

# **Intellectual Capital Contribution to the Financial Performance of Football Clubs**

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## **Abstract**

The study investigates the contribution of intellectual capital to the profitability and market capitalisation of football clubs. The research is based on the analysis of the financial reporting of 30 European football clubs for the period of 2011-2015. For measuring the intellectual capital contribution, we calculated the VAIC and proved with the regression analysis that the relationship between the intellectual capital and the football clubs performance is significant and positive. We also found that human capital (that consists of skills and talent of players and coaches) is the most important component of IC that contributes to the performance. The client capital (that is embedded to the brand and fan clubs support) is also a significant driver of financial results. We also tested several supporting hypotheses to reveal the effect of other factors to the financial performance.

*Keywords: intellectual capital; football clubs; VAIC; financial performance*

## **Introduction**

The study investigates the relationship between intellectual capital and the performance indicators (profitability and market capitalization) of football clubs for the period of 2011-2015. The choice of football clubs as the research object can be explained by the fact that intellectual capital (mostly human capital) can be intuitively considered as the driver of football clubs' success, both in sport results and in the economic performance. The importance of economics in football as one of the most important sports has increased in recent years both from the position of its financial performance and its effect on other businesses (media, advertising, retail etc.). This is one of the reasons for football clubs to become more transparent and change their legal status from closed to publicly traded companies. But economic performance mainly depends on sport results.

Sport results depend on professional skills, talent and knowledge of all the team, starting from sportsmen and finishing with football clubs' managers and owners. All the people involved in a club's activity form its human capital that affects at the integrated intellectual capital.

It seems that human capital is the main asset of football clubs and the major type of investments. That is why human capital assessment is so important for football clubs and football industry as a whole. So we try to reveal the relationship between the intellectual capital and financial performance in this area.

## **Literature review**

Though football industry seems one of the most highly-dependent on human and structural capital, there is a certain gap in discovering this relationship. Dobson and Goddard (2001) reported on the positive relationship between the level of financial success, which is measured by the quantity of generated revenue and sporting success. This can be explained by the fact that, when the victories and successes of the club are growing, its ability to generate revenue improves. In other words, when the team performs well, it tends to attract more spectators and sponsors, and therefore generates more revenues. Also, Shareef and Davey (2005) revealed the positive relationship between IC investments and sport-based success of English football clubs. However, previous studies concerned mostly at the analysis of the relationship of clubs' sports-based success with their intellectual capital. It can be referred to the fact that not all football clubs published their statements, but now most famous football clubs in Europe, in addition to conducting a successful transfer of policies and games are listed at the stock exchanges and attract additional investors. For example, Yasar, Isik and Calisir (2015) published study of the influence of the intellectual capital of Turkish football clubs on their efficiency and profitability. They revealed the positive relationship between VAIC and the profitability of football clubs. The study included an analysis of only Turkish football clubs; here we examine the top UEFA clubs.

Academic papers explore different methods of intellectual capital measurement. According to Luthy (1998) and Williams (2001), four groups of methods are defined: direct intellectual capital methods, market capitalization methods, return on assets methods and scorecard methods. The group of methods based on the return on assets (ROA) indicators seems more suitable for the external analysis. To perform the research, we use the VAIC (Pulic, 2000a, 2000b), modified according to Chen, Cheng, and Hwang (2005). This method relates to the group of ROA-based methods.

Based on previous research on intellectual capital measurement, we pose the following hypotheses:

*H1. Both intellectual capital as a whole (measured by VAIC) and each of its components have a positive relationship with the profitability (ROA, ROE) of European football clubs.*

*H2. Both intellectual capital as a whole (measured by VAIC) and each of its components have a positive relationship with the market value of European football clubs listed at the stock exchanges.*

Also we explore the hypotheses outlined above, through the prism of three additional variables. First, it is the size of the company (the natural logarithm of its total assets at the end of the reporting period). Previous studies (Dimitropoulos, Tsagkanos, 2012) stipulate that the size of the firm has a positive impact on its profitability, since it leads to economies of scale, the club increases the control over foreign investors. In relation to football clubs, it also can be noted that the larger, well-known football club attracts much more professional players, and the quality of games subsequently increases the recognition and financial performance of clubs. So, the following hypothesis can be posed.

*H3. The size of a football club has a positive relationship with its profitability.*

Second, the financial leverage (debt to equity capital ratio). According to Singh, Faircloth (2005), the high level of financial leverage has a negative effect on future investments, and this fact adversely affects the long-run club's performance. Also, Garcia-del-Barrio and Szymanski (2009) report that European football clubs are focusing more on the victory than the profits maximisation, and this means that they are willing to maintain high financial leverage to maintain the current team sports-based performance. Thus, we can assume the following.

*H4. The high financial leverage ratio is negatively related with the football club financial performance.*

Third, it is the ratio of operating cash flow (OCF) to football club's assets. This ratio is included in the study due to the fact that football clubs with essential cash flows have better abilities to convert assets into cash for the improving the profitability of the club (Dimitropoulos, 2009). Thus, it can be assumed the following.

*H5. The high OCF-to-assets ratio has a significant positive relationship with football club profitability.*

### **Methodology and data sampling**

As it was mentioned, we use the VAIC indicator (Pulic, 2000a, 2000b). It is an integrated indicator that can be measured by the following equation:

$$VAIC_i = CEE_i + HCE_i + SCE_i, \quad (1)$$

where  $CEE_i$  nominates the value added by capital employed,  $HCE_i$  is the value added by human capital, and  $SCE_i$  is the value added by structural capital.

The larger is VAIC, the higher is a company's potential ability to increase its value.

Before the calculation of the components, we perform an assessment of the value added by a football club  $i$  ( $VA_i$ ) as follows:

$$VA_i = I_i + DP_i + D_i + T_i + M_i + R_i + WS_i, \quad (2)$$

where  $I_i$  nominates interest payments;  $DP_i$  – depreciation and amortization;  $D_i$  – dividend payments;  $T_i$  – tax payments;  $M_i$  nominates revenues from a club's participation in tournaments and other sport activities;  $R_i$  is the retained profit;  $WS_i$  are labour costs (wages).

The value added by capital employed is calculated as follows:

$$CEE_i = \frac{VA_i}{\text{Capital Employed}'} \quad (3)$$

where capital employed equals to company's net assets.  
The value added by human capital is calculated as follows:

$$HCE_i = \frac{VA_i}{\text{Labour costs}} \quad (4)$$

where labour costs equal to personnel wages.  
The value added by structural capital is calculated according to following equation:

$$SCE_i = \frac{VA_i - \text{Labour costs}}{VA_i} \quad (5)$$

For our study, all the football clubs playing in the UEFA Premier League official championships were analyzed. From the total data set consisting of 144 clubs reporting only 30 football clubs from 11 countries, satisfying the selection criteria formed the final sample; so our panel data contained 150 observations. The process of data selection is presented at Figure 1.

Football clubs playing in the UEFA Premier League official championships	144
<i>Minus</i>	
Football clubs that do not publish financial reporting	101
<i>Minus</i>	
Football clubs that prepare financial reporting at December, 31 <sup>1</sup>	13
Football clubs in the sample	30
Publicly traded	23
Non-traded	7

Figure 1. The process of data selection

For each club, the financial data (assets, capital, operating cash flows, profits and costs) were collected. In addition, we collected data on publicly traded clubs market capitalization at the dates of financial reports presentations. The descriptive statistics on the data is presented at Table 1.

Table 1

Descriptive statistics on the sample

Variable	Mean	Standard deviation	Minimal meaning	Maximal meaning
Net income, NI	-439.3	37 658	-134.37	219 677
Total assets, TA	289 745	318 330.7	3 098.71	1 844 311
CEE	0.15	0.98	-4.91	1.76
HCE	1.24	4.775	-16.48	43.37
SCE	0.112	2.681	-8.38	9.28
VA	22 821	195 819.8	-821 37	514 802

VAIC	0.97	5.67	-16.41	43.34
ROA	-0.07	0.27	-1.37	0.61
ROE	0.48	2.12	-3.09	19.27
Leverage, LEV	5.29	63.13	-67.46	747.19
Operating cash flow, CFO	-0.01	0.19	-0.82	0.53
SIZE	11.97	1.28	8.04	14.43

The mean for VAIC equals to 0.97, means for intellectual capital components are also positive, and the largest contribution belongs to human capital (mean for HCE equals 1.94). This result supports the intuitive hypothesis that human capital investments (investments in talented and prominent players) play a decisive role for club's financial performance and strategy implementation.

Table 2 presents the correlation matrix (Pearson correlation) for the population.

Table 2

Correlation matrix for the population

Variables	MC	CEE	HCE	SCE	VA	VAIC	ROA	ROE	LEV	CFO
CEE	0.0404									
HCE	-0.057	0.733								
SCE	-0.004	-0.073	-0.076							
VA	0.127	0.484	0.563	-0.087						
VAIC	-0.023	0.458	0.535	0.793	0.277					
ROA	-0.075	0.405	0.411	-0.118	0.126	0.165				
ROE	0.052	-0.063	0.122	-0.050	-0.038	0.110	-0.117			
LEV	0.052	0.019	-0.071	-0.004	-0.026	-0.034	0.051	0.382		
CFO	-0.052	0.489	0.401	-0.087	0.188	0.201	0.750	-0.114	-0.002	
SIZE	0.351	0.427	0.269	-0.105	0.173	0.112	0.338	0.084	0.078	0.459

VAIC demonstrates the positive correlation with ROA and ROE (0.165 и 0.11 respectively), and this fact also supports our initial hypothesis on the positive relationship between the club's intellectual capital effective implementation and its profitability. If we look at the correlation between the components of VAIC and profitability, there is a positive correlation between HCE and both ROA (0.411) and ROE (0.122). Football clubs investments in human capital create value added and improve financial performance. CEE correlates positively with ROA (0.402) that supports the earlier results (Dimitropoulos, 2009). SCE correlation with profitability indices is close to zero, so we may suppose that its influence at football clubs profitability is insignificant.

Because we collected a panel data, we performed tests for the better choice of the regression model specification. The tests proved the panel model with fixed effects as the best choice for our sample. For modeling, we used R and the plm package (Croissant, Millo, 2008).

## Results and discussion

First, we performed basic models that used profitability ratios as dependent variables and VAIC components and other variables (total assets natural logarithm, SIZE, financial leverage, LEV, and ratio of operating cash flow to assets, CFO) as factors. The results of regression analysis are presented at Table 3.

Table 3

Panel data model with fixed assets for profitability ratios

Factors	Dependent variables	
	ROA	ROE

VAIC	0.008**	0.001*	0.037*	0.007*
	(0.004)	(0.003)	(0.024)	(0.008)
LEV		0.0003		-0.017***
		(0.0002)		(0.001)
SIZE		0.002*		0.038*
		(0.013)		(0.047)
CFO		1.063***		1.864***
		(0.089)		(0.416)
No. of observations	150	150	101	101
R <sup>2</sup>	0.028	0.572	0.025	0.884
Adjusted R <sup>2</sup>	0.027	0.538	0.024	0.805
F-statistics	4.165** (df = 1; 144)	47.157*** (df = 4; 141)	2.465 (df = 1; 95)	175.268*** (df = 4; 92)

Note: \* - value is significant at 10-% level of significance; \*\* - 5-% level; \*\*\* - 1-% level.

F-statistics is significant for both the dependent variables. R<sup>2</sup> takes meanings from 2.4% to 80.5%, indicating the influence of explaining variables at football clubs profitability. Though level of determination for only VAIC is low, the beta before VAIC is significant, and this fact supports the key hypothesis of our research. Models with additional factors have higher explanatory power, so one may conclude that football clubs which invest heavily in intellectual capital demonstrate the higher profitability than others.

Other hypotheses posed in our study were supported. The size of a football club has positive relationship with its profitability (both ROA and ROE, 10-% level of significance). The larger club can attract more investors, sponsors and players. Financial leverage and operation cash flow to assets ratio also have significant relationships with profitability ratios. This result is consistent with earlier studies (Singh, Faircloth, 2005; Dimitropoulos, 2009). Financial leverage has negative relationship with profitability, also supporting previous research results (Garcia-del-Barrio, Szymanski, 2009).

To reveal the most important component of intellectual capital, we created additional model for VAIC components, the results are presented at Table 4.

Table 4

Panel data model with fixed assets for profitability ratios and VAIC components

Factors	Dependent variables			
	ROA		ROE	
CEE	0.059**	0.025*	0.069*	0.030*
	(0.030)	(0.024)	(0.349)	(0.023)
HCE	0.025**	0.020**	0.122*	0.041*
	(0.011)	(0.008)	(0.084)	(0.030)
SCE	-0.005	-0.002	-0.026	-0.011
	(0.004)	(0.003)	(0.025)	(0.009)
LEV		0.0003		-0.017***
		(0.0002)		(0.001)
SIZE		0.003*		0.033*
		(0.013)		(0.047)
CFO		1.015***		1.799***
		(0.092)		(0.418)
No. of observations	150	150	101	101
R <sup>2</sup>	0.202	0.594	0.040	0.887
Adjusted R <sup>2</sup>	0.191	0.551	0.037	0.791
F-statistics	11.996***	33.904***	1.302*	118.149***

	(df = 3; 142)	(df = 6; 139)	(df = 3; 93)	(df = 6; 90)
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Note: \* - value is significant at 10-% level of significance; \*\* - 5-% level; \*\*\* - 1-% level.

F-statistics is significant for all the models, and the determination is rather high that proves the explanatory power of the models. If we examine closer the coefficients before VAIC components, we should mention that the coefficients before HCE are significant and positive in all the models. So the good human capital management would contribute significantly to football clubs profitability. The models also reveal the positive and significant relationship between CEE (brand management, loyalty etc.) and profitability. This result may be explained by football clubs activity in retail business (retail chains, souvenirs with logos) and their attention to their fan-clubs. SCE does not have a significant relationship with profitability. Additional variables behave themselves similarly to previous models.

The last step was the revealing of relationship between VAIC and football clubs market capitalization. The results are presented at Table 5.

Table 4

Panel data model with fixed assets for market capitalisation

Factors	Dependent variable			
	ln(MC)			
VAIC	0.010*	0.018*		
	(0.017)	(0.013)		
CEE			0.166*	0.246**
			(0.146)	(0.121)
HCE			0.078**	0.047*
			(0.051)	(0.037)
SCE			-0.004	0.006
			(0.020)	(0.014)
SIZE		0.602***		0.660***
		(0.066)		(0.066)
LEV		-0.0005		-0.001
		(0.001)		(0.001)
CFO		1.438***		0.727*
		(0.451)		(0.478)
No. of observations	115	115	115	115
R <sup>2</sup>	0.003	0.445	0.022	0.503
Adjusted R <sup>2</sup>	0.003	0.410	0.020	0.455
F-statistics	0.335 (df = 1; 109)	21.236*** (df = 4; 106)	0.800 (df = 3; 107)	17.528*** (df = 6; 104)

Note: \* - value is significant at 10-% level of significance; \*\* - 5-% level; \*\*\* - 1-% level.

F-statistics and determination coefficients demonstrate the significance and high explanatory power of the models. The heavier a football club invests in intellectual capital and the better it uses it, the higher is its market capitalization.

If we explore the VAIC components, we reveal that the CEE and HCE are related significantly and positively with market capitalization. The size also have a significant and positive relationship with the value: investors more likely invest in large and well-known clubs. Also the influence of cash flow management is significant and positive. Financial leverage does not prove any significant relationship with market capitalization of football clubs.

## Conclusion

Our empirical research contributes the intellectual capital management in sports. We concentrated at football as the most important and highly commercialized sports.

The regression analysis based on the model with fixed effects revealed the support of our first two hypotheses. It was determined that the larger IC-investments lead to higher profitability

and the growth of the demand for the club's shares and, consequently, the growth of the market value. Also it was revealed that of the three components of the IC - structural, human and client capital, - only human and customer capitals have a significant impact on the club's capitalization and profitability. Human capital includes mainly the talent of the players, as well as the skills of the coaching staff, who together bring sporting success to the club, which later becomes a financial gain. Client capital means the brand and the size of the team fan-club. Thus, the more effectively a company manages its client capital, the greater will be its profitability and market capitalization. From other three explanatory variables, only the size of the company and the OCF-to-assets ratio demonstrated the positive significant relationship with the financial performance, which confirms the hypothesis of this study and the results of previous studies.

Further studies could be devoted to a more detailed exploration of human and client capital in relation to football clubs.

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