The evaluation of the economic value of long lasting professional football player performance rights[1].

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Abstract: - In recent years, the transfer of professional football players has become most important in consideration of increased cost of acquisition and management.
It was recorded, in fact, an exponential increase in the average cost of transfer fees due to competitive pressures, to a over-assessment of low level players and to an imprudent type of management.
In this context, the doctrine and best practice in business management have focused on technical assessment of professional players sport performance rights, on the methodological aspects related to the evaluation process and on the impact on the management of football companies.
The present work aims to analyzed the methods to evaluation of transfer fees, investigating an analysis of the main contributions in the evaluation of these *assets* and suggests a possible alternative based on experience from well-established doctrine on the evaluation of human capital.
The reference to existing evaluation methods highlights the need to identify assessment techniques specifically applicable, characterized by theoretical consistency, which are based on the evaluation of individual skills of each professional players and on the relationships that are established in the group, for the purposes of achieve best *performances* in all organizations characterized by a systemic configuration.
The identification of this methodology is consistent with theories that assign to corporate intangible resources a key role in the process of creating business value.
The proposed method substantially serves to determine players' economic value in the event of purchase or sale.

Key-Words: - human capital, football teams, transfer fees, professional football players, economic evaluation, balance sheet.

1 Introduction

A professional football club's expense analysis highlights the key role of the expenses of professional football player performance acquisition and management in this kind of business (Baroncelli, Lago 2004). These expenses are determined on the one hand by professional football players' fees - signings, bonuses and club costs - on the other hand by the amortization which derives from sharing the expenses of right acquirement during the length of contracts.
The following diagram shows the trend of costs of salaries and wages in the English, Italian and Spanish leagues from season 2003/2004 to season 2007/2008 (all data refer to Euro Millions)[i].

This diagram shows that in those 5 years the English League spent on salaries and wages an average 57% more than the Italian one and an average 76% more than the Spanish one.
This is because of the big gap in earning between these three leagues, as you can see from the state of salary-earning ratio in the above mentioned period of time[ii].
As you can see, in England and Spain this ratio is on an average 61% and 63%, while in Italy it almost reaches 70%.
In our country, the total amount of signing of professional footballers is as follows for each club (all data refer to Euro Millions)[iii].
Football clubs spend about € 666 Million on signings. Therefore, you can presume that the major

[1] Eventought the paper is a result of all authors, the paragraphs 1st and 4th are the results of Raffaele Trequattrini's jobs, the paragraph 2th is a result of Rosa Lombardi's job and the paragraphs 3th is the result of Fabio Nappo's job.

asset in football clubs is the clubs' chance to manage professional football player performances by mainly acquiring their relating rights on the market.

In order to understand how important professional footballer performance right sale is, you can look at the following chart. (All data in Euro)[iv].

The activities that we are analyzing have a great impact on football clubs' economic and financial structure. As a result, over the last years the theory and practise of the football world have both focused on techniques of evaluation of professional football player performance rights, and have shed light on theory criticism and the growing unsatisfactory reliability and sharing of the current results.

This paper aims to investigate the evaluating issues relating professional footballer performance rights and to preliminarily analyze the economic and legal issues relating to working in the professional football field. It also analyzes the major theories of evaluation of the above mentioned assets, suggesting alternative solutions based on experience and accepted theories of evaluation of human capital.

2 An evaluation of professional football player performance rights: a technical analysis.

The first essays on the issues relating an evaluation of professional football player performance rights was based on the assumption that all the players available for a team represented the typical immaterial goods of this kind of companies, and can be compared to the human capital of any other company. Different methods of evaluation of the relating assets represented variants of better known methodologies which aimed to highlights human resources in a company.

A common theory (Brummet, Flamholtz, Pyle 1968; Flamholtz, 1971; Jaggi, Lau 1974; Lev, Schwartz 1971) divides the different ways of evaluating the economic value of the human capital in qualitative and quantitative.

Qualitative methodologies do not give any specific value to a company's human capital, but they try to spot the variables and the conditions on which the increase and the decrease of this values depends.

Quantitative models try and quantify the effect of the quality and the know how of an organization and the personnel in relation to the total value of the company.

Relating to the chosen criteria, they can be divided into four groups:

- methods based on the historic cost;
- methods based on opportunity cost;
- economic-income methods;
- methods based on substitution cost.

The methods based on the historic cost derive from the capitalization of the expenses of a company for recruiting and training personnel.

According to the method based on opportunity cost, in a firm there is a market where you can efficiently allocate the personnel through the payment of a price. In a context like these, only the ones who, thanks to their specific competences, social skills and the different positions they have, can carry out their tasks in several branches of a company and can be hardly replaced, can increase in value.

The economic-income methods think of the human capital as the current value of a contribution that each employee makes to his company's profit. This contribution is usually equalled to total annual expenses of the employees, taking into account several factors, like employees' turnover and mortality rate.

According to the methods based on substitution cost, the value of the human capital is equal to the expenses a businessman should afford if he had to replace an employee. In each consistent category of workers, you must evaluate the total amount of expenses you need to found an organisation whose efficacy is in line with the one that characterises the company whose value you are trying to estimate.

In 1974, Trussel (Trussel 1977) evaluated the human capital of Liverpool Football Club Ltd. through three different techniques: the capitalization of historic costs of footballers' signing and training, the cost of player substitution and the economic-income method based on likely earning of players which belong to the first club. Trussel thought that, depending on the method they used, the estimated value of human resources was between £ 628.000 and £ 7.181000.

The theory did not immediately pay much attention to this theor, but the "Bosman judgement" shed some light on it again.

As a matter of fact, in Italy before the "Bosman judgement", the buyer club, when footballers' contract expired, had to give a compensation to the club which owned the rights (Catturi 1985). The compensation was calculated on coefficients determined by the FIGC Internal Regulation.

When players started to be allowed to decide whether to stay in a club (after the contract had expired), there was an increase in average salaries. At the same time, the number of transaction concerning the transfer of professional football

player rights increased, so an economic evaluation was necessary.
Carmichael, Forrest and Simmons (Carmichael, Forrest, Simmons 1999), were the first ones who, after the "Bosman judgement", tried and define a model of evaluation. They used the following evaluation algorithm:

$$F_i = X_i\beta + Y_i\gamma + Z_i\delta + e_i$$

F_i is the transfer price. It depends on the current value of likely incomes that the buyer club expects to receive though player i performances;

X_i is a vector which summarize the measurable characteristics and productivity indicators that refer to player i;

Y_i is a vector which summarize other characteristics of player i;

Z_i is a vector that represents the buyer club's characteristics, which, indirectly, express player i;

e_i is a random variable which expresses the characteristics that are not included in the previous parameters;

β, γ, δ are the coefficients concerning each vector that the authors evaluated for season 1993/1994 in the English Leagues.

The vector X_i, which expresses direct estimation of skills and value of the human capital, depends on the following variables:
a) the age of a player;
b) the age of a player squared;
c) his attendance in the last season;
d) his attendance throughout his own career;
e) having been called up for the English National team or the national team of his hometown at least once;
f) having played for the Under 21 National team at least once;
g) having played as a foreward, midfielder or defender;
h) the number of goals scored in the last seasons and the variability of goal scored in relation to the previous season and the role he played in;
i) the number of goals scored in the last season of the FA Cup and the Coca Cola Cup;
j) the number of goals goalkeepers and defenders did not save during the last season.

The vector Yi, which expresses footballers' indirect skills through individual parameters, represents the sum of the following parameters:
a) any overweight determined from the distance from footballers' average weight;
b) palying for a first, second or third division club;
c) relation between scored goal and not saved goal on the basis of the mean of division;
d) the number of clubs a player has played for "on loan";
e) the number of clubs a player has signed for.

Referring to vector Zi (net indirect indicator of the player's skills based on the characteristics of the club he belongs to), the authors thinks that it depends on the possible change of manager and from any promotion/relegation of the club during the last season.
Starting from this method, Gerrard and Dobson (Gerrard, Dobson 2000) have created a new model, which is based on the following algorithm:

$$T_i = \alpha_0 + \alpha_1 P_i + \alpha_2 S_{ki} + \alpha_3 B_{ji} + u_i$$

T_i is the value of the transfer price of player i;
P_i is the vector which represents the characteristics of player *i*;
S_{ki} is the vector which represents the characteristics of seller club *k*;
B_{ji} is the vector that represents the characteristics of seller club *j*;
u_i is a random variable that expresses the characteristics that are not included in the previous parameters;
$\alpha_0, \alpha_1, \alpha_2, \alpha_3$ are the coefficients the authors evaluated for seasons 1990/1991 to 1995/1996 in the English leagues.

The vector P_i represents the variables linked to the player's career (age, number of club he has played for, total attendance in the league, the ratio of scored goals to the number of matches the footballer has participated in, total attendance in international competitions, total attendance in *Under 21*), to his actual condition (total attendance and number of scored goal in the league referring to the previous season) and his role in the club (ratio of scored goals to matches forwards and defenders have played).
The characteristics of the seller club (S_{ki} vector) and the buyer club (B_{ji} vector) must be analyzed in relation to the level of performance and the dimension of the market.

Each performance is determined by the following variables: last position in the league and position in the previous season; difference between scored goals and not saved goals in the last and the previous season; division the player belongs to; relation between defenders and goal difference and between forwards and goal difference.
The dimension of the market derives from the comparison between data relating to stadium attendance, the division and the season.
Referring to the buyer club performance, there is another variable to be taken into account. It represents the club's ability to fight for the victory or to avoid relegation to a lower division.
Lucifora and Simmons (Lucifora, Simmons 2003) have evaluated the economic value of professional footballer performance rights through this formula:

$$ln\ (W_i) = \alpha_0 + \alpha_1 EXP_i + \alpha_2 PERF_i + \alpha_3 REP_i + \alpha_4 TEAMQUAL_j + e_i$$

$ln\ (W_i)$ is the natural logarithm of the current value of the income the company will receive through the footballer i's performance

EXP_i is the vector that includes variables link to experience;

$PERF_i$ is the vector which refers to the variables related to the *performance*;

REP_i is the vector that includes the variables related to the player's reputation;

$TEAMQUAL_j$ is the vector which represents the variables linked to the team j's quality (the team that sells the player);

e_i is a random variable that expresses the characteristics that are not included in the previous parameters;

$\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4$ s are the coefficient the authors evaluated for season 1995/1996 in the Italian championship.

The following chart shows the variables which were analyzed to calculate $ln\ (W_i)$ [v].
The development of the research in terms of economic evaluations, let Tanaru, Clark and Viney (Tanaru, Clark, Viney 2005) apply the method of the real options (Amram, Kulatilaka 1999; Black, Scholes 1973; Buttignon 1990; Cox, Rubinstein 1985; Damodaran 2001; Donna 1992; Merton 1973; Micalizzi 1997; Paddock, Siegel, Smith 1987; Perrini 2000; Quigg 1993; Ronn 2003; Siegel, Smith, Paddock 1988; Taleb 1997; Trigeorgis 1990; Williams 1995) to these evaluations. It generated a model according to which a player's transfer price must be determined by an index of sport performances called *Carling Opta Index*. Taking into account, within this model, injury probabilities and any unexpected events that can affect professional players' performances, the authors claim that the values of the rights significantly depend on the points of the index the club the footballer belongs to has scored.
According to the model by Pujol and Garcia del Barrio (Pujol, Garcia Del Barrio, Elizalde 2007), the economic value of a football player mainly depends on his media power, which derives from his popularity and fame. Popularity can be determined by the number of web pages dedicated to the player, the team he belongs to, the sport he practise, while fame can be determined by the amount of news on the player in a specific period of time.
This indicator could also include many key factors that usually determine a player's evaluation, such as:

a) the country the football player comes from. As a matter of fact, if the team who buys him is the same as the country he comes from, the price is usually lower;
b) age; usually, a young player's economic value should be reduced, because of the risks a club runs (there is no certainty about the athlete's performances);
c) the role he plays in: most of the times, forwards are evaluated more than defenders, midfielders and goalkeepers;
d) the actors of the transaction: big clubs tend to pay for players who belong to small teams more than what small teams would if they bought a footballer from a big club;
e) the period in which the transaction happens: in winter market prices are usually lower than in the summer one.

The authors think that media power represents about 70% of transfer prices.
In Italy Fiori (Fiori 2003) has analyzed the issues related to the economic value of long lasting professional football player performance rights. He defines an empirical method based on comparable transactions. It is structured as follows:

1) analysis of all the transaction of First Division's clubs in a specific period of time
2) division of all the footballers which are about to be transferred in clusters, referring to the role

they play in, the team they belong to, performance continuity and age;
3) completion of information on all players who may be transferred. Data on attendance, goal scored, yearly net wage;
4) evaluation of the average value of the transaction for each cluster in the winter market and the summer one;
5) classifying of all players in their own cluster;
6) allocation of players to a certain value. This values equals the average, rounded off of the transactions in the summer market for the cluster they belong to;
7) correction, if necessary, of his value based on age and attendance difference, differences in scored goals, performance, net wage compared to the ones of the first ten First Division football players.

This method highlights how important the so called "comparable transactions" are in terms of evaluation of long lasting professional football player performance rights. Nevertheless, it also shed some light on "the tight link between the value of the right and professional footballers' incomes".
Onesti and Romano's (Onesti, Romano 2004) point of view is very similar to Fiori's. Their methodology is based on "comparable transactions", and is divided in two different phases. The first one depends on the determination of an exchange value for each performance right acquisition. The second one analyzes a series of factors that can correct, and therefore, reduce the possibility of comparing different transactions. Among these parameters, the Authors wish to highlight:
a) the age effect, which is linked to the professional life of footballers, who are thought to reach their maturity when they are 25-27 years old;
b) the salary effect, which is represented by any excess in incomes compared to the average ones - with relations to role, club, age – of a group of players with similar characteristics to the analyzed ones;
c) an effect linked to a discount in liquidity, which takes place because of the recession and the risks clubs run. As a matter of fact, the crisis could prevent a team from receiving incomes from performance rights.

Other authors (Manfredi, Sirleo 2007) stress the importance to apply to player right acquisition the Zanda – Lacchini method (Zanda, Lacchini, Oricchio 1993), in order to evaluate companies' human capital. It consists of the multiplication of a coefficient between 0,33 and 2'5 to the total annual cost of the personnel.
They claim that you should determine the actual value by multiplying the annual gross salary of the footballer who is about to be transferred by a coefficient between 1 and 4,5.
The coefficient derives from the addition of the points a player could score in terms of role, age, remaining time of the contract, his current performance and profile.
Nevertheless, the authors admit that this theory is influenced by footballers' gross salaries. If a player's earning differ from what the average market parameters the relating rights would be too high. As a consequence, a correction would be necessary. The parameters would be, then, the ones relating to gross salaries of a group of footballers with similar characteristics to the analyzed one.
Other authors (Melidori, Committeri 2004), hint at the importance to define a "footballer rating" through the Genaral Evaluation Index (GEI), which represents a rapid and objective way of evaluating performances thanks to data collected by a pc.
This methodology is divided in the following phases:
1) evaluation of the General Economic Evaluation Index (GEEI), as a relation between the total amount of expenses of the bought players in a market session and the GEI of the sold players;
2) Reassessment of the GEI with relation to the expiry date of each contact;
3) Economic evaluation of each footballer, which can be determined by multiplying the reassessed GEEI by the GEI of the player who is about to be transferred.

3 An evaluation of the economic value of long lasting professional football player performance rights: an alternative solution.

The evaluation of the economic value of long lasting professional football player performance rights that we have analyzed up to now is based on the logical thesis that the value of the rights for a single footballer is separated from the rights of the group he belongs to, since the latter are linked to the player's skills.
The corollary which derives from this considers a club's total amount of players available a function of the individual value of a single player from that club. Which is to say that teams' performances,

which affect their incomes, are linked to the abilities of the single footballers which play for them.
This is very similar to a common belief in football world. The challenge is between couples of football players rather than teams. Consequently, the winning team is the one which has the best players in each role.
Over the last years different theories have spread. According to them, the collaboration within the team is a key element to success. In order to support this thinking, new modules have been defined. They stress the need to make roles less and less defined, and let players play both as a forward and as a defender.
Play strategies are important too. They require skilled players, but they also need coordination and organization between footballers. For instance, in the so called "zone defence module", in which the defenders move differently in relation to the origin of the other team's attack. Or in the "off-side tactic", in which the players move in order to try and take advantage of the off-side rule (if an off-side player actively participate in the action, the opposite team is given a free kick).
According to these innovating thinking, the champion is not the highly skilled player on which the tam rely to win championships, but the one who offers his talent to his fellow teammates, and works with them to put into practice the winning strategies.
If we compare modern football clubs to any other kind of company, it figures that clubs are structured as a system (Zanda 1974; Eckman 1961; Amaduzzi 1965; Eminente 1972; Ferrero 1980; Sciarelli 1985), and are like an organization composed of several coordinated and complementary elements, which all aim to reach common targets.
If we interpreter clubs as systems, then the quality of a team depends not only on the quality of each element (the players), but also on the quality of the relationships between these elements. The single elements, then, interpreter the team module, offering the group their technical abilities.
One could even assume that football teams are guided by a sort of collective minds (AA. VV. 1995) and, despite the common theory, cannot be evaluated with relation to the single elements.
We can affirm that clubs' performances represent the main value driver of clubs' incomes. The above mentioned traditional model matches footballer performances right value to the economic value of performances of players who belong to that team. The formula is as follows:

$$W_{PG} = f(W_i)$$

W_{PG} is the economic value of all the football players of a team.
W_i is the economic value of professional football player performance rights.

If we accept a more modern theory, though, the economic value of a single player depends on the economic value of the group of footballers he belong too, as the following algorithm shows:

$$W_i = f(W_{PG})$$

As a result, an evaluation of professional football player performance rights follows these steps:

1) Determination of the economic value of the financial capital (Ardemani 1987; Bianchi 1982; Cattaneo 1986; Coda 1963; Guatri 1995; Masini 1955; Massari 1984; Mella 1986; Paganelli 1990; Zanda, Lacchini, Onesti 1997) of the club the player, whose right are being evaluate, belongs to. The methodology must highlight the starting value of a club, which is determined by the algebraic sum of the immaterial goods not to be recorded;
2) Indirect estimation of the economic value of all the players available for a team ((WPG). It must be calculated as the difference between the starting value previously determined and the economic value of other possible intangibles in a club;
3) Evaluation of the contribution from each professional footballer to the total value of all the players of the team.

An assessment of the financial capital of a club in phase 1) can be carried out with methodologies that individually highlight the club's starting value. Among them, one of the most important is the mixed method with income correction, whose evaluating algorithm is as follows (Biddle, Bowen 1999; Bao, Bao 1998; Bini 1997; Dodd, Chen 1996; Ehrbar 1998; Ehrbar, Stewart III 1999; Grant 1997; Kleiman 1999; S. O'Byrne 1999; Provasoli 1997; Quaderno AIAF 1998; Sagone 1998):

$$W = A' + \sum_{t=1}^{n} (RO - waccA')_t (1 + i_c)^{-t} - D$$

A' is the operative active calculated as the total amount of both the rectified net income and the values of net financial debts of the club;
RO is the operative net income;
$wacc$ is the average cost related to income source;
D is the value of net financial debts;
i_c is the cost of clubs' own capital.

A''s and RO's values must be cleaned off the effect of a possible registration to the balance of professional footballer performance rights of a company that is being evaluated.
In this formula, the starting value expresses in the following algorithm:

$$W_{Goowill} = \sum_{t=1}^{n} (RO - waccA')_t (1 + i_c)^{-t}$$

Once the starting value has been determined, you can isolate the economic value of all the football players of a club (phase 2) and preliminarily verify whether there are other immaterial goods not recorded. The formula is:

$$W_{PG} = W_{Goodwill} - W_{BI}$$

In particular, the value of other immaterial goods non recorded (W_{BI}) are representative of brand, know how, reputation, management capabilities and so on.
In this context, it can be explain by the role of the first two immaterial goods as major component for this residual category.
Starting with a broad construction of the brand concept, it is possible to argue that the value of football club brand is linked both on trust relations that are established between the company and its various customers (fans, sport viewer and so on), and on several relations that each organization has with its stakeholders.
In this view, brand equity is expression both of the benefits of brand-customer loyalty relationship and the most significant advantages that the brand is able to arouse, by encouraging the development of corporate reputation.
In football clubs, brands derives from the success tradition and, in many cases, it become the firm ability to enter into more profit contracts with sponsors and television companies and to appeal good players and to increase the number of national and international fans.
The valuation of brand can be ascribed to relational capital which can be estimated through empircal indicators, and on financial and profit costs. The methods based on empirical indicators look at information and data drawn from the market. Among known internationally recognized empirical methods is the interbrand method: the value of the brand is determined multiplying the flow of income which it can itself generate by a given determination of multiple coefficient.
The multiplier expresses the future profit potential of the brand and can be estimated by an in depth analysis of certain critical factors which impart strength to the brand: *leadership*; stability; the market; global coverage; trends; flexibility; marketing support; legal protection.
The valuation method is based on the estimate of costs in terms of burdens incurred, the future economic benefit which can be generated by the object of the valuation.
Based on cost configurations it is possible to identify certain methods of estimating based on historical cost, reassessed cost, on the replacement or reproduction cost, and on the cost of loss. The historical cost represents all the burdens directly related to the creation of the brand and the company image, or rather all the factors which contribute to the creation of trust in the company. The reassessed historical cost, identifies the value of the brand through the re-expression, at current prices, the costs sustained in developing the resource and not accounted for among the assets of the financial activity. The value thus obtained represents the cost that would be incurred today to use an *intangible* asset equivalent to that which was acquired in the past. The cost of replacement is represented by the total burden that, at the moment of the valuation, would be sustained in obtaining a brand with the same characteristics as the existing one and having the same reputationin the market. The method based on the loss-cost presents characteristics analagous to methods for measuring income: the loss-cost can be measured by the difference between the income the business generates with the brand and that it generates without it.
The financial methods are based on cash flows the brand can produce in future business activity.
The economic-income methods identify the value of of the brand as a function of the profit it accrues to the global profitability of the company. In particular, it focuses attention, for a given period, the different results obtained by the sale of a product with and without the brand being assessed.
The *royalties* method determines the value of a brand using royalties: they represent market data which take into account characteristics of the brand, of the economic sector referred to, as well as market characteristics.
The value of *royalty* oscillates between 2% and 20% of the sector sales revenue and is generated by the normal turnover of products with the brand being assessed over a period of between 5 and 20 years.
The formula for determinin the economic value of the brand is the following:

$$W_M = \sum_{t=1}^{n} \frac{F_t \cdot r}{(1+i)^t}$$

where:

W_M is the economic value of the brand:
r is the royalty;
F_t is the normalised value of expected returns;
n is the shelf life of an immaterial asset;
i is the rate of bringing up to date, or discounting rate.

The technical and organizational know-how is a tool used by managers: it permits to deal with the behaviour of the internal forces and to meet the expectations of external forces.
About the internal front, are necessary technical skills with reference to the team players position, the methods to preserve the physical and psychological integrity of the players through training and the motivation of human resources with the aim to have integration between the needs of team members and the organization's interests.
On the external front, the manager must shows ability to learn and use, with their advantage, the environmental forces that influence sport competition: in this perspective, it is important to know the strengths and weaknesses points both own and of their opponents. Moreover, it is important to be able to prepare defensive, coercive or anticipating strategies to anticipate the competitors moves.
The estimate of the value of economic capital contemplates the use of two alternative approaches: the cost based approach and the value based approach.
The first is based on the historical or replacement cost from which the economic value of the structural capital derives, respectively , from the costs incurred in its creation or those which a potential buyer must face to develop technological solutions analagous to tthe objects being valued
The historical cost includes the burdens borne by the business for the invention and application of a technology, even such a method is not easy to implement in as much as there are many costs in common incurred in research centers, and this sum of total costs is not sufficient to provide adequate information to potential investors.
The cost of replacement represents the costs necessary for the production of an asset of a utility analagous to the technology of the object being valued. The limits inherent in the application of such a method are linked to the difficulty of identifying knowledge equivalent in terms of utility to that available on the market and, to the fact that costs incurred in the creation of such technology may not assure the same results.
The *value-based approach* assesses future economic benefits, or rather the contribution which such technology can bring to the profitability of the company.
The valuation of the technolog, effected by means of bringing up to date the flows of future benefits discounted at a rated that includes remuneration purely for capital investment and risk, represents the theoretical value of general exchange, fair and neutral, which satisfies both seller and buyer, who will deem reasonable the sale or purchase of the asset.
The value of the exchange of technology is represented by the following formula:

$$W_x = \sum_{s=1}^{k} C_s (1+i)^{-s}$$

where:

W_x is the value of the technology sought;
C_s is the flow of benefits or competitive advantage brought by the technology to the company in k years;
i is the discount rate of the flow of benefits which takes into account the risk and reward for purely for the investment of capital.

By continuing with methods, the economic value of all the football players of a club can be approximately determined by applying a coefficient between 1 and 4,5 to the annual total cost of the footballers, taking into account the profile of the seller company.
The company's profile can be affected by many factors. The main ones depend on:

a) the club's performance (e.g. league position in the last national and international championships);
b) the economic performance (e.g. average attendance at stadiums and total amount of income in the last season);
c) the organizational performance (e.g. club's history, management and quality of technical direction).

Referring to Zanda's theory (Zanda, Lacchini, Onesti 1997), we can suggest the following relation between clubs' profiles and multiplier value[vi].
The following step is represented by the division of the value among all the players of a club (phase 3). Which is to say that you must spot the contribution of each footballer (i) to the whole group of players.

This contribution (CU_i) is calculated during signing negotiations with the club and depends on two major factors:

$$CU_i = f(S_i ; t_i)$$

S is the annual total amount of footballers' salary according to their contracts with the clubs
t is the length of the contract.

If the total expenses (SP_{PG}) of a club for signings can be determined by the following algorithm:

$$SP_{PG} = \sum_{i=1}^{n} S_i \times t_i$$

S_i is the average annual gross salary on each contract;
t_i is the length of the contract;
n is the number of contracts of a club, which corresponds to the number of players of a company; the value of CU_G can be determined by the following formula:

$$CU_i = \frac{S_i \times t_i}{SP_{PG}}$$

Moreover, the theory that in a club each footballer earns with relation to his capability to create value, corresponds to the most common economic theory (Rossi, Lago 2004). According to it, the differential in terms of salary between footballers from the same team, should reflect the fact that the ones who play a key role in the team's incomes should earn more.
For instance, according to Scully (Scully 1995), the structure of a club in terms of salaries can be compared to a tournament, where the participants accept an award-based structure. The higher the chart position is, the higher the incomes are.
Football club owners are constantly concerned about managers' decisions. Mangers can decide to let a reserve play, or buy another player for the same role, thus fostering a constant competition which leads to a hierarchal distribution of incomes (Silvestri, Montanari 2008), where regular players have the most requested positions.
Once the value a single player can add to the total value of all the footballer of a club (CU_i) has been determined, the value of the single professional athlete (W_i) can be determined by multiplying the total economic value of all the players of a team by the contribution, according the above mentioned technique. The formula is:

$$W_i = W_{PG} \times CU_i$$

The following chart shows the results of the calculation that we have analyzed, in relation to Cagliari's footballers at the beginning of season 2009/2010[vii].
The summary of total costs of the club for each contract returns a value equal to 15.28 (SPpg).
Given an average coefficient equal to 3.1, the overall economic value of the player roster (Wpg) can be determined multiplying the above coefficient by the total cost borne by the club for player contracts. The formula is:

*Wpg= SPpg * Coefficient = (15.28 * 3.1) = 47.37*

The contribution that each professional player is able to bring to the overall value of the roster (*CUi = Si*ti/SPpg*) is given in the below table[viii].
The value of the single professional athlete (W_i) can be determined by multiplying the total economic value of all the players of a team (*Wpg* = 47.37) by the contribution (*CUi*) as in the table.
This professional footballer performance right evaluation method help determine the current value of footballers' performance. Therefore, it should be completed by analyzing the value of his potential as "professional resources dedicated to meet specific future needs" (Fontana 1989).
In order to effectively evaluate a player's potential, you must also take into account his will to improve his performance, his ambition and the motivations that move each football player who s being evaluated (Zanda, 1984).
In order to assess the potential value, you could, for instance, investigate the highest salary of a player with similar characteristics to the one who is being evaluated. Then one could give the last, in relation to his age, part of the difference between the calculated price and the esteemed value – according to the above mentioned theory.
It is also possible to use an alternative method which considers the evaluation of professional player performance rights an investment that includes a real development and, thus, an increase in its value as a result of contingent events and events that could be generated by the professional player performance development (Buttignon 1996).
If one follows this evaluation method, the basic variables that affect the value of real options consist of:

a) the investment of resources which, for a certain period of time, must be supported, in order to have the chance to use player performances
b) the footballer current value
c) the length of the option, which depends on how much time one could expect to get excellent performances from the player
d) the player's current variable value, which can be assessed in relation to the variable value of other players who have similar characteristics to the one who is being evaluated
e) income rate of safe investment.

Though, this is a hypothetical and subjective value. Therefore, it would be better to identify a range of values rather that an exact one.

4 Conclusion

At the end of the 1950s, footballer transfer costs dramatically rose, because of a correspondent rise in competition, a too high evaluation of not so talented players (partly caused by the so called "capital gain" - Monfroglio 1986; Perotto Dezzani 1987) and the lack of suitable financial management (Cesarini 1985; Dezzani 1985; Manni 1991; Marzola 1990; Rusconi 1990).

In this situations, footballer performance acquisition and transfer rights started to be the centre of the attention of the Italian and international economic-business theory and of the professional practice, in terms of both the evaluation methodologies and the effect the evaluations had on football clubs.

Due to a controversial Italian regulation, in 2002 more attention started to be paid to it. The regulation allowed clubs to devalue right value that were already on balance and "spread out" the relating capital loss in ten years.

The *Comitato Esecutivo dell'Organismo Italiano di Contabilità* through a *Documento Interpretativo, 30* May, 2003, stated that the amount of long lasting professional player performance right devaluation had to be determined by a legal report. It had to include the criteria, the reason why those criteria had been chosen, and the elements that led to think the it was a long lasting devaluation process.

This contribution aims to determine a methodology which both can be actually applied and has a defined theory. The methodology also has to pay attention to the modern development of the theory concerning the importance of the integration between individual and group competences, in order to reach high level performances in all kind of organization that are structured as a specific system.

The techniques that have been analyzed up to now, pay too much attention to each professional footballer's skills, in order to make the group a player belongs to have good results. This disadvantages the environmental components in which the talents can express at their best.

The method is also coherent with the business theory, which stresses the importance of immaterial resources in the process of creation of the value of a company (Lorenzoni 1992; Penrose 1959).

A proposed method for estimating the economic value of the rights to the services of a professional football player with reference to the team of Cagliari would seem to have the following requirements:

- rationality: the method must be conceptually valid and theoretically sound;
- objectivity – the method must be applicable in the real world; or rather based on certain or at least substantially credible data;
- neutrality or generality- the method must leave out of consideration the interests and characteristics of the parties involved in the negotiations.

So defined, such a method is useful for calculating the value of single football player in the context of a sale or purchase.

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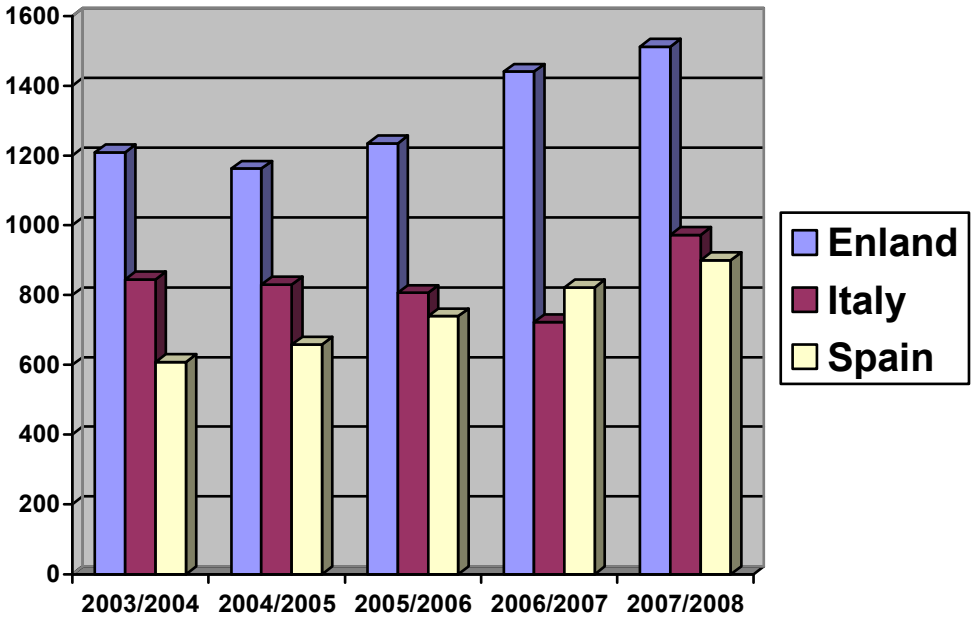
i



Source: Our own paper from Deloitte *Annual Review of Football Finance,* June 2009.

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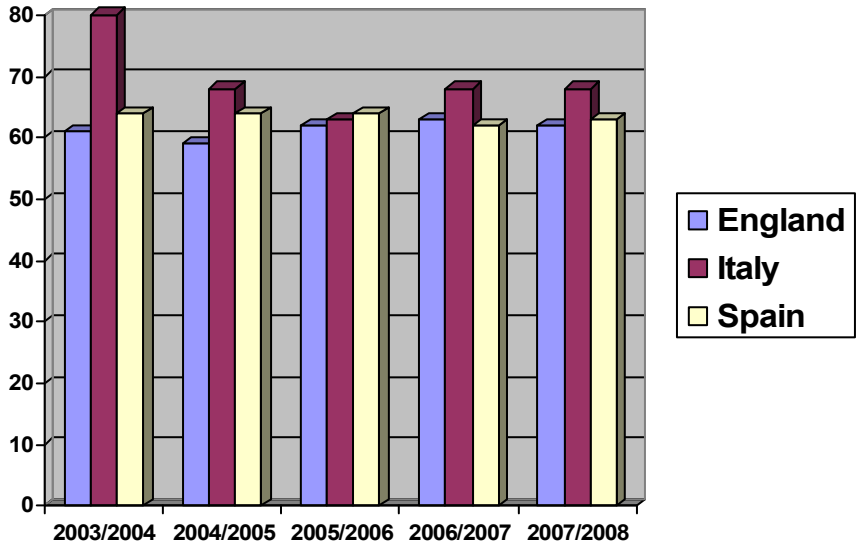

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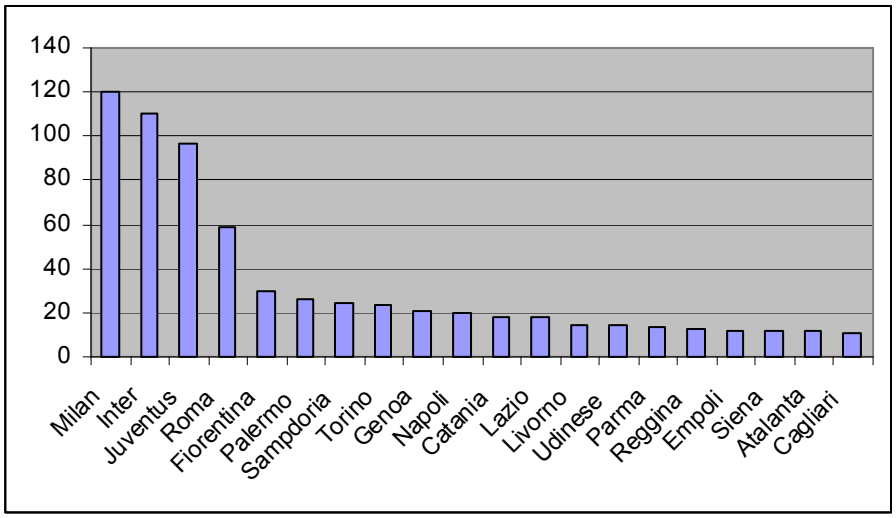

iv

Season	Signings	Transfer	Balance
2005 – 2006	131.380.000	141.925.000	10.545.000
2006 – 2007	180.420.000	198.745.000	18.325.000
2007 – 2008	195.435.000	292.745.000	97.310.000

Source: www.transfermarkt.de.

v

EXP_i	$PERF_i$	REP_i	$TEAMQUAL_j$
Age	Assist/Attendance as forward	Attendance in the National Team	Average attendance at stadiums in F.D.
Age²	Assist/Attendance as midfielder	Attendance in the *Under 21* National Team	Points scored/exptected to be scored by the manager in F.D.
Attendance in F.D.	Goal/Attendance as forward in F.D.	Attendance in other national teams	
Attendance in F.D.²	Goal/Attendance as forward in S.D.		Points scored/expected to be scored by the manager in S.D.
Attendance in S.D.	Goal/Attendance as midfielder in F.D.		
Attendance in S.D.²	Goal/Attendance as midfielder in S.D.		
Attendance in F.D.	Goal/Attendance as defender in F.D.		
Attendance in F.D.	Goal/Attendance as defender in S.D.		

Attendance in S.D.	Goal/Attendance as foreword throughout the career		
Attendance in S.D.^{2}	Goal/Attendance as foreword throughout the career		

vi

Multiplier	Club's profile
between 1 and 1,7	Low
between 1,8 and 2,4	Intermediate-low
between 2,5 and 3,1	Intermediate
between 3,2 and 3,8	Intermediate-high
between 3,9 and 4,5	High

vii

Footballers	S_i (€/mil.)	Expiry date	t_i	Si*ti
Conti	00.07	2012	3	00.21
Jeda	00.55	2011	2	01.50
Nenè	00.55	2013	4	03.40
Barone	00.45	2012	3	02.15
Biondini	00.04	2011	2	00.08
Canini	00.04	2011	2	00.08
Dessena	00.04	2010	1	00.04
Larrivey	00.04	2011	2	00.08
Lopez	00.04	2010	1	00.04
Cossu	00.35	2011	2	01.10
Matri	00.35	2013	4	02.20
Parola	00.35	2010	1	00.35
Pisano	00.03	2010	1	00.03
Lupatelli	00.03	2010	1	00.03

Agostini	00.03	2011	2	00.06
Marzoratti	00.03	2013	4	00.12
Lazzari	00.03	2012	3	00.09
Brkljaca	00.02	2013	4	00.08
Sivakov	00.02	2012	3	00.06
Marchetti	00.15	2012	3	00.45
Astori	00.13	2012	3	00.39
Carta	00.05	2011	2	00.10
Di Laura	00.05	2011	2	00.10
Vigorito	00.05	2011	2	00.10
Ragatzu	00.02	2011	2	00.04
SP_{PG}				15.28

Source: La Gazzetta dello Sport, 3 September 2009.

viii

Footballers	Si*ti	SPpg	CU_i	W_i (€/mil.)
Conti	00.21		11%	06.06
Jeda	01.50		6%	03.05
Nenè	03.40		12%	06.09
Barone	02.15		7%	04.03
Biondini	00.08		4%	02.05
Canini	00.08		4%	02.05
Dessena	00.04	15.28	2%	01.03
Larrivey	00.08		4%	02.05
Lopez	00.04		2%	01.03
Cossu	01.10		4%	02.02
Matri	02.20		8%	04.04
Parola	00.35		2%	01.01
Pisano	00.03		2%	00.09

Lupatelli	00.03		2%	00.09
Agostini	00.06		3%	01.09
Marzoratti	00.12		6%	03.08
Lazzari	00.09		5%	02.08
Brkljaca	00.08		5%	02.05
Sivakov	00.06		3%	01.09
Marchetti	00.45		3%	01.09
Astori	00.39		2%	01.04
Carta	00.10		1%	00.08
Di Laura	00.10		1%	00.03
Vigorito	00.10		1%	00.03
Ragatzu	00.04		0%	00.01