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Intellectual Capital Efficiency Management in Professional Football Clubs' Performance: Problems of Assessment

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Abstract

Professional success is one of the objective non-financial displays of the effective management of a company's intellectual capital (IC) as the basis of its economic and financial prosperity. This study analyses the adequacy of the results of some assessment methods of IC efficiency based on football clubs' public financial statement data and their professional performance based on professional ranking. This study empirically considers the advantages and disadvantages of specific methods for assessing IC efficiency with the example of football clubs that were TOP 50 of UEFA Club Ranking in 2014–2018. The goal of the study is to compare professional ranking as an objectively formed non-financial indicator of a company's professional performance with IC efficiency to assess its management successfulness in a highly competitive environment. We used the Value Added Intellectual Capital Coefficient (VAIC), MV/BV ratio, and Tobin's q to assess the IC efficiency of the sampled football clubs. The specialized method of assessing IC efficiency provides results that are more relevant to clubs' professional performance than methods based on the principles of the theory of investment. We believe that the study of the relationship between company's IC efficiency with its financial and professional performance has significant prospects with the use of specialized Return on Assets Methods (ROAM), in particular, Intangible Driven Earnings (IDE) and Calculated Intangible Value (CIV).

Keywords: football club's management, human capital, intellectual capital efficiency, professional performance

Introduction

During the previous two decades, mostly due to media rights deals, professional football clubs have been transforming into complex and profitable businesses (Morrow & Howieson, 2014). They create and develop their brands to promote additional products and services and increase profits (Jankovic & Jaksic-Stojanovic, 2019). Thus, the strategic development and financial success of professional football clubs strongly depend on not only human capital (Rohde & Breuer, 2016), but also on IC (intellectual capital) management. IC elements' diversity and particularities of impact determination, which they impose on business, make

it objectively impossible to apply a single measure to them. At the same time, the consistency of their development beyond the calculation of different indicators for regular assessment, analysis and control of the achieved level is unresolved. Football clubs need to determine IC efficiency for the balanced management of various aspects of their businesses in conditions of a highly competitive environment and limited financing opportunities.

The authors of recent specialized football efficiency studies (Zambom-Ferraresi, García-Cebrián, Lera-López, & Iráizoz, 2015; Zambom-Ferraresi, García-Cebrián, & Lera-López, 2017) suggest applying coefficients of revenue

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distribution (from UEFA Champions League) as a measurement of sporting results. Espitia-Escuer and García-Cebrián (2010) have a similar opinion: that a club's survival depends on increased profits and income, which are achieved via broadcasting rights and tickets sales if it wins competitions.

However, in our opinion, the UEFA Club Ranking is the most suitable instrument of professional performance measurement for football clubs' comparative IC efficiency assessment. This ranking is internationally recognized by relevant institutions, is logical and understandable in the ranking method, transparent, and regularly updated. Given the existence of different approaches to IC valuation based on public financial statements and their stock market values, we chose following methods to determine IC efficiency of the Top 50 of UEFA Club Ranking: Value Added Intellectual Capital Coefficient - VAIC (from ROAM), MV/BV and Tobin's q (from Market Capitalization Methods (MCM)).

The goal of the study is to compare professional ranking as an objectively formed non-financial indicator of the professional performance with IC efficiency to assess management successfulness of the business in a highly competitive environment. As a result, to achieve this goal, we have empirically collated football clubs' IC efficiency and their place in professional performance ranking. In addition, we have determined the advantages and disadvantages of IC efficiency assessment methods based on the sampled European football clubs.

Methods
Data collection
Collecting the data for calculations, we established that some clubs of the Top 50 of UEFA Club Ranking are registered as private limited companies (Bayer 04 Leverkusen, Chelsea FC, Dynamo Kyiv, Manchester City FC, etc.), which means they are not required to publish their financial statements. Other clubs are registered as non-quoted public limited companies (Arsenal FC, PSV Eindhoven, Shakhtar Donetsk, FC

Villarreal, FC Zenit, etc.) or joint-stock companies (FC Bayern München, etc.), and they are not listed on stock exchanges. Spanish football giants (Real Madrid CF, Club Atlético de Madrid, FC Barcelona, Sevilla FC, etc.) operate as registered associations, whose ownership rights are granted exclusively to members of the association. Some clubs' annual reports (SL Benfica, Beşiktaş JK, Fenerbahçe SK, FC Porto, Sporting CP, etc.) do not contain all of the information necessary to assess IC efficiency by VAIC, MV/PV and Tobin's q for the entire research period.

To fulfil the tasks set for this study, all necessary information was collected for seven clubs (public companies from the Top 50 UEFA Club Ranking): Juventus, Borussia Dortmund, Manchester United, Olympique Lyonnais, S.S. Lazio, AS Roma, and Celtic.

One significant aspect of UEFA Club Ranking formation is that club coefficients are based on the results of clubs competing in the five previous seasons. The football season falls on two calendar years, so in European championships clubs' annual financial statements are formed each year on the 30th of June. Thus, their financial statements for the five previous reporting periods were processed for the comparison of UEFA Club Ranking on June 30, 2018, with the IC efficiency of sampled teams. The clubs' market capitalization was taken on each year's reporting date.

Instruments and analysis
IC efficiency coefficient by VAIC technique (Pulic, 2000) is calculated by the formula:

ICE = HCE + SCE   (1)

Where ICE is the IC efficiency coefficient; HCE is the human capital efficiency coefficient; SCE is the structural capital efficiency coefficient.

Pulic (2008) defines ICE for different levels of a company's performance to describe VAIC results comprehensively. Iazzolino and Laise (2013) complement them by HCE levels and SCE levels (Table 1).

Table 1. Description of Efficiency Levels According to VAIC (Iazzolino & Laise, 2013; Pulic, 2008)

Levels			Description
HCE	SCE	ICE	
<1.00	<0.00	<1.00	Worst IC efficiency
[1; 1.13)	[0; 0.12)	[1; 1.25)	Low IC efficiency
[1.13; 1.44)	[0.12; 0.31)	[1;25; 1.75)	Acceptable IC efficiency
[1.44; 2)	[0.31; 0.5)	[1.75; 2.5)	Sufficient IC efficiency
≥2.00	≥0.5	≥2.50	High IC efficiency

VAIC also depends on capital employed efficiency:

VAIC = ICE + CEE   (2)

Where CEE is the capital-employed efficiency coefficient (ratio of value-added to the company's net assets).

Some features of IC are related to goodwill, which is why such MCM as MV/BV and Tobin's q are used for IC assessment. According to Ghosh and Wu (2007), MV/BV demonstrates a significant difference between market value and book value, which is the direct indication of IC effective using. Tobin (1969) suggested assessing the gap between the market value and replacement value of a company's assets. Since IC is the prime reason for the gap, Tobin's q using for IC efficiency assessing has a strong theoretical basis, as well as an elaborate calculation method.

We made an interim ranking of the sampled teams based on selected IC efficiency indicators for the period in which the UEFA Club Ranking was formed. The basis for the interim ranking was the following approach: the club's position in the sample by IC efficiency corresponded to the number of points scored. Then we accumulated the obtained ranking results into an additional ranking, formed by each method applied separately. The higher a club's IC efficiency during the research periods, the lower the number of points the club gains in the additional ranking.

Results
Table 2 contains results of HCE, SCE, ICE, CEE and VAIC based on public financial statements of the sampled football clubs.

Table 2. VAIC and its Components for the Sampled Football Clubs in 2014-2018*

Football club	Season	HCE	SCE	ICE	CEE	VAIC
Juventus	2013/2014	1.658	0.397	2.055	6.532	8.587
	2014/2015	1.725	0.420	2.145	6.947	9.091
	2015/2016	1.758	0.431	2.189	6.513	8.702
	2016/2017	2.079	0.519	2.599	5.219	7.817
	2017/2018	1.819	0.450	2.269	5.891	8.160
Borussia Dortmund	2013/2014	1.456	0.313	1.769	1.080	2.849
	2014/2015	1.471	0.320	1.792	0.607	2.398
	2015/2016	1.618	0.382	2.000	0.733	2.733
	2016/2017	1.416	0.294	1.710	0.807	2.517
	2017/2018	1.678	0.404	2.082	0.932	3.014
Manchester United	2013/2014	1.614	0.380	1.994	0.695	2.689
	2014/2015	1.699	0.412	2.111	0.720	2.831
	2015/2016	1.722	0.419	2.141	0.872	3.013
	2016/2017	1.806	0.446	2.253	0.996	3.249
	2017/2018	1.653	0.395	2.048	1.150	3.199
AS Roma	2013/2014	0.936	-0.068	0.868	-1.212	-0.343
	2014/2015	1.570	0.363	1.933	-2.041	-0.108
	2015/2016	1.394	0.282	1.676	-1.794	-0.119
	2016/2017	1.304	0.233	1.537	-2.132	-0.596
	2017/2018	1.417	0.294	1.711	-2.144	-0.433
Olympique Lyonnais	2013/2014	2.137	0.532	2.670	1.477	4.147
	2014/2015	2.586	0.613	3.200	1.424	4.624
	2015/2016	2.813	0.645	3.458	1.940	5.398
	2016/2017	1.406	0.289	1.694	0.616	2.310
	2017/2018	1.422	0.297	1.719	0.634	2.353
S.S. Lazio	2013/2014	1.354	0.262	1.616	0.890	2.506
	2014/2015	1.409	0.290	1.699	3.972	5.672
	2015/2016	1.140	0.123	1.263	7.561	8.824
	2016/2017	1.640	0.390	2.030	4.619	6.649
	2017/2018	1.815	0.449	2.264	2.533	4.797
Celtic	2013/2014	1.500	0.333	1.833	1.052	2.886
	2014/2015	1.160	0.138	1.298	0.909	2.206
	2015/2016	1.200	0.167	1.367	0.971	2.337
	2016/2017	1.351	0.260	1.611	1.227	2.838
	2017/2018	1.356	0.263	1.619	1.103	2.722

Legend: * - calculated by the authors using clubs' annual reports (AS Roma, 2018; Borussia Dortmund, 2018; Celtic FC, 2018; Juventus, 2018; S.S. Lazio, 2018; Manchester United, 2018; Olympique Lyonnais, 2018).

VAIC components results show that, with some exceptions, the sampled teams do not have IC efficiency below the acceptable level. Three teams did not fall below the 20th position in the UEFA Club Ranking in 2014–2018 (Juventus, Borussia Dortmund and Manchester United). They had high all-efficiency coefficients and low amplitude of their fluctuations. Complete adherence of these trends is the result of the professional performance of the most successful teams. The comparative analysis of Borussia's Dortmund and Celtic's indicators proves this conclusion. Celtic is the only club in the research sample that had constant progress in its professional performance. This club has steadily progressed in professional achievements, and over five seasons has risen 15 positions in the UEFA Club Ranking (from 62nd in season 2013/2014 to 47th position in season 2017/2018). Although the VAICs of these clubs are not very different, Borussia's Dortmund VAIC is characterized by higher IC efficiency and the relative stability of its level. Instead, Celtic showed higher CEE, but its ICE rarely reached an acceptable level.

Olympique Lyonnais displayed relatively stable professional performance moving from 12th to 28th position during the research period. This club had comparatively high VAIC and its separate components. As a result, comparing its HCE, SCE, ICE, and CEE based on financial statements with UEFA Club Ranking, we observed that Olympique Lyonnais demonstrated an increase in VAIC and its components over the 2013/2014 and 2014/2015 seasons, exceeding Juventus and Borussia Dortmund in UEFA Club Ranking in 2013/2014, and having higher HCE and SCE. These trends were accompanied by a collapse in its professional ranking (from 12th to 28th position), in the 2013/2014 season. Subsequently, this club was unable to maintain IC efficiency and consolidate short-term professional success (23rd position in 2016/2017 and 25th position in 2017/2018). At the same time, Olympique's Lyonnais HCE decreased by half.

It is challenging to explain this paradox by arguments used in VAIC. It is worth taking into account the multi-faceted intangible nature of IC, which is difficult to measure with finan-

cial statements. In particular, psychological aspects (conflicts between players, with coaches, etc.) play a critical role in a club's professional performance, as does the players' physical health, which at present cannot be adequately reflected with value measurements.

Roma's acceptable and low IC efficiency during the studied seasons can be construed as one of the reasons for the mediocre results the club has demonstrated. Trends in the change of Roma's HCE are quite revealing. Despite its constant loss-making activity, Roma managed to maintain its HCE comparable to Celtic's and Olympique's Lyonnais indicators, which was accompanied by a constant increase in Roma's UEFA Club Ranking from 55th in 2013/2014 to 21st position in 2017/2018. Obviously, the club's

owners strategy helped to preserve personnel potential, and the proper level of human capital financing supported its motivation in professional performance.

Lazio's best achievement (27th position in season 2015/2016) was accompanied by the highest VAIC over all the studied seasons, which was due to a substantial increase in CEE, while HCE, SCE, and ICE showed the lowest levels. Among all the sampled clubs, Lazio's IC efficiency coefficients had the most significant fluctuations. Lazio's regular fluctuations in UEFA Club Ranking can likely be explained by the instability of VAIC components' management results.

Table 3 shows the MV/BV results of the sampled football clubs in 2014–2018.

Table 3. MV/BV for the Sampled Football Clubs in 2014–2018*

Football club	UEFA Club Ranking (2017/18)**	Seasons				
		13/14	14/15	15/16	16/17	17/18
Juventus	5	5.201	6.456	5.248	6.255	12.072
Borussia Dortmund	10	2.093	1.228	1.186	1.806	1.669
Manchester United	12	2.300	2.580	3.509	3.732	4.640
AS Roma	21	-0.298	-0.210	-0.004	-1.341	-1.282
Olympique Lyonnais	25	0.327	0.656	0.787	0.693	0.670
S.S. Lazio	36	9.597	1.802	3.309	2.086	1.730
Celtic	47	1.300	1.420	1.368	1.636	1.664

Legend: * - calculated by the authors using clubs' annual reports (AS Roma, 2018; Borussia Dortmund, 2018; Celtic FC, 2018; Juventus, 2018; S.S. Lazio, 2018; Manchester United, 2018; Olympique Lyonnais, 2018; UEFA, 2018) and their stock quotes (Yahoo! Finance, 2018); ** - in accordance with UEFA (2018).

Table 3 allows us to state that Juventus has the most significant gap between the market value and the book value of equity. This club was consistently rising in UEFA Club Ranking for five consecutive years and ranked highest among all sampled teams in 2017/2018. Manchester United demonstrated the second-best result of MV/BV. This single club provided the annual growth of this indicator and eventually doubled it over the past five years. Effective use of clubs' available IC allowed them to gain professional performance and translate it into rather high stock quotes. Borussia Dortmund, Celtic, and Lazio had MV/BV > 1. These clubs are in different segments of the professional ranking, but each of them showed some progress compared with the base season. These teams' MV/BVs suggest that market estimates them reasonably well. Therefore, their stocks do not cause particular interest among potential investors.

Olympique Lyonnais and Roma have highly paradoxical results (Olympique Lyonnais has MV/PV<1 and Roma has negative MV/PV caused by negative net assets). Although

Olympique Lyonnais has not been able to recover over four seasons after steadily shrinking from 12th position in 2013/2014 to 25th position in 2014/2015, it steadily remained in the first thirty of UEFA Club Ranking. Roma and Borussia Dortmund doubled their rankings in 2014–2018, but Roma's negative equity did not allow adequately applying MV/BV to evaluate its IC efficiency. It is appropriate to assume that these clubs' MV/BVs have been caused by circumstances not directly related to IC. In particular, this is a result of the lack of stock market liquidity, investors' disinterest, and manipulation of financial statements of the purpose of tax optimization, etc.

Most of the sampled clubs have chosen their domestic stock exchanges than international ones for their IPOs. The only exception is Manchester United, which placed its stocks on the New York Stock Exchange (NYSE). Therefore, it is likely that Olympique's Lyonnais MV/BV is the logical consequence of its listing on the Euronet Paris, which traditionally prefers debt securities.

Table 4 shows Tobin's q for the sampled football clubs in 2014–2018.

Table 4. Tobin's q for the sampled football clubs in 2014–2018*

Football club	UEFA Club Ranking (2017/18)**	Seasons				
		13/14	14/15	15/16	16/17	17/18
Juventus	5	1.404	1.575	1.427	2.109	2.644
Borussia Dortmund	10	1.543	1.169	1.136	1.526	1.47
Manchester United	12	1.533	1.58	1.792	1.85	1.999
AS Roma	21	2.899	1.414	1.342	1.477	1.505
Olympique Lyonnais	25	0.764	0.9	0.949	0.876	0.864
S.S. Lazio	36	1.179	1.097	1.121	1.108	1.165
Celtic	47	2.092	2.27	2.271	2.542	2.718

Legend: * - calculated by the authors using clubs' annual (AS Roma, 2018; Borussia Dortmund, 2018; Celtic FC, 2018; Juventus, 2018; S.S. Lazio, 2018; Manchester United, 2018; Olympique Lyonnais, 2018) and their stock quotes (Yahoo! Finance, 2018); ** - in accordance with UEFA (2018).

Table 4 shows that Celtic had the highest Tobin's q together with its stable growth tendency. This team was the single club that has Tobin's q>2. In each of the research seasons, Celtic ranked the lowest position among all sampled football clubs in UEFA Club Ranking. However, this club systematically improved its professional performance, rising from 62nd position in 2013/2014 to 47th position in 2017/2018. Manchester United had the second-best result of Tobin's q in the sample and demonstrated its growth for all five seasons. However, the club did not display professional success stability. In this sample, Manchester United is the only club whose stocks are quoted on the world's largest stock exchange (the NYSE), which places quite high demands on issuers' financial performance, as well as the regular activity of buying and selling of their listed securities. The excess of market value growth of Manchester United's assets over their replacement value growth is due to the NYSE members' steady interest in its stocks, which is influenced by the club's ability to provide high financial performance and increase the brand value.

Juventus, Roma, and Borussia Dortmund had high Tobin's q, but none of them managed to increase Tobin's q over the research period. Juventus and Roma list their stocks on the Milan Stock Exchange, and Borussia Dortmund does so on the Frankfurt Stock Exchange. Most European exchanges have two or three 'favourite' issuers, which provide up to 75% of stock exchange turnover. Since the merging EU stock exchanges into a unified European securities market is not yet complete, these clubs cannot hope for significant investors' interest. Therefore, there is every reason to assert that Tobin's q of Juventus, Roma, and Borussia Dortmund should be interpreted on the assumption that the excess of their market value over their assets' replacement value is due to effective use of IC.

Juventus mostly had the best Tobin's q, and the club regularly improved its rating for the research period. Instead, Borussia Dortmund and Roma did not demonstrate a direct correlation between their professional performance and Tobin's q. Overall, their achievements indicated effective use of IC that led to climbing in UEFA Club Ranking, as well as to increasing the value of unregistered intangible assets, which raised the market value of these clubs.

Lazio had quite mediocre Tobin's q, which barely exceeded 1. At the same time, the club's professional performance can hardly be described as spectacular. Lazio showed unstable results, minor rises in the UEFA Club Ranking were replaced by the same falls, which may be evidence of not very successful IC management. Clearly, Olympique Lyonnais was an outlier in the research sample. Its Tobin's q was consistently less than 1. This team's professional performance was also comparatively worse. Olympique Lyonnais had internal problems with IC efficiency, which were reflected in the investors' interest.

We formed additional ranking of the sampled football clubs for summarizing the connection between their IC efficiency and professional performance, based on their financial statements using VAIC, MV/BV and Tobin's q. This ranking is shown in Table 5. Ranking of search results was carried out by summation score method for each of the selected methods of IC efficiency assessing in 2014–2018 separately. In addition, we showed the clubs' rankings according to HCE and ICE, taking into account the importance of VAIC intermediate stages for correct interpretation of the results.

Table 5. Rankings of IC Efficiency Assessment Results of the Sampled Football Clubs in 2014-2018 by VAIC, MV/BV and Tobin's q*

Football club	UEFA Club Ranking (2017/18)**	Scores of methods of IC efficiency assessment				
		VAIC	ICE	HCE	MV/PV	Tobin's q
Juventus	5	1	1	1	1	3
Borussia Dortmund	10	4	4	4	4	5
Manchester United	12	3	3	3	2	2
AS Roma	21	6	6	6	7	4
Olympique Lyonnais	25	7	2	2	6	7
S.S. Lazio	36	2	5	5	3	6
Celtic	47	5	7	7	5	1

Legend: * - ranked by the authors; ** - in accordance with UEFA (2018).

Table 5 indicates that in the 2014–2018 UEFA Club Ranking positions of the sampled football clubs mostly corresponded with their HCE and ICE calculated according to VAIC. CEE had a decisive influence on the VAIC of Olympique Lyonnais, Lazio and Celtic. Instead, MCM have shown rather contradictory results in the context of the objectives of this study. Since these methods are fundamental tools for assessing stocks' investment potential, they determine the relationship between investors' interest and a company's IC only indirectly, guided by theories of IC origin. MCM considers a company's market value as a critical business success indicator that formed under the influence of numerous endogenous and exogenous factors. The simplicity of MV/BV and Tobin's q formulas does not allow eliminating third-party factors. Therefore, it is incorrect to affirm that these techniques can be used to assess changes in resulting indicators under the influence of IC itself. It is challenging to establish and assess specific parameters of IC efficiency, taking into account its diversity as an integral economic phenomenon. The use of MV/BV and Tobin's q does not guarantee the adequacy of resulting indicators interpretations in terms of IC impact. VAIC shows more convincing results of the interconnection of IC efficiency with a football club's professional performance.

Discussion

The research conducted shows that, in the conditions of a highly competitive environment, the results of companies' IC efficiency assessment do not always match their professional ranking as objectively formed non-financial indicator of business success. The methods used for comparative assessment of IC efficiency are limited by existing databases, which should be reliable and comparable. Financial statements became the databases for assessing IC efficiency due to the adapting of some methods used in corporate finance and investing for

evaluating the ability of an issuer to make profits and generate cash flows (MV/BV, Tobin's q). However, existing accounting methods are unable to fully recognize and evaluate all IC elements. Therefore, the results of company's IC efficiency assessment obtained with general methods (MV/BV, Tobin's q) have low practical significance for determining the role of IC management in improving a company's professional performance. Consequently, the further evolution of IC assessment methodology should be focused on the theoretical substantiation and development of highly specialized tools for IC value measuring and results of its management.

The comparing UEFA Club Ranking positions of the sampled football clubs with their IC efficiency indicators showed a relative advantage of results obtained by the specialized ROAM (VAIC) compared to the two general MCM (MV/BV, Tobin's q). This is because VAIC was developed solely for IC efficiency assessment, taking into account IC formation the

particularities and specificity of the impact on a company's performance.

Based on the preceding, we believe that the study of the relationship between company's IC efficiency with its financial and professional performance has significant prospects precisely with the use of specialized ROAM, in particular, IDE (Gu & Lev, 2003) and CIV (Stewart, 1997). These methods are based primarily on the use of financial statements. At the same time, there is a need for additional information on some average analytical indicators, specifically, the return on physical assets, the return on financial assets, and the discount rate of intangibles-driven earnings (for IDE) and industry ROA and company's cost of capital as a discount rate (for CIV). The available and reliable data about these indicators will ensure expanded use of these methods and increase the credibility of IC efficiency assessment results.

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