	League	G14	€Rev	Attend	U06	UCL
Real Madrid	ESP	●	275.7	71.9	120.0	5.30
Barcelona	ESP	●	207.8	73.4	127.0	4.41
Valencia	ESP	●	84.6	42.4	95.0	2.45
Olympique Lyon	FRA	●	92.8	37.5	89.8	1.81
Deportivo	ESP		86.4	21.7	77.0	2.17
Monaco	FRA		85.4	†11.8	58.8	1.71
Porto	POR	●	77.0	36.0	87.5	3.20
Paris St. Germain	FRA	●	72.8	35.4	41.8	1.35
Olympique Marseille	FRA	●	66.9	53.0	48.8	0.85
Benfica	POR		65.4	35.1	51.5	0.75
Western Average		7	111.5	41.8	79.7	2.40
Central Conference						
Club	League	G14	€Rev	Attend	U06	UCL
AC Milan	ITA	●	234.0	63.6	129.0	4.09
Juventus	ITA	●	229.4	36.0	107.0	4.16
Inter Milan	ITA	●	177.2	57.3	112.0	1.74
Bayern Munchen	GER	●	185.9	53.3	81.0	4.34
Roma	ITA		131.8	49.6	76.0	0.89
Schalke 04	GER		97.4	61.3	65.0	0.14
Lazio	ITA		83.1	37.5	57.0	1.46
Bayer Leverkisen	GER	●	78.2	†22.5	58.0	1.92
Borussia Dortmund	GER	●	75.3	77.3	57.0	2.31
Werder Bremen	GER		70.0	39.9	44.0	0.50
Central Average		6	136.2	49.8	78.6	2.16
Super League Average		18	127.3	46.0	79.1	2.17

Attendance averages for 2004-05; U06 is five-year total of UEFA coefficients before 2005/06; UCL is author's performance index in UCL group stage 1992-2005.

Table 9. Pan-European Football Association

Western Alliance

Atlantic Division

Club	League	Attend	U06
Manchester City	ENG	45.2	27.0
Everton	ENG	36.8	23.0
Bolton Wanderers	ENG	26.0	31.0
Middlesborough	ENG	32.0	53.9
Aston Villa	ENG	37.4	23.0
Feyenoord	NED	38.3	54.6
Anderlecht	BEL	23.7	33.0
Brugge	BEL	24.4	50.0
Copenhagen	DEN	21.5	16.6
Rosenberg	NOR	17.5	35.9
Atlantic Average		30.3	34.8

Pyrenees Division

Club	League	Attend	U06
Atletico Madrid	ESP	42.6	...
Athletic Bilbao	ESP	32.4	33.0
Sevilla FC	ESP	39.5	61.0
Real Betis	ESP	33.3	45.0
Zaragoza	ESP	30.9	44.0
RC Lens	FRA	35.0	39.8
Girondins Bordeaux	FRA	23.5	47.8
AS Saint-Etienne	FRA	29.9	…
Lille OSC	FRA	13.1	54.8
Sporting Lisbon	POR	29.9	54.5
Pyrenees Average		31.0	47.5

Alpine Division

Club	League	Attend	U06
ACF Fiorentina	ITA	34.2	28.0
Parma FC	ITA	14.0	63.0
Palermo	ITA	33.2	36.0
Hertha BSC Berlin	GER	48.5	47.0
Hamburger SV	GER	48.8	37.0
Eintracht Frankfurt	GER	23.8	…
VfB Stuttgart	GER	41.4	60.0
FC Basel	SUI	24.9	49.5
Grasshopper Club	SUI	7.0	23.5
FC Zurich	SUI	8.8	10.5
Alpine Average		28.5	39.4

Eastern Federation

Danube Division

Club	League	Attend	U06
Austria Wien	AUT	6.1	27.7
Rapid Wien	AUT	14.7	13.7
Sturm Graz	AUT	6.7	12.7
Sparta Prague	CZE	5.2	44.8
Slavia Prague	CZE	3.2	33.8
Ferencvaros	HUN	4.8	17.8
Ujpest Budapest	HUN	3.3	…
Partizan Belgrade	SRB	3.9	30.6
Red Star Belgrade	SRB	4.5	20.6
Dinamo Zagreb	CRO	11.2	20.6
Danube Average		6.4	24.7

Balkan Division

Club	League	Attend	U06
Panathinaikos	GRE	16.9	66.6
Olympiacos	GRE	20.4	43.6
AEK Athens	GRE	26.9	39.6
Galatasaray	TUR	24.2	33.6
Fenerbahce	TUR	41.6	28.6
Besiktas	TUR	28.1	38.6
Steaua Bucharest	ROM	15.1	46.4
Rapid Bucharest	ROM	7.9	30.4
Levski Sofia	BUL	4.3	35.0
CSKA Sofia	BUL	4.8	21.0
Balkan Average		19.0	38.3

Eurasian Division

Club	League	Attend	U06
CSKA Moscow	RUS	11.7	42.5
Spartak Moscow	RUS	19.7	21.5
Lokomotiv Moscow	RUS	12.1	41.5
Zenit St. Petersburg	RUS	20.4	37.5
Krylya Sovetov	RUS	20.8	37.5
Dinamo Kiev	UKR	6.7	36.8
Shaktar Donets'k	UKR	18.7	33.8
Dnipro	UKR	7.4	29.8
Legia Warsaw	POL	7.4	16.1
Wisla Krakow	POL	9.6	29.1
Eurasian Average		13.5	32.6

U06 ranking is five-year total of UEFA coefficients before 2005/06. Attendance averages for 2004-05