

Analyzing the correspondence betwixt the effectiveness of sports clubs and their league Performances in the Moroccan Championship “Botola Pro “

Analyse de la corrélation entre l'efficacité des équipes sportives et leurs Performances le championnat marocain « Botola Pro »

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Abstract

The performance of football clubs in Morocco has evolved significantly over the past decade. Given the competitiveness of the market, it's increasingly necessary to conduct business as companies with corporate models been applied. With the sole goal of winning championships and have successful seasons since these things enable them to earn more money, make investments, and move closer to their objectives.

In this regard, the Sporting Indices and the Ranking Performance of the teams in Morocco's Championship ranking tables for the years 2020 and 2021 were compared in this study. For the purpose of measuring investment performance, Kendall's data packaging and correlation coefficient analysis were used.

There're multiple teams who has achieved an advanced ranking in the botola league in relation with correlation of their rating in the cost-effectiveness, the results demonstrated a substantial degree of parity in the results over the studied time. So, we concluded that a team's standing in the championship will improve in direct proportion to how effective it is on the field. The intends is to participate by affirming the necessity of a deep analysis of charges and fundings in order to provide improved results in the search for an effective allocation of resources.

Keywords: Sports Efficiency Index; Performance Classification; Efficiency; Football Clubs; Moroccan Botola.

Résumé

La performance des clubs de football au Maroc a considérablement évolué durant la précédente décennie. Si on prend en considération la compétitivité du marché, ça devient nécessaire d'agir comme des entreprises utilisant des modèles de gestion durable. En effet, le but des institutions sportives est d'obtenir des titres et de bons résultats qui leur permettent d'avoir des revenus plus importants et de dépenser en quête de pérennité et d'ascension vers leurs objectifs.

En ce sens, cette recherche a comparé les indices sportifs avec la performance de classement des clubs dans les tableaux de classement du championnat du Maroc pour les années 2020 et 2021. Afin d'atteindre l'objectif, le conditionnement des données de Kendall et l'analyse des coefficients de corrélation ont été appliqués pour la performance des investissements. .

Les résultats ont montré que dans la période analysée, il y avait une parité significative dans une partie trouvée, puisque de nombreux clubs ont atteint une position dans le championnat correspondant à leur classement de l'efficacité sportive. Ensuite, nous avons conclu que quand l'efficacité sportive de l'équipe est bonne, meilleur était son classement dans le championnat. En cherchant une meilleure attribution et un partage plus efficace des moyens, nous avons apporté une contribution attestant de la nécessité d'un examen détaillé des dépenses et des investissements aux meilleurs résultats.

Mots clés : Indice d'Efficacité Sportive, Classement des Performances, Efficacité, Clubs, Maroc.

Introduction

Considered as the most viewed, observed, analyzed, devoured sport in the globe, Football become popularized with an estimated fan base of 5 billion, a sport that also very popular in Morocco, especially when there's a competition around either the title, continental spots or relegation in the Moroccan league called " The Botola ". With an increasing popularity in Morocco, especially with the success of the Lions atlas in the last world cup of 2022, the football teams In light of the reform that the football federation intends to implement, football clubs are no longer only considered as sports organizations but also as corporations. The revenue of the football clubs is mostly derived from sponsors, television stations fees, players sales and ticket revenues, among other sources.

Sport has become a huge business in its own right, with social and economic implications that cannot be ignored. Management science is concerned with sports organizations and their management practices, and how they relate to efficiency and performance (El Guennouni & Ezzahiri, 2021).

Within the framework and objectives of financial and administration of teams, Current literature available acknowledges the value of associating economical out-comes with sporting aspects (Barros, Assaf & Sá- Earp, 2010).

Football clubs strive for sporting success through winning championships and matches, but they also need to maintain a healthy financial position in order to stay in business, just like any other organization in other spheres of the economy.

In 2010, with the introduction of the Law n. 30-09 football clubs become obliged to announce their earnings reports each year because of the rise of scrutiny in their economic situation and health of the teams and how they manage things (particularly sponsors, shareholders, supporters, and the public administrations and football royal federation) as well as the society's demand for greater management transparency. Football, a sport that was formerly handled in part by amateurs, was forced to professionalize management as a result. The lack of statement consistency, however, create problems that makes it challenging to start a scientific examination, particularly comparison ones, following the introduction of the legislative requirement.

Football teams aim for satisfactory financial outcomes that can support themselves and continue to exist. Success in sports, such as winning championships, leads to better outcomes (Haas, 2003). According to Espitia-Escuer and Garca-Cebrián (2010), performance from both the financial and sporting fields can and should be used to gauge how effective the clubs are

in this situation. In this regard, it also took into account the non-financial performance metrics, which were the main subject in this research from Diehl, Marquezan, Benin (2019), and which showed favorable correlation between the degree of report and the magnitude of football teams.

It's believed that an effective team manages its resources well while also focusing on producing good results on the field, it's one of the biggest concern of sport team nowadays, making a balance between making investments and performing well, making a balance between the financial and sporting success Dantas, Machado, and Macedo (2015), so it begs the question: can the Moroccan Championship clubs' results in the indicators of sporting efficiency be said to be representative of how well their teams performed on the field throughout the competition? How can we find the balance between on-field triumph and monetary success? What does it signify having an efficient sporting management?

Based on the foregoing, the goal of this research is to compare the sports effectiveness rates determined using the Data Envelopment Analysis method, that can help assessing a company's performance, and to conduct a comparable study between the teams' final standings in the years of 2020 and 2021.

We came to the choosing of Moroccan Botola League because It's considered as one of the biggest, and most successful league competitions in the continent, but also there's the attractivity aspect, especially with the success of the Moroccan national team recently, the women's team, the other categories, and all investments by the Moroccan public sector in infrastructure and helping professionalize everything. They aren't many researches in the world of studying effectiveness of sport teams, because of the many difficulties to have financial statements and enough information's or accurate ones or have the access to them.

The market hasn't merely viewed football as something only spectators enjoyed when cheering for their favorite teams so they can win. With the establishment of capitalism, especially since the 1980s with the media and its expansion, football has seen significant potential within an economic worldview. Fan devotion has always propelled the sport to high peaks. Perruci (2006).

Football clubs have looked for several ways to earn additional revenues from outside sources in an effort to boost their profits and revenues, including campaigns for players, marketing actions and brand exploitation. Although it is common knowledge that clubs exist to produce successful results and, as a result, championships, their management top priority is the efficient use of available resources so that their teams is economically viable and successful in

the field, while focusing on ensuring the long-term viability of any organization. (Lima, Pereira, & Corrar, 2004).

According to Barajas, Fernández-Jardón, and Crolley (2005), the sports industry differs from other industries in the aspect of that the performance is directly related to billing. However, profit must be realized via careful cost and expense management. However, there is still no policy that clearly balances expenses in the world of sports.

The stock market is another source of income for the large clubs in addition to this. There are about 38 international clubs with shares that are traded on stock markets in various nations, according to Dantas, Silva, Steppan, & Oliveira (2009). Due to Morocco's slow adoption of the club-company model, no clubs have open capital on the stock market yet. Additionally, Dawson and Dobson (2002) identify the framework of Human Capital (Becker, 1962) as the fundamental framework for this investigation is determine the effectiveness of the football business. The hypothesis holds that a number of variables work together to produce human capital, which includes a person's professional and personal abilities, expertise, hard and soft skills. there are multiple connections between a corporation's performance and its human resources' that are advantageous because they enable the corporation to develop and improve new departments, such as cash fund and material capital, while acquiring new abilities and realizations.

The question of the research remains is there a correlation between the percentage of the most efficient teams and their ranking in the Moroccan Botola?

We intend to use the Data Extensible Analysis in out methodology to analyze every club's financial statements.

This research is divided into four parties, First the literature review when we review some researched that have been done before and then the methodology and data used in the second party called ' Research Methods ' and their description and finally we finish with a conclusion and discussion about result and managerial implications.

1. Literature review :

According to Baroncelli and Lago (2006), football teams should succeed by constructing a "snowball effect", as presented in Figure number one, In the hope of to simultaneously reach high sporting performance and solid financial management from the standpoint of Sustainable Management.

Fig.1: exemplary snowball effect between financial and sporting outcomes

Source: Lago and Baroncelli (2007).

The Barometer of Efficiency, when viewed as the perspective outcome as a governance tool and a measure for outputs, prompts us to consider the potential for achieving goals, reduce the expenses or make expenditures that are even more effective, but still acknowledging the significance of its constituents, index's formula is based on expenditures and investments.

The data collected differ depending on the in-turn plus out-turns utilized in the Data Analysis approach in every canvas. Haas, Kocher and Sutter (2004) used player's and manager salaries as inputs, points earned, total revenue and average stadium usage as outputs, No correlation was found between the efficiency index and the positions of teams in the Bundesliga for the period studies. Guzmán (2006), Used La Liga as a case study, The DEA has observed that Spanish professional football clubs in terms of financial performance, based on the goal of achieving revenue, have come a little closer to the efficiency limit. In the other hand, Jardin (2009), notes that in the Ligue 1 in the period from 2004 to 2007, the top clubs, who possessed the most league wins and therefore the highest earnings, did not perform well.

Thus, as already explained, the objective of the study was to establish a comparison between the Efficiency Index of the Clubs participating in the Moroccan Championship League and the respective Classification Performances disclosed by the clubs' financial reports, in the years 2020 and 2021. The efficiency indexes were obtained using the Data Envelopment Analysis (DEA) method.

This research considered the heterogeneity of the data collected, i.e., the existence of clubs with different sizes, in this scenario the BCC model is the most propitious. (Dantas & Boente, 2012).

The BCC model, due to Banker et al. (1984), considers variable returns to scale, that is, it replaces the proportionality axiom between inputs and outputs with the convexity axiom.

Specifically, the BCC model is the most appropriate and used in the article. The use is justified due to the size of the clubs, so the measurement of efficiency is made according to the scale of each DMU under evaluation.

The analysis of the data was made by the Data Involvement Analysis (DEA), the DEA method used will be the BCC (or VRS) - Scale Variable Return, for being entities of different sizes, and also, following the guidance of Guzmán (2006), The model will be output oriented, seeking to minimize the number of inputs needed (Macedo, 2004).

In the calculation of sports efficiency, the methodology was adopted like Dantas and Boente (2012), which consists of the input being the division between expenses and revenues, multiplying them by 100, to be used as a percentage, due to the output of sports efficiency being the use of points.

The annual earnings of these clubs are mostly earned from subventions from the FRMF, selling their media rights, transfer fee's, publicity, local and regional subventions from public funds, sponsors, etc.... a huge portion of these incomes (usually more than 70%) are used in buying players contracts and paying their wages and sometimes developing the infrastructure. The output of the efficiency is the percentage referring to the use of points of the club within the league, which consists of the ratio between the number of points earned and the number of points played (points won / 30 games x 3 points).

2. Description:

As Described Previously, This Study makes use of multiple variables. we will be using profit-and-losses reports and statements that we collected from each club earning reports for the year 2020-2021. As we will see in Table 1.

Table 1: Gross Operating Revenue 2020 and 2021

Teams	2020	Teams	2021
RCA	11.5M\$	WAC	10.3M\$
WAC	10M\$	RCA	10.2M\$
RS BERKANE	4.1M\$	AS FAR	-----
FUS RABAT	4.7M\$	RS BERKANE	6.9M\$
MCO	4.1M\$	MCO	3.5M\$
AS FAR	-----	HUSA	7M\$
MA TETOUAN	2.9M\$	MAS	3.2M\$
RC OUED ZAM	1.7M\$	IRT	6.7M\$
CAYB	1.1M\$	FUS	3.8M\$
HUSA	5.3M\$	SCCM	5.7M\$
DHJ	3.4M\$	DHJ	3.04M\$
RCAZ	1.2M\$	RCOZ	1.8R\$
OC SAFI	2.9M\$	CAYB	1.9M\$
IRT	2.9M\$	MA TETOUAN	3.07M\$
OCK	3.6M\$	RCAZ	2.1M\$
RAJA BM	1.505 M\$	OC SAFI	2.3M\$

Source: Authors.

In 2020 Raja Athletic Club, and Wydad Athletic Club, were the clubs with the biggest revenues, with respectfully 11.5M\$ and 10M\$. In 2021, Wydad Club registered the biggest income, we find after them Raja Club. This showcase the power of the teams in the economical capital of Morocco “Casablanca “are in front of national football. The gross running costs for each club are displayed in Table 2.

Table 2: Gross Operating Expenses 2020 and 2021

Teams	2020	Teams	2021
RCA	14.5M \$	WAC	8.9M\$
WAC	9.3M\$	RCA	11.6M\$
RS BERKANE	4.9M\$	AS FAR	??R\$
FUS RABAT	4.5M\$	RS BERKANE	6.8M R\$
MCO	3.1M\$	MCO	4.5M\$
AS FAR	-----	HUSA	6.8M\$
MA TETOUAN	3.3M\$	MAS	4.09M\$
RC OUEDZAM	1.4M\$	IRT	6.1M\$
CAYB	1.3M\$	FUS	3.1M\$
HUSA	5.8M\$	SCCM	5.3M\$
DHJ	3.7M\$	DHJ	2.8M\$
RCAZ	1.2R\$	RCOZ	1.6M\$
OC SAFI	2.6M\$	CAYB	1.7M\$
IRT	3.3M\$	MA TETOUAN	M\$
OCK	3.4M\$	RCAZ	1.9M\$
RAJA BM	1.508M\$	OC SAFI	2.2M\$

Source : Authors.

Going by the operational running costs of the clubs in the cross section for Table 2, and for the season 2020 Raja Athletic Club was the team with the biggest spending in that season, Wydad Athletic Club were the second club with the biggest spending. For 2021, Raja Club was the team with the biggest transfers fees, when the team became Botola Pro's champions. Followed by Wydad Athletic Club with a difference of more than 2.7 million dollars. Jardin (2009) concluded for his study that club's with more incomes performances are lesser efficiently.

According to Dantas and Boente (2012), the most reliable output used in measuring financial efficiency, shows the use of points of the clubs in the championship. As this number is a percentage, it is necessary that the DEA input be a variable treated in percentage as well. In

this way, expenses were divided for revenues, multiplied by 100, so that it was in a way, as an expense index. The results are showed in Table 3.

Table 3: Expense to income ratio

Teams 2020		Teams 2021	
RCA	126.08%	WAC	86.40 %
WAC	93%	RCA	113.72 %
RS BERKANE	119.5%	AS FAR	-----
FUS RABAT	95.7%	RS BERKANE	98.50 %
MCO	75.6%	MCO	128.57 %
AS FAR	-----	HUSA	97.14 %
MA TETOUAN	113.7%	MAS	127.8 %
RC OUEDZAM	121.42%	IRT	91.07 %
CAYB	118.18%	FUS	81.57 %
HUSA	109.43%	SCCM	92%
DHJ	108.82%	OC SAFI	95%
RCAZ	100%	DHJ	92.05 %
OC SAFI	89.65%	RCOZ	88%
IRT	113.8%	CAYB	89.47 %
OCK	94.44%	MA TETOUAN	99%
RAJA BM	100.19%	RCAZ	90.47

Source : Authors.

A smaller proportion leads to a higher collection of revenue over expenses for the period, or even the separate costs of maintaining operations for that duration. If this amount is bigger than 100, costs then have exceeded revenues. the results gained by every team in the finals of the tournament, are going to be the exploited in the seasons analyzed, as shown below.

**Table 4: Exploitation of results challenged in Botola Pro – Cancan League
2020 and 2021**

Teams 2020		Teams 2021	
RCA	63%	WAC	70%
WAC	55%	RCA	63%
RS BERKANE	55%	AS FAR	-----
FUS RABAT	54%	RS BERKANE	58%
MCO	50%	MCO	55%
AS FAR	-----	HUSA	52%
MA TETOUAN	50%	MAS	50%
RC OUEDZAM	47%	IRT	46%
CAYB	47%	FUS	45%
HUSA	46%	SCCM	44%
DHJ	45%	OC SAFI	42%
RCAZ	44%	DHJ	39%
OC SAFI	44%	RCOZ	39%
IRT	41%	CAYB	39%
OCC	39%	MA TETOUAN	39%
RAJA BM	38%	RCAZ	38%
Average	45%	Average	45%

Source: Authors.

In the year 2020, the club with the best use of the championship was Raja Club reflecting on the Botola A title, showing above average results. The worst performance was with Raja Beni Mellal which in the edition ranked 18, the last place in the competition, being relegated to Series B. In 2021, Wydad AC took the best advantage, just as in 2020, the club with the best advantage became Botola champions. Similarly at the bottom of the table, where the RCAZ Team won only 38% of the competition, was relegated to the Botola B in last place.

Using the method demonstrated before, we can conducted that it's imperative to publish the rankings at the end of 30 journey of the Moroccan Football League - Botola Pro - 2020 and 2021, in order to correlate with the rankings of high performing clubs. best and worst in the analysis. . Table 5 presents the rankings posted by the Royal Moroccan Soccer Federation (FRMF).

**Table 5: Moroccan Botola Pro Rankings - Botola -
- 2020 and 2021.**

2020		2021	
1°	RCA	1°	WAC
2°	WAC	2°	RCA
3°	RS BERKANE	3°	AS FAR
4°	FUS RABAT	4°	RS BERKANE
5°	MCO	5°	MCO
6°	AS FAR	6°	HUSA
7°	MA TETOUAN	7°	MAS
8°	RC OUEDZAM	8°	IRT
9°	CAYB	9°	FUS
10°	HUSA	10°	SCCM
11°	DHJ	11°	OC SAFI
12°	RCAZ	12°	DHJ
13°	OC SAFI	13°	RCOZ
14°	IRT	14°	CAYB
15°	OCK	15°	MA TETOUAN
16°	RAJA BM	16°	RCAZ

Source: Author.

Table number 6 presents the sports performance results of the clubs obtained from the output-oriented model.

Table 6: Result of the botola efficiency, output orientation

Teams	2020	Teams	2021
RCA	1	WAC	1
WAC	1	RCA	1
Fus Rabat	0,97	AS FAR	----
Rs Berkane	0,89	RS BERKANE	1
MCO	0,89	FUS	0,96
AS FAR	----	HUSA	0,80
MA TETOUAN	0,83	MAS	0,78
RC OUEDZAM	0,79	IRT	0,71

CAYB	0,78	MCO	0,71
HUSA	0,75	SCCM	0,69
DHJ	0,75	OC SAFI	0,66
RCAZ	0,75	DHJ	0,63
OC SAFI	0,71	RCOZ	0,60
IRT	0,70	CAYB	0,57
OCK	0,70	MA TETOUAN	0,56
RAJA BM	0,67	RCAZ	0,56
Median	0,77	Median	0,70

Source : Authors.

As we've seen with the data above us, the two more effective teams in 2020 and 2021 are RCA and Wydad AC , both were either the champions or the runner-up in both editions.

In 2021, four clubs in the selected data proved to be efficient: Raja AC, Wydad AC , and Berkane and Fus Rabat.

Table 7 provides insights to determine if there's a correspondence withing the ranking of the most effective teams based on the formula we used, and within their ranking in the Moroccan botola for 2020 and 2021.

Table 7: Effectiveness vs. Botola Pro Standing Correlation

2020 Botola-ADEA-BCC				2021 Botola DEA-A BCC			
1°	RCA	1°	RCA	1°	Wydad AC	1°	Wydad AC
2°	WAC	2°	WAC	2°	RCA	2°	RCA
3°	RSB	3°	FUS RABAT	3°	AS FAR	3°	AS FAR
4°	FUS	4°	RSB	4°	RSB	4°	RSB
5°	MCO	5°	MCO	5°	MCO	5°	FUS
6°	ASFAR	6°	FAR	6°	HUSA	6°	HUSA
7°	MAT	7°	MA TETOUAN	7°	MAS	7°	MAS
8°	HUSA	8°	RC OUED ZAM	8°	IRT	8°	IRT

9°	RCOZ	9°	CAYB	9°	FUS	9°	MCO
10°	CAYB	10°	HUSA	10°	SCCM	10°	SCCM
11°	DHJ	11°	DHJ	11°	OCS	11°	OC SAFI
12°	RCAZ	12°	RCAZ	12°	DHJ	12°	DHJ
13°	OCS	13°	OC SAFI	13°	RCOZ	13°	RCOZ
14°	IRT	14°	IRT	14°	CAYB	14°	CAYB
15°	OCK	15°	OCK	15°	MAT	15°	MAT
16°	RAJA BENI MELLAL	16°	RAJA BENI MELLAL	16°	RCAZ	16°	RCAZ

Source : Author.

The winning teams of both the 2020 and 2021 editions actually achieved the highest efficiency measure during their corresponding title year, according to an evaluation of the highest portion of the list, which was then joined by the teams that received the highest indices in accordance using ranking list for the period in question.

In the last rankings of the standings of the league, In the year twenty twenty two, 2 of the 4 clubs in the bottom group also achieved the poorest efficiency rates. nonetheless, in 2021, the four teams with the poorest efficiency rates in the sample are also at the bottom of the rankings.

3. Summary and conclusions:

The purpose of this paper is to make a comparison between the team's performance's indicators with the clubs' rankings performance's, in the Moroccan Botola, taking into consideration data from their standings for 2020 and 2021. During this research the sporting performance effectiveness of the team's was examined and analyzed adopting the formula of DEA, so we can examine their relationship with the teams' final position in the Botola.

Wydad AC, which showed good efficiency during this study as a result of its low rate of expenditures, came in second among the teams examined in 2020. Raja AC, the champions in that edition of the Botola Pro, had the highest index of efficiency. A significant portion of the teams who qualified among the top ones displayed the strongest Sporting Efficiency Indexes.

However, MA TETOUAN dropped from seventh to fifteenth place in the ranking, which may have reinforced the perception that a more precise assessment of the allocation of resources accompanying the outcomes is required.

Teams with less efficient results were relegated according to their results in the last four places.

Despite the significant effect of performance's in the football results, the strategic resource share of the indicator factors themselves should have a notable effect on the final standings of these clubs.

We Concluded, according to the outcomes of Kendall's ordinal correlation coefficients showing a statistically high percentage of about 95%, that the higher a team's in-field results are, the better it's their ranking. in the league. nevertheless, it has been checked that there is no definitive association among the sports achievement's index, the ranking achievements of the teams, meaning that a party of them do not reach the rankings. effective ranking equivalent to every team's actual position in the league, certifying that there may be other elements that can affect to the final performances and standings.

For more sustainable results, and longer-lasting outcomes, the research also emphasized the significance of better use of resources and more efficient management and primarily how you handle the major factors. Also, we suggested that Moroccan clubs need a better financial management and structuration, in conclusion Moroccan botola is characterized by a lax financial management.

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