

THE ROLE OF FINANCIAL INDICATORS IN THE LIFE OF ITALIAN FOOTBALL CLUBS

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SUMMARY: 1. Introduction – 2. Brief review of related literature – 3. Research hypothesis – 4. Methodology and description of the sample – 5. Analysis and discussion – 6. Conclusion – References

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1. *Introduction*

Since the 1990s all European football clubs have been engaged in three main activities: the first is generating revenues by adopting the Media–Corporations–Merchandising–Markets–Global model;¹ the second is the trading of player contracts (acquisition and disposal) and the third is the developing and nurturing of in-house talents.

Lago argues that business models of football clubs can be grouped into two main patterns: one for large clubs and another for smaller ones.² The former is based on spending capacity and requires a large initial investment followed by sporting success. This business model is mostly used by large clubs, belonging to industrial groups (playing to win National leagues and European championships) or owned by rich individual entrepreneurs; it focuses on sporting results, giving less emphasis to economic ones. The latter is based on talent development and requires the selection and the purchase of young skilled players followed by selling

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¹ In contrast to the traditional Spectators–Subsidies–Sponsor–Local or SSSL model, the MCMMG model indicates that clubs were increasingly driven by media income, supported by large-scale merchandising and sponsorship activities. W. ANDREFF, *Globalization of the Sports Economy*, in *Riv. Dir. Ec. Sp.*, vol. 4, n. 3, 2008, 13-32.

² U. LAGO, *La strategia competitiva*, in U. Lago, A. Baroncelli, S. Szymanski (a cura di), *Il business del calcio, Successi sportivi e rovesci finanziari*, Egea, Milano, 2004, 167-185.

them at a higher price. This model, adopted by smaller clubs, emphasizes the importance of economic administration, giving less significance to sporting objectives.

The competitive pressure typical of open and win-maximizing leagues pushes all football clubs to overinvest in human capital in order to ensure the achievement of their ultimate objective. In an attempt to avoid relegation or to qualify as regularly as possible for international competitions, the costs of the main Italian and European clubs have grown exponentially both in absolute and in relative terms since the 1990s. The increase in total expenses has coincided with the progressive explosion of players' wages. Over recent years, both the salaries of more technically skilled players and the average wages received by every player have grown. The profit and loss statements of European football clubs show how this kind of cost absorbs up to 90% of entire turnover nowadays, so just under half of the European top division clubs (302 out of 654) tested by the Union of European Football Association's (UEFA) club licensing system reported a net loss in financial statements closed in June 2008.³ This means that the life cycle of football clubs is very short and periodically each club needs recapitalization to cover cumulate losses. If the ownership doesn't recapitalize the firm, its football club represents a problem for the championship in which it plays because the way it plays may falsify match results and because it can create problems for the local community.

To avoid these situations the Italian Football Federation (FIGC) decided to introduce a licensing system that imposes on football clubs which want to take part in professional sport the achievement of certain financial indicators.

The aim of this paper is to investigate whether the financial indicators chosen by the Italian watchdog committee are functional to understanding whether a football club will go out of business within 1 year. To test the effectiveness of these licensing systems, I apply a univariate model to analyze the financial statements of a sample of bankrupt and non-bankrupt Italian football clubs over the last five years.

The paper is organized as follows. Section 2 presents a brief review of related topics. Section 3 highlights the financial ratios chosen by the Italian football watchdog committee to predict firms' insolvency and also defines the research hypothesis. Section 4 describes the sample and methodology used. Section 5 presents and discusses the results. Finally, section 6 concludes job and suggests topics for other related research in the field.

2. *Brief review of related literature*

Football is a product of a particular nature that possesses multiple features. It simultaneously has the characteristic of a market product with the quality of a

³ UEFA, *The European Club Footballing Landscape. Club licensing benchmarking report for financial year 2008*, available at: www.uefa.com/uefa/footballfirst/protectingthegame/clublicensing/news/newsid=1453119.html#club+finances+sharp+relief (November 2011).

relational product and coercion.⁴ So it often happens that in the football industry the economic, financial and sporting performances of teams do not go hand in hand and the more a team wins, more quickly it erodes its equity.

Some US authors argue that clubs are profit maximizers. In contrast, Sloane *et al* argued that European club owners might be viewed more accurately as utility maximizers, although profit is important for the club's long term financial stability.⁵ He suggests that club ownership is an act of consumption more than investment.

Other studies, regarding the linkage between financial results, sports and stock market performances, confirm the validity of the notion of an acceptable minimum profit which reflects factors such as the club's need to secure its long-term future. These studies highlight how managers of English football clubs try to simultaneously achieve financial and sporting performances, maximizing sporting performances with a minimum profit level.⁶

Manni and Turano, on the other hand, argue that football clubs seem to be structurally unsuited to profit-making purpose.⁷ This is also because teams in a win maximizing environment will overpay the players.⁸ So these authors emphasize how profit does not represent the best way to measure efficiency in professional sport. They also show how profit is certainly not sufficient to exhaust the range of motivations that explain capital investments in the football industry.

From a sociological perspective, some studies show how indirect income (for example psychic income) can sometimes be so high as to compensate profit losses.⁹ This happens, in accordance with Vermiglio's reasoning, because firms are only tools for realizing managers' objectives.¹⁰ Moreover, football clubs are a typical stakeholder theory expression,¹¹ in which pressure exerted by social actors

⁴ R. CARUSO, *Il Calcio tra Mercato, Relazioni e Coercizione*, in *Riv. Dir. Econ.Sport*, vol. 4, n. 1, 2008, 71-88.

⁵ P. J. SLOANE, *The economics of professional football: the football club as a utility maximizer*, in *Scot. Jour. of Econ.*, vol. 18, n. 2, 1971, 121-145; R. FORT, J. QUIRK, *Owners objectives and competitive balance*, in *Jour. of Sp. Econ.*, vol. 5, n. 1, 2004, 20-32; S. KESENNE, *Revenue Sharing and competitive Balance*, in *J. of Sp. Econ.*, vol. 6, n. 1, 2005, 98-106.

⁶ A. SAMAGAIO, E. COUTO, J. CAIADO, *Sporting, Financial and Stock Market Performance in English Football: an empirical analysis of structural relationships*, 2008, available at: <http://cemapre.iseg.utl.pt/archive/preprints/395.pdf> (November 2010).

⁷ F. MANNI, *Le società calcistiche. Problemi economici, finanziari e di bilancio*, Giappichelli, Torino, 1991; G. TURANO, *Tutto il calcio miliardo per miliardo. Il pallone da Rocco ad Abramovic*, il Saggiatore, Milano, 2007.

⁸ P. DOWNWARD, A. DAWSON, T. DEJONGHE, *Sports Economics: Theory, Evidence and Policy*, Butterworth-Heinemann, London, 2009.

⁹ A. FOX, *Industrial Sociology and Industrial Relation. Royal Commission on trade unions and employers*, in *Ass. Res. Pap.*, n. 3, 1966, London; H.A. SIMON, *Decision Making in Economics*, in *Amer. Econ. Rev.*, vol. 49, 1959, 253-283.

¹⁰ F. VERMIGLIO, *Lezioni di Economia Aziendale*, Grafiche Scuderi, Messina, 2003.

¹¹ R.E. FREEMAN, *Strategic management: A stakeholder approach*, Pitman, Boston, 1984; J. FROOMAN, *Stakeholder influence strategies*, in *Acad. of Manag. Rev.*, vol. 24, n. 2, 1999, 191-205; R. PHILLIPS, R.E. FREEMAN, *Stakeholder Theory and Organizational Ethics*, Berrett-Koehler Publishers, San Francisco, 2003.

constantly determines the crisis of football clubs because of increasing expenditure.¹²

The aim of any licensing system is to guarantee the smoothest running of the next season. A flexible licensing system has to leave economic freedom to owners' initiative, identify the crises of football clubs and anticipate failure, calling for equity by shareholders if financial needs have occurred. For this purpose, a licensing system has to be able to predict firms' failure without excluding companies that have the possibility of successfully completing the season. This means that it has to ensure companies' survival for at least 1 year.

Looking at the literature on the development of the bankruptcy prediction model, it started with the use of univariate analysis by Beaver,¹³ followed by multivariate discriminant analysis (MDA) by Altman.¹⁴ Beaver's univariate analysis used thirty individual financial ratios based on conventional accrual accounting to predict distress.¹⁵ By using 79 failed and non-failed companies that were matched by industry and size of assets from 1954 to 1964, his results from the prediction error tests suggested that cash flow to total debt, net income to total assets and total debt to total assets have the strongest ability to predict failure. These ratios differed from the MDA model proposed by Altman. By utilizing 33 bankrupt companies and 33 non-bankrupt companies over the period 1946 to 1964, five variables were selected on the basis that they did the best overall job in predicting bankruptcy.¹⁶ Z-Score was determined and those companies with a score greater than 2.99 fall into the non-bankrupt group, while those companies having a Z-Score below 1.81 were in the bankrupt group. The area between 1.81 and 2.99 is defined as the zone of ignorance or the gray area. The cut-off index that made the most accurate prediction of bankruptcy one year before filing for bankruptcy was 2.675. The MDA model was able to provide a high predictive accuracy of 95% one year prior to failure. For this reason, the MDA model has been used extensively by researchers in bankruptcy research, although some authors have found that there were some inadequacies in MDA,¹⁷ opening the door to the use of the

¹² A. TANZI, *Le società calcistiche. Implicazioni economiche di un "gioco"*, Giappichelli, Torino, 1990; F. RUBINO, *Un approccio manageriale alla gestione delle società di calcio*, FrancoAngeli, Milano, 2004.

¹³ W.H. BEAVER, *Financial Ratios as Predictors of Failure*, in *Journal of Accounting Research*, vol. 4, Supplement, 1966, 71-111.

¹⁴ E. I. ALTMAN, *Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy*, in *J. of Fin.*, n. 23, 1968, 589-609; J. WILCOX, *A simple theory of financial ratios a predictors of failure*, in *J. of Acc. Res.*, vol. 9, n. 2, 1971, 389-395; M. BLUM, *Failing company discriminant analysis*, in *J. of Acc. Res.*, n. 12, 1974, 1-25; E. I. ALTMAN, *Corporate financial distress and bankruptcy*, 2nd. Ed., Wiley, New York, 1993.

¹⁵ These were divided into six "common elements" groups and only one ratio from each group was found to be a significant predictor of failure in those studies (Net income/Total asset; Cash flow/Total debt; Current ratio; No credit interval; Working capital/Total assets; Total debts/Total assets).

¹⁶ These were working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to book value of total debt and sales to total assets.

¹⁷ J. A. OHLSON, *Financial ratios and the probabilistic prediction of bankruptcy*, in *J. of Acc. Res.*, 18,

logistic and probit models, as well as multiple regression, in predicting the failure of firms.

3. Research hypothesis

The survival of a firm depends on its ability to simultaneously achieve economic and financial equilibrium. Economic equilibrium is a medium and long-term condition related to the achievement of an appropriate balance between revenues and costs. Economic self-sufficiency guarantees the durability and the self-governance of a firm.¹⁸ From a financial perspective, a company must be able to meet its obligations at any time. Financial self-sufficiency is a short-term condition that requires an appropriate balance between cash inflows and outflows.¹⁹ So, a firm may be economically self-sufficient but not financially. To simultaneously attain economic and financial equilibrium a firm has to pursue the predetermined objective, achieving it in an effective and efficient way. This will improve the profitability of investments in the medium and long term, guaranteeing financial stability and the club's decisional autonomy.

Crises of football clubs are in most cases efficiency crises owing to costs sustained to accumulate points needed to achieve their annual objective. For example, Italian clubs' costs are out of control with players' wages representing the main expenditure and absorbing the majority of their cash flow. This determines the financial fragility of Italian teams.²⁰ Bankruptcy is a consequence of a firm's crisis but there is no such thing as an exclusively economic or financial crisis.²¹

In the «theory» of ratio analysis the firm is viewed as a reservoir of liquid assets, fueled by continuous inflows and outflows. The reservoir serves as a cushion or buffer against variation in the flows. A firm's solvency depends on the probability that reserves will run out and at that moment the firm will be not be able to pay its obligations. The larger the reservoir of liquid assets and the net liquid assets from operations, the smaller the amount of debts held and the fund expenditure from operations, thus the probability of failure is less.

1980, 109-131; F.L. JONES, *Current techniques in bankruptcy prediction*, in *J. of Acc. Lit.*, n. 6, 1987, 131-164.

¹⁸ P. ONIDA, *Economia d'azienda*, UTET, Torino, 2001; M. CAVALIERI, *Qualche riflessione sul carattere dell'autonomia nei gruppi aziendali*, in *Riv. Ital. Rag. Econ. Azien.*, vol. 104, n. 5-6, 2004, 369-384.

¹⁹ G. AIROLDI, G. BRUNETTI, V. CODA, *Economia Aziendale*, il Mulino, Bologna, 1994; G. FERRERO, *Istituzioni di economia d'azienda*, Giuffrè, Milano, 1968.

²⁰ A. BARONCELLI, R. CARUSO, *The Organization and Economics of Italian Serie A: a Brief Overall View*, in *Riv. Dir. Ec. Sp.*, vol. 7, n. 2, 2011, 67-85.

²¹ L. GUATRI, *Crisi e risanamento delle imprese*, Giuffrè, Milano, 1986; A. QUAGLI, A. DAVONI, *Gestione della crisi aziendale e dei processi di risanamento. Prevenzione e diagnosi, terapie, casi aziendali*, Ipsoa, Milano, 2008; U. BERTINI, *Introduzione allo studio dei rischi nell'economia aziendale*, Giuffrè, Milano, 1987; G. BERTOLI, *Crisi d'impresa, ristrutturazione e ritorno al valore*, Egea, Milano, 2000; A. BANDETTINI, *Crisi d'azienda. Una lettura per tipologia e sintomatologia*, Centro Stampa Il Prato, Firenze, 2007.

In this perspective, it is possible to investigate a firm's solvency focusing on financial ratios coming from the financial statement.²² Therefore, analyzing the financial statements of football clubs it is possible to understand which stage of the life cycle the football company is in and to predict a firm's failure.

The Italian licensing system imposes on clubs which want to take part in professional football the achievement of:

- an annually pre-fixed value for the ratio Value of Production (VP) to Financial debts (DF), for Serie A and B clubs. In determining the VP/DF ratio: a) revenues cover: revenue from sales and services; change in inventories; increase in assets for internal work and other revenue; b) financial debts cover: ordinary and convertible bonds; shareholders' temporary provisions; shareholders' financing bonds; bank loans; other borrowings; debts to financial subsidiaries and parent company. Financial liabilities are reduced by availability of liquidity;
- an annually pre-fixed value for the index Revenues (R) to Debts (I), R/I ratio, for Lega-Pro clubs. In this case the revenues cover: revenues from competition, including season tickets; income from sponsorship, advertising, royalties, TV rights; miscellaneous income; the net income from disposal of player's registration rights; the net income from temporary sales of players; premiums; the net income from players ex art. 102 bis NOIF; revenues from operating grants, federal and other entities. Indebtedness includes all debts or liabilities to third parties of any nature. Creditors are reduced by cash and cash equivalent;
- an annually pre-fixed value for the ratio Equity (E) to Total assets (TA), for Serie B and Lega-Pro clubs.

Therefore Serie A football clubs have to set the goal of VP/DF ratio, Serie B teams have to achieve the double goals represented by VP/DF ratio and E/TA ratio, while Lega-Pro clubs have to attain the goal of R/I ratio and E/TA ratio.

The E/TA ratio measures the firm's degree of capitalization and the higher the capitalization level, the higher the firm's resistance to losses.

VP/DF ratio and R/I ratio measure how many times turnover covers indebtedness. It is easy to understand that the higher the value of these indexes is then the firm will need less debt to sustain revenues.²³

The Italian watchdog committee adopts a univariate model to choose clubs that can participate in the leagues. This is because if financial ratios of clubs do not match the level required, clubs are excluded from their leagues. A univariate model uses a single indicator, in this case a financial index, for predictive purpose.

²² E. PAVARANI, *Analisi finanziaria. Valore, solvibilità, rapporto con i finanziatori*, McGraw-Hill, Milano, 2002; M. DALLOCCIO, A. SALVI, *Finanza aziendale*, Egea, Milano, 2004; M. MASSARI, L. ZANETTI, *Valutazione Finanziaria*, McGraw-Hill, Milano, 2004; G. FERRERO, F. DEZZANI, P. PISONI, P. PUDDU, *Analisi di bilancio e rendiconti finanziari*, Giuffrè, Milano, 2006.

²³ M. FAZZINI, *Analisi di bilancio. Metodi e strumenti per l'interpretazione delle dinamiche aziendali*, Ipsos, Milano, 2009.

The use of a single index, looking at economic and/or financial items, is equivalent to considering separately the various elements of the company: profitability, financial structure, liquidity and so on and as Business administration literature has explained,²⁴ this in itself represents a limitation of the model.

From this perspective the research hypothesis is: *is the univariate model used nowadays by the Italian watchdog committee able to split non-bankrupt from bankrupt companies?*

4. Methodology and description of the sample

To test the aim of this paper, I used the typical methodology of univariate models, applying it to the ratios chosen by the Italian watchdog committee. Univariate analysis assumes that a single variable can be used for predictive purposes. Under this method, each individual ratio is examined at a time and the ratios which provide the most accurate prediction are recognized.

To construct my sample, I considered how many Italian football clubs, playing in Serie A, Serie B and Lega-Pro leagues, went out of business during the period 2006-2010. An observation period of five years is sufficient to verify my hypothesis because previous studies²⁵ have shown that difference in mean values of financial ratios works well for a maximum period of five years before bankruptcy.

In the observation period, 52 football clubs went out of business, and of these: 7 after relegation (the red ones in italics), 7 after promotion (the yellow ones in bold) and 2 after repechage (the green ones underlined).

I chose a representative sample of this population. 8 bankrupt companies for which I had the last 5 financial statements before the bankruptcy (otherwise I would not have been able to calculate all indicators for 5 years). I paired the 8 bankrupt companies with 8 healthy firms that played in the same championships in that period and for whom I had the last 5 financial statements. Therefore, my sample is composed of 16 companies, 8 bankrupt and 8 in business.

Thanks to this information, I calculated for each club in the sample, for five years before the failure (from year $n-1$ until $n-5$), the financial ratios fixed by the Italian watchdog committee. I calculated the mean values of each ratio and I investigated the correlation between the ratio of bankrupt and non-bankrupt firms, to check if the ratios chosen are able to predict firms' insolvency.

²⁴ G. SZEGO, F. VARETTO, *Il rischio Creditizio: misura e controllo*, Utet, Torino, 1999; A. SIRONI, M. MARSELLA, *La misurazione e la gestione del rischio di credito. Modelli, strumenti e politiche*, Bancaria Editrice, Roma, 2000; A. DEL POZZO, *Controllo finanziario e rischio di default*, FrancoAngeli, Milano, 2009.

²⁵ E.B. DEAKIN, *A Discriminant Analysis of Predictors of Business Failure*, in *Jour. of Acc. Res.*, 1972, 167-179; C.M. MOLINERO, M. EZZAMEL, *Multidimensional Scaling Applied to Corporate Failure*, in *OMEGA Int. Jour. of Manag. Sci.*, vol. 19, 1991, 259-274; E. DEMERS, *IPO Failure Risk*, in *Jour. of Acc. Res.*, vol. 45, n. 2, 2007, 333-371.

Table 1. Italian bankrupt football clubs during 2006-2010

Year	Serie B	Serie C1A	Serie C1B	Serie C2A	Serie C2B	Serie C2C	
2009/10	1	Ancona	Arezzo	<i>Rimini</i>	<i>Legnano</i>	Sangiustese	Cassino
	2	Mantova	Figline	Real Marcanise	Alghero	Itala San Marco	Monopoli
	3	Gallipoli	Perugia	Pescina VG	Olbia	Pro Vasto	Manfredonia
	4			<i>Potenza</i>	<i>Pro vercelli</i>	Collegiana	Scafatese
	5				<i>Pro Sesto</i>		Noicattaro
	6						Vico Equense
	7						Igea Virtus
tot.	26	3	3	4	5	4	7
2008/09	1	Pisa	Sambened.	Pistoiese	Ivrea	Cuoicappiano	
	2	Treviso	Venezia				
tot.	7	2	2	1	1	1	0
2007/08	1	<i>Messina</i>		Lucchese	Nuorese	<i>Teramo</i>	
	2	Spezia		Massese	Torres	Castelnuovo	
	3			Martina			
tot.	9	2	0	3	2	2	0
2006/07	1						Rende
tot.	1	0	0	0	0	0	1
2005/06	1	Catanzaro	Fermana	Acireale		Gualdo	Modica
	2			Chieti		Forlì	Latina
	3						<i>Vittoria</i>
tot.	9	1	1	2	0	2	3
Com.	52	8	6	10	8	9	11

Table n. 2 - Sample selected

<i>Bankrupt</i>	<i>Non-bankrupt</i>
1 Alghero	Cesena
2 Ancona	Cittadella
3 Collegiana	Cremonese
4 Igea Virtus	Frosinone
5 Mantova	Ravenna
6 Pro Vasto	Salernitana
7 Pro Vercelli	Ternana
8 Real Marcanise	Verona

5. Analysis and discussion

This investigation highlights how only one of the three ratios chosen by the Italian watchdog committee is able to completely split bankrupt from non-bankrupt firms. This is the ratio Equity (E) to Total assets (TA) and represents a way of expressing the firm's degree of indebtedness. This ratio measures the firm's degree of capitalization or, that is to say, the weight of debts on the total assets. This index expresses the company's financial autonomy and shows to what extent investments are covered by equity. It is clear that when the ratio is much lower the firm depends much more on external funders.

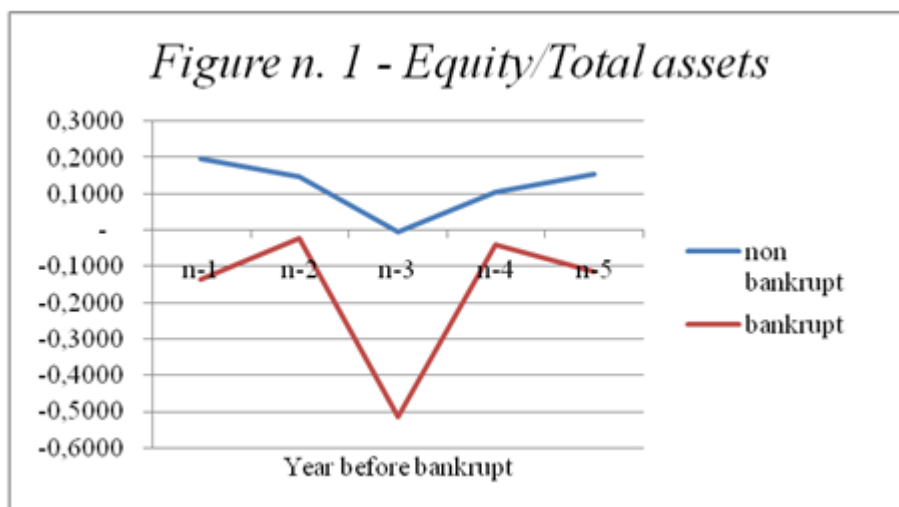


Figure n. 1 shows how the ratio E/TA is able to completely split bankrupt from non-bankrupt firms, because its mean values over the five years do not overlap and this can help us to distinguish if a firm will go out of business within one year.

But going deeper, the results show the lowest degree of direct correlation existing between the level of the ratio E/TA set by the Italian watchdog committee and the likelihood of failure.

Table 3 shows how if the ratio E/TA, actually set at 0.08, increases over time there will be a lower reduction in likelihood of failure, while if there is a decrease of the ratio E/TA to 0.01 there is no increase in the failure rate.

Table n. 3 - Failure rate after increasing or reducing ratio E/TA

<i>Ratio E/TA</i>	<i>> 0.08</i>					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	2.00	2.00	1.00	2.00	3.00	2.00
Non-bankrupt	6.00	3.00	2.00	3.00	4.00	3.60
Total	8.00	5.00	3.00	5.00	7.00	5.60
% Bankrupt	0.25	0.40	0.33	0.40	0.43	0.36
<i>Ratio E/TA</i>	<i>> 0.2</i>					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	3.00	3.00	2.00	4.00	3.00	3.00
Non-bankrupt	7.00	5.00	5.00	6.00	6.00	5.80
Total	10.00	8.00	7.00	10.00	9.00	8.80
% Bankrupt	0.30	0.38	0.29	0.40	0.33	0.34
<i>Ratio E/TA</i>	<i>> 0.01</i>					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	4.00	4.00	2.00	4.00	4.00	3.60
Non-bankrupt	7.00	6.00	5.00	6.00	8.00	6.40
Total	11.00	10.00	7.00	10.00	12.00	10.00
% Bankrupt	0.36	0.40	0.29	0.40	0.33	0.36

This means that looking through this ratio and through its evolution over time it is impossible to figure out if there will be an increase in likelihood of failure or if the firm will be able to survive without a recapitalization by shareholders.

The other two ratios chosen by Italian watchdog committee are not able to do the same either because, at certain times, their mean values for bankrupt and non-bankrupt companies overlap, as it is possible to see in figures 2 and 3.

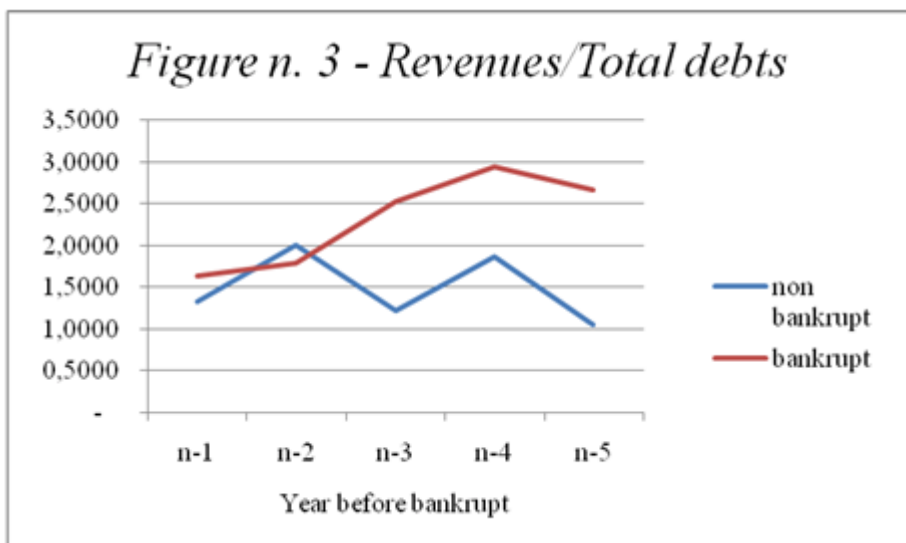
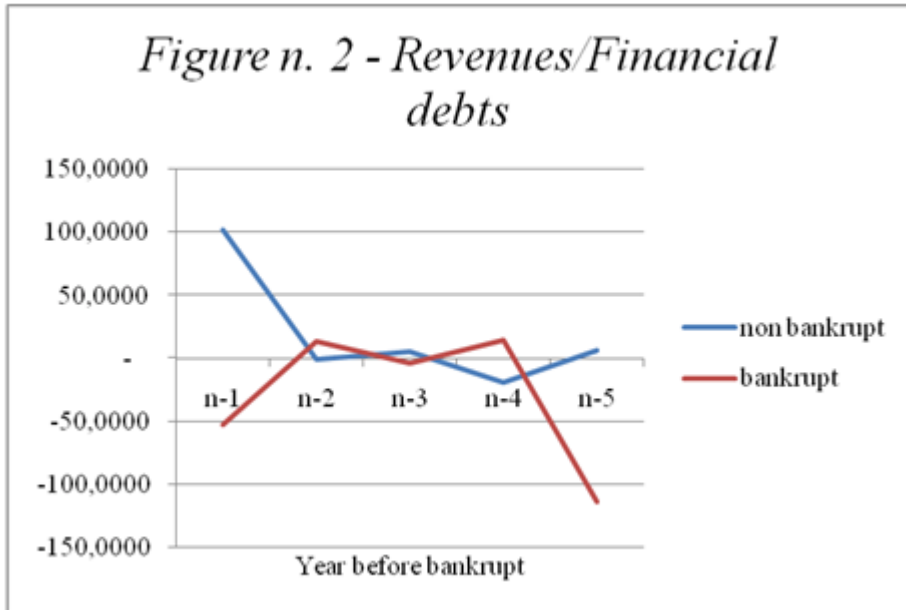


Figure n. 2 also shows how the line of bankrupt firms is in the negative area; this means that some firms go out of business even when they are not indebted. On the other hand, figure n. 3 highlights how bankrupt firms in many cases show an R/I ratio value above that shown by non-bankrupt ones.

These two ratios adopted by Italian watchdog committee compare revenues to financial debts and to current and long-term liabilities and measure by how much revenues are greater than financial debts or current and long-term liabilities.

The inability of these indexes to predict firms' failure is confirmed by evidence over time. The ratios VP/DF and R/I were increased to 3.50 in 2007. 42 out of 52 of the companies that went bankrupt during the observation period did so between 2007 and 2010. This happened because a variation of level in these ratios reduces or increases only slightly the likelihood of failure of football clubs. For example, the increase of the VP/DF ratio to 4.00 reduces the failure rate by 0.01, just as the reduction to 1.00 increases the likelihood of failure by only 0.05, as shown in table n. 4.

Table n. 4 - Failure rate after increasing the ratio VP/DF to 4.00

Ratio VP/DF	> 3.5					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	2.00	2.00	3.00	3.00	3.00	2.60
Non-bankrupt	4.00	4.00	6.00	2.00	3.00	3.80
Total	6.00	6.00	9.00	5.00	6.00	6.40
% Bankrupt	0.33	0.33	0.33	0.60	0.50	0.42
Ratio VP/DF	> 4.0					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	1.00	2.00	3.00	3.00	2.00	2.20
Non-bankrupt	4.00	4.00	5.00	1.00	3.00	3.40
Total	5.00	6.00	8.00	4.00	5.00	5.60
% Bankrupt	0.20	0.33	0.38	0.75	0.40	0.41
Ratio VP/DF	> 1.0					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	5.00	6.00	4.00	4.00	4.00	4.60
Non-bankrupt	6.00	4.00	7.00	4.00	6.00	5.40
Total	11.00	10.00	11.00	8.00	10.00	10.00
% Bankrupt	0.45	0.60	0.36	0.50	0.40	0.46

Another observation that confirms the inutility of these ratios for predictive purposes comes from what happens to the likelihood of failure when reducing the level of ratio R/I from 3.5 to 1.4. As we can see in table n. 5, there is a reduction in failure rate of 0.35.

Table n. 5 - Failure rate after reducing the ratio R/I to 1.40

Ratio R/I	> 3.5					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	1.00	1.00	1.00	2.00	1.00	1.20
Non-bankrupt	-	2.00	-	1.00	-	0.60
Total	1.00	3.00	1.00	3.00	1.00	1.80
% Bankrupt	1.00	0.33	1.00	0.67	1.00	0.80
Ratio R/I	> 1.4					
Year	n-1	n-2	n-3	n-4	n-5	mean
Bankrupt	2.00	2.00	5.00	4.00	2.00	3.00
Non-bankrupt	5.00	3.00	2.00	5.00	3.00	3.60
Total	7.00	5.00	7.00	9.00	5.00	6.60
% Bankrupt	0.29	0.40	0.71	0.44	0.40	0.45

Possible reasons for this inutility may be related with the items that set the numerator and denominator of ratios.²⁶ These items belong to different cycles of business administration. Revenues are more related with credits just as expenses are more related with debts. Italian Business administration literature has already highlighted how there is a relation between revenues and credits and this can help us to give an opinion on the probability of a firm's insolvency such as by measuring the average time of cash credits. In different terms, comparing a firm's profitability with the cost of debt helps us to understand if the company has a positive degree of financial leverage. Shuffling the cycle indicators, revenues with debts or expenses with credits, helps us to understand the probability of a firm's insolvency just by comparing these ratios over years, testing if there is a direct relation between revenues and debts or if a firm's liabilities have grown. If these ratios fall over years, this means that the level of financial debts has grown and the company has become more dependent on external funders. Otherwise, this means that over time the firm is able to produce its revenues by reducing external dependence.

²⁶ F. MELIDONI, G.M. COMMITTERI, *Il bilancio delle società di calcio*, Ipsoa, Milano, 2004.

Furthermore, these ratios are set by the FIGC after clubs have presented their financial statements and in many cases they are also modified to shun the declaration of “excess debt”, and the consequent company recapitalization by shareholders, or to avoid the presentation of security to cover indebtedness.

Other possible reasons are related to the way revenues are calculated in this kind of company. The operating income of a football club covers the revenues from player contract trading and those coming from the development of in-house talents'. Football clubs do not need to exchange cash flows to account for these revenues but they can use the clearing house of Lega Calcio. So, it is easy to understand why a football company that does not match financial ratios set by the Italian watchdog committee can abuse the players' transfer system in agreement with another club, maybe engaging in reciprocal transfers at inflated fees. This happens because both companies have immediate advantages in their financial statement, while the inflated cost is deferred and spread over subsequent accounting periods. Indeed, in the past many Italian football clubs adopted creative accounting²⁷ to achieve their financial goals.

Besides, who can determine the true value of a football player?

Italian Business administration literature has identified several models to assess the human capital value of football clubs.²⁸ Patterns used may be qualitative or quantitative models. Quantitative models have different levels of rationality, objectivity and generality, but sometimes are operationally difficult to apply. Some of them use costs as basis for valuation,²⁹ others the income generated by human resources³⁰ and others focus on comparable transactions still existing in the market.³¹ The latter have emerged more recently, as they can overcome the limitations of models based on historical values, such as those based on historical costs, and/or difficult to resolve, such as those based on replacement cost and/or producible income. Models based on comparable transactions try to objectify the assessment linking the values expressed by the market for goods or similar rights.

²⁷ O. AMAT, J. BLAKE, J. DOWDS, *The ethics of creative accounting*, 1999, available at: <http://econpapers.repec.org/paper/upfupfgen/349.htm> (November 2011); S. MORROW, *Impression management in football club financial reporting*, in *Int. Jour. of Sp. Fin.*, vol. 1, n. 2, 2006, 96-108.

²⁸ G. FIORI, *La valutazione dei diritti pluriennali alle prestazioni degli sportivi professionisti: una possibile metodologia*, in *Riv. Ital. Rag. Econ. Azien.*, vol. 103, n. 7-8, 2003, 314-328; T. ONESTI, M. ROMANO, *La valutazione dei diritti pluriennali alle prestazioni sportive nelle società di calcio*, in *Riv. Dott. Comm.*, vol. 2, 2004.

²⁹ G. ZANDA, M. LACCHINI, G. ORICCHIO, *La valutazione del capitale umano dell'impresa. Modelli qualitativi e quantitativi di logica economico-aziendale*, Giappichelli, Torino, 1993; M. CELLI, *I metodi basati sui costi per la valutazione quantitativa del capitale umano aziendale*, in *Riv. Ital. Rag. Econ. Azien.*, vol. 107, n. 7-8, 2007, 442-456; S. MANFREDI, G. SIRLEO, *La valutazione economica dei diritti relativi alle prestazioni sportive dei calciatori: profili teorici ed operativi*, in *Imp., Amb. & Manag.*, vol. 2, 2007.

³⁰ B. LEV, A. SCHWARTZ, *L'applicazione del concetto di «Capitale Umano» nelle situazioni di bilancio*, in *Svil. & Org.*, vol. 8, 1971; P. MANZONETTO, *Problemi di valutazione del «capitale umano» nelle imprese*, in *Riv. Dott. Comm.*, vol. 1, 1972.

³¹ F. BOF, S. VENTURINI, *La valutazione delle performance sportive: il progetto FCI (Fabio Capello Index)*, in *Riv. Dir. Econ. Sport*, vol. 5, n. 3, 2009, 69-91.

In this model transactions relating to players are divided into clusters based on:

- role (goalkeeper, defender, midfielder, forward);
- appearances in the national team;
- appearances in the league;
- team membership;
- age;
- wage received.

From an accounting perspective, the problem is to determine whether there is an active market for football players. A club may choose the revaluation model as its accounting policy whether there is an active market otherwise it has to adopt the cost model. Adopting the revaluation model a club may show in the financial statement the market/fair value of each player instead of its historical cost.

In accordance with IAS 38, an active market is a market where:

- (a) items traded in the market are homogeneous;
- (b) willing buyers and sellers can normally be found at any time;
- (c) information about prices publicly available.

Some authors argue that exchanges on the players' market are indicative of the existence of an active market, because the objects of negotiation are not the people but the rights on players' performances.³² Others argue that the players' transfer system cannot be regarded as an active market, because transactions occur only in limited periods of the year and affect non-fungible goods, whose exchange value is not solely dependent on objective parameters.³³ Actually, no one really knows if there is an active market for these intangible assets.³⁴

6. Conclusion

The participation of each Italian club in its league depends on the correct functioning of a univariate model. This research highlights how, among the ratios adopted by the Italian watchdog committee, only the ratio Equity to Total assets (E/TA) is able to completely split bankrupt from non-bankrupt football clubs. The others ratios (VP/DF and R/I) do not have the same ability because their mean values overlap time after time. These ratios have no ability to predict firms' failure and decisions to raise or reduce their level do not give a significant variation in the ability of predicting failure.

³² L.A. BIANCHI, D. CORRADO, *I bilanci delle società di calcio: Le ragioni di una crisi*, Egea, Milano, 2004.

³³ A. FRAU, *Prima adozione degli Ias-Ifrs nelle società di calcio quotate in borsa*, in *Riv. Ital. Rag. Econ. Aziende*, vol. 107, n. 7- 8, 2007, 377-383; M. VALERI, *Standard IAS/IFRS e nuove esigenze di disclosure nel bilancio delle società di calcio*, Giappichelli, Torino, 2008.

³⁴ C. ZOCCALI, *La rappresentazione del capitale umano nei bilanci delle società di calcio: limiti informativi e profili evolutivi*, in *Riv. Ital. Rag. Econ. Aziende*, vol. 110, n. 9-10, 2010, 656-667.

Only one of the ratios used by the Italian watchdog committee has the same significance as one identified by Business administration. This is the ratio E/TA, which gives the same information as the ratio Total debts/Total assets. It is possible that a wise combination of the degree of indebtedness with other indexes could increase the ability of these organisms to predict firms' bankruptcies and to promote the regularity of sports competitions. For example, by connecting its interpretation with other indicators, identified by Business administration literature and commonly used to evaluate firms' solvency, like Current ratio, Quick ratio, No credit interval and Working capital to Total assets, which function as sensors of financial stress.

Considering that the Italian licensing system measures the likelihood of failure of Serie A clubs using only the VP/DF indicator, of Serie B clubs by looking at the VP/DF and E/TA ratios and of Lega-Pro clubs by testing the R/I and E/TA ratios, a practical implication of this job is that the univariate model currently used by the Italian watchdog committee has no ability or a very low capacity to predict the failure of football clubs.

One limitation of this research is common to all investigations based on univariate models, and in particular based on financial ratios coming from conventional accrual accounting. Another limitation may be related to the different values of total assets reported in the financial statements of firms involved in the sample. Football teams are of different size even if they play in the same league. This is because each football company has its specific profile in terms of number of fans, of kind of shareholders and of way of playing, and this reduces the comparability between the football clubs.

Future research may test whether the ratios recently identified by Business administration literature are more able to split healthy companies from vulnerable ones or whether the football industry requires the definition of specific ratios, different from the ones used in others sectors.

Other research could also combine signals coming from different cycles of management, attempting to use a multivariate analysis in order to define a single function able to summarize the state of an enterprise, to overcome the potentially conflicting indications that result from using single indicators, such as the best known and most-widely used multiple discriminant analysis method proposed by Edward I. Altman. By using this technique the different perspectives used for analyzing the company's financial situation are simultaneously considered instead of being evaluated sequentially.

In addition, other research based on financial statements could analyze the relationship between financial performances and corporate model, such as financial results and business model. And finally, another area of research that could benefit from further studies is the way of fixing the fair value of players through the transfer system. This is because, each model needs to be free from the negative effects of creative accounting in order to correctly predict the failure of firms.

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