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Feuillet, Antoine, Terrien, Mickael, Scelles, Nicolas  and Durand, Christophe (2021) Determinants of coopetition and contingency of strategic choices: the case of professional football clubs in France. *European Sport Management Quarterly*, 21 (5). pp. 748-763. ISSN 1618-4742

DOI: <https://doi.org/10.1080/16184742.2020.1779776>

Publisher: Taylor & Francis (Routledge)

Version: Accepted Version

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Determinants of coopetition and contingency of strategic choices:

The case of professional football clubs in France

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Abstract:

Research question: The research aims to identify the determinants of ‘coopetitive’ strategies compared to more competitive or cooperative ones, while examining the contingency of strategic choices to strategic groups. The focus is on French professional football over the 2006-2017 period. The contribution to the literature comes from using strategic groups and breaking down specific characteristics of player transactions in this industry.

Research methods: The methodology is based on an exploratory statistical analysis composed by cluster analysis. First, a Pearson’s principal component analysis (PCA) is conducted, before using K-means classification.

Results and Findings: Results provide empirical evidence for a high contingency of strategic choices. The taxonomy found is closely related to the economic, financial and sporting characteristics of a club. Belonging to a specific class highly influences the strategy a club can implement. In addition, the diversity of club behaviours in the league are highlighted.

Implications: Our findings bring relevant information for practitioners about their strategies and the managerial implications of a potential reform on player transactions between teams. Indeed, FIFA is working on a reform to limit the number of outgoing loans that a team can use and better control the transfer system.

Keywords: coopetition, strategy, contingency, strategic group, football

Introduction

In his seminal article on the peculiar economics of professional sports, Neale (1964) used the example of the New York Yankees to illustrate the peculiarity of the production in professional sports. Being the wealthiest team in North American professional baseball, the Yankees could have monopolised the league by owning all of the teams and players. Nevertheless, in order to produce a game and a championship, competition is needed. The firm as understood in economic theory is, as argued by Neale, not the team but the league as a whole. Therefore, a minimum level of cooperation is required between teams. The Yankees example provided by Neale (1964) illustrates the concept of coopetition in professional team sports. Coopetition is also relevant in sport in general such as in individual sports (Mignot, 2016), inter-organizational dynamics in sport (Vernhet et al., 2011) or the sports goods and services industry (Rodrigues et al., 2009). In professional football, revenue sharing is one of the regulatory rules that operationalises coopetition. For example, in European football, the different revenue sharing schemes existing in the different leagues illustrate the duality of the relationships between firms and the difficulty to determine the right balance between cooperation and competition, which make professional sports peculiar. These peculiarities may constitute a “theoretical justification and empirical evidence” for coopetition, still required in the mainstream literature according to Le Roy et al. (2018, p. 2).

The notion of coopetition has first emerged with Cherington (1913). After having been neglected for a long time, it has reappeared in the literature thanks to Brandenburger and Nalebuff (1995). The concept is commonly understood as “the dyadic and paradoxical relationship that emerges when two firms cooperate in some activities (...) and at the same time compete with each other in other activities”

(Bengtsson & Kock, 2000, p. 412). Coopetition should not be confused with collusion (cooperation for mutual benefit), although both present some similarities (Rusko, 2011; Walley, 2007). Substantial work has already developed the strategic field of coopetition (Bengtsson & Kock, 1999; Brandenburger & Nalebuff, 1996; Lecoq & Yami, 2004).

By contrast, professional sport has been subject to relatively little research on the concept of coopetition, despite the latter being described as a new paradigm (Fernandez et al., 2018). Our research tackles coopetition in the context of the French men's football Ligue 1 and Ligue 2 over the 2006-2017 period. Therefore, it follows the exploratory studies by Le Roy et al. (2007) and Robert et al. (2009). These authors do not find any links between coopetition and economic or sporting performance but identify different types of strategies across clubs and a link between coopetition and financial efficiency regarding player transactions.

In our paper, we develop a different approach based on the decomposition of player transactions and the use of strategic groups. We aim to investigate the determinants of coopetition and the contingency of club strategic choices. To do so, we examine player transactions with an emphasis on cooperative strategies. Player transactions are fundamental in football economics. This is particularly the case in French professional leagues where the business models developed by most Ligue 1 and Ligue 2 clubs depend on (young) player trading. In addition, we cannot consider all clubs as part of a single strategic group due to the disparity of their resources from one division to another but also within the same division. The idea that multiple strategic groups exist within a league is essential in this paper. It corresponds to a segmentation in different groups based on economic criteria (income, payroll) between clubs made by the financial governing body itself (DNCG¹). Consequently, our approach allows us to

¹ National Direction for Management Control as translated from French by Dermit-Richard et al. (2019).

1 verify the contingency of strategic choices, using a taxonomic approach based on the
2 typology of strategic groups produced by the practitioners. This enables us to study two
3 important concepts of strategic management in the context of professional football:
4 competition and cooperation. To do so, we use the concept of coopetition to better
5 describe some of the characteristics in football. We consider such characteristics
6 through an extended number of variables mainly related to player transactions
7 (decomposition of transfers and loans) and financial features (fixed assets and gross
8 operating income).

9 This article is structured as follows. In the next section, the literature on
10 coopetition and strategic groups is reviewed, first generically then focusing on sport,
11 with a specific attention on football. Second, the methodology is described with the case
12 study and variables used. Third, results are provided through an exploratory statistical
13 analysis. Then, we conclude and provide some perspectives for further research.

14 15 **Theoretical background**

16 17 **Determinants of coopetition**

18 Why do some companies develop coopetitive strategies? Bengtsson and Kock
19 (2000) explain this as the result of the complementarity and the interdependence of
20 heterogeneous resources between those companies. Nevertheless, it can also be
21 explained by the interdependence of homogeneous resources (Dagnino & Gnyawali,
22 2009), such as broadcasting rights in football. In the football sector, coopetition also
23 relates to match tickets, the quality of football fields, fan experience and corporate
24 hospitality. This is in line with the resource dependence theory (Pfeffer & Salancik,

1978) that underlines the interdependence between firms, in particular for the access to critical resources.

One of the advantages of coopetition is the mutualisation of different types of resources (Czakon, 2018), enabling organisations to save costs (Le Roy et al., 2007).

The rewards coming from coopetition relate to the duality of the concept: cooperation brings an access to key complementary resources and technology; competition drives differentiation between partners (Robert et al., 2018). However, coopetition does not suit all cases. Indeed, some companies do not have the need, the ability or the resources to commit themselves to this type of relationship. This highlights the need to distinguish between types of organisations when dealing with coopetition.

Coopetition and strategic groups

The objectives targeted by organisations depend on their strategic groups understood as groups of homogeneous organisations within an industry (Lassalle, 2015; Porter, 1980). Using strategic groups helps to understand the competition structure and dynamics in an industry (Frynas & Mellahi, 2015; Mas-Ruiz & Ruiz-Moreno, 2014).

An industry has mobility barriers likely to prevent an organisation from moving from a group to another (Caves & Porter, 1977; Guedri & McGuire, 2011). Therefore, mobility barriers are what materialises the frontiers between strategic groups. They can be defined “as structural forces impeding firms from freely changing their competitive position” (Cool & Schendel, 1988, p. 3). Firm strategies are considered as depending on their own capabilities and their environment (Aragón-Correa & Sharma, 2003; Mintzberg, 1979), as highlighted in the contingency theory (Lawrence & Lorsch, 1967).

Coopetition and sport

Coopetition has been researched in a few studies in the context of sport. For example, Lorgnier and Su (2014) analyse the complexity and diversity of coopetition

between non-profit nautical sports clubs. Wemmer et al. (2016) extend Lorgnier and Su (2014) by looking at the performance of non-profit sports organisations and, in particular, the impact of coopetition-based open innovation. Both articles show the importance of coopetition strategies for non-profit sports organisations. Coopetition strategies can also be considered through sports clusters and networks. Thus, Gerke and Dalla Pria (2018) examine sports clusters in the sailing and surfing industry, focusing on the choices of location and socio-economic proximity. In addition, Crick and Crick (2016) investigate the different forms of cooperation and competition between taekwondo clubs. Vernhet et al. (2011) consider coopetition in relation to the structure of professional rugby in France. Recently, Barden and Vestal (2018) deal with coopetition while looking at player trades in Major League Baseball (MLB), whereas Scelles, Mignot et al. (2018) explore coopetition patterns of temporary organisations in cycling through breakaways in the Tour de France.

Indices of cooperation in football

Revenue sharing may be considered as one example of the existing coopetition level between clubs. In France, TV revenue sharing is decided by member clubs, with the league proceeding to the distribution through its board of administrators (Feuillet et al., 2018). Lardo et al. (2016) use coopetition models to indicate that the clubs in professional football are also part of the decision-making bodies when dealing with the election of their representatives within those power systems. In particular, the most important clubs use their power to influence to the decision-making process. This relates to negotiation and the political decisions made within the leading bodies of the league, but also the different levels of power that different strategic groups may have.

Strategic groups in football

The typology of strategic groups used for French professional football comes from practitioners (DNCG reports from 2006-2007 to 2016-2017). Similar typologies have already been used previously in the academic literature (Barros & Garcia-del-Barrio, 2008; Barros et al., 2009; Sener & Karapolatgil, 2015; Terrien & Durand, 2017). Strategic groups from DNCG reports are based on income and payroll. The rationale behind this choice is the strong causality identified in the literature between payroll and sporting performance in football (Hall et al., 2002). Based on this, teams from different strategic groups are not supposed to be in sporting competition in the league table. Consequently, two teams from two different groups can have a mutual interest about a player. For example, when a player needs to gain experience and/or playing time, these two teams can benefit from a loan. On one side, a team reduces its payroll (Robert et al., 2009) and can take advantage of the development (skills and / or experience) of its player after his return. On the other side, the team that welcomes the player attract talent without paying a transfer fee. From an economic perspective, teams in a league are not exclusively in partnership with each other. Indeed, they are also in economic competition since, for example, a better sporting ranking means more money through TV rights. If we assume that a team cannot move from one group to another (in a given season), teams are in economic competition with the other teams in their group but not with those in the other groups. However, a group of teams can try to get more money from TV rights relatively to another group of teams which was the case in England regarding international TV rights distribution (Conn, 2018). In this case, teams in the same group are in economic partnership between them and in economic competition with teams in the other groups. Eventually, there is a potential for coopetition with both cooperation and competition between teams. Nonetheless, the extent of cooperation and competition between teams vary from one case to another. Besides, there is a need to

confirm empirically these assumptions developed above. To do so, the research investigates the determinants of strategic choices across the generic strategies of competition and cooperation (Porter, 1980), as well as coopetition. Moreover, this research also examines the contingency of strategic choices to strategic groups.

Methodology

Database

Data analysis is based on longitudinal data for each club having belonged at least one season to Ligue 1 or Ligue 2 over the 2006-2017 period (53 different clubs). In theory, the number of observations should be 440 corresponding to 11 seasons * 40 clubs (20 in Ligue 1 and 20 in Ligue 2). However, our dataset does not contain the data for 12 club seasons that might have biased the results. Indeed, these observations are either incomplete due to bankruptcy or hardly comparable due to changes in the presentation of their financial rubrics. Hence, the number of observations used is 428. The data collection has been carried out based on the DNCG reports (LFP, n.d.a), as well as the websites of Transfermarkt (n.d.), Soccer Association (n.d.), (LFP, n.d.b) and UEFA (n.d.).

Strategic groups

In order to fit with the specificities of the football industry, we assume that player transactions (purchases, sales and loans) between clubs depend on the strategic group of each club taking part in the deal.

In our model, differences are considered between clubs in Ligue 1 and Ligue 2, but also within a league since we use different strategic groups within a single division. Thereby, there is no competition between clubs from different strategic groups

regarding purchases and sales of players. Indeed, the different strategic groups are based on income and payroll differences between clubs as determined by the DNCG over the years. The DNCG strategic groups used to determine the decomposition of player transaction variables are provided in Annex 1.

Variables

The variables used to study cooperative strategies are primarily financial in nature (Walley, 2007), but some non-economic exchange factors are also included (Bengtsson & Kock, 1999; Kotzab & Teller, 2003). The variables chosen and the corresponding strategies are introduced in Table 1.

[Insert here: Table 1]

Non-player transaction variables

Our economic variables are more precise than Le Roy et al. (2007), based on the idea that economic performance cannot be restrained to assets and profits. Therefore, gross operating income and fixed assets are included to better describe the economic and financial health of clubs. Operating income is a positive determinant of a firm value (Scelles, Helleu et al., 2016). Assets and more particularly fixed assets inform on a firm's capacity to cover its debts. Some of the variables used in our study are the same as Le Roy et al. (2007) (TV rights, sponsoring and advertising revenues, payroll), while the merchandising revenue variable is omitted since it has not been provided in the club financial reports after 2006-2007. On the non-economic side, we use the presence in the board of administrators (BA). Belonging to the G14² is no longer a criterion to consider (contrary to Le Roy et al., 2007) since this organisation was disbanded in 2008.

² Former organisation reuniting 14 (then 18) European football clubs.

Sporting performance is measured by the sports performance index (SPI³) and the UEFA coefficient (Le Roy et al., 2007).

Player transaction variables

Player transaction variables are decomposed in an attempt to better describe their complexity in football. Indeed, we argue that they are not limited to transfers (purchases and sales) for competitive behaviour and loans (incoming and outgoing) for cooperative behaviour, as used by Le Roy et al. (2007). Some variables present dual characteristics of cooperation and competition. For example, purchases intra (i.e. player transactions between clubs within the same strategic group) are sporting competition (Le Roy et al., 2007). At the same time, they are also economic cooperation as they soften the budget constraint for the seller. A DNCG (2015) report stipulates that for most French clubs, their business model depends on player trading, similar to a recent report by CIES⁴ (2018). This is supported by Paché and N’Goala (2011) who argue (based on the 2009 DNCG report) that without such trading strategies, French clubs would suffer from larger deficits, a reason being that they generate less revenues from sponsoring and matchday compared to the Big 4 leagues (England, Germany, Italy and Spain). Intra group sales could be a mean to compete economically with its rivals but also sporting cooperation to retain talent in the domestic league, which can enhance its attractiveness (Madden, 2011; Terrien & Andreff, 2020; Terrien et al., 2016), especially if the player is a superstar (Lucifora & Simmons, 2003). Purchases extra (i.e. player transactions between clubs from different strategic groups) are sporting competition (they can be viewed as a way to consolidate mobility barriers) and at the same time economic cooperation (they soften the budget constraint for the seller). Extra group sales are

³ We use a simple average of points per game (total number of points/total number of games).

⁴ International Centre for Sports Studies.

economic competition with other sellers and sporting cooperation (to retain talent in the domestic league). Loans (incoming and outgoing) are sporting cooperation.

On the international side, purchases in foreign leagues are a way to develop league attractiveness. They represent sporting competition since they enable a club to strengthen its squad compared to its domestic competitors. For the sales, we analyse them as economic competition since international markets increase the number of potential buyers that will pay more than a domestic club. Contrary to Le Roy et al. (2007), we consider international loans (incoming and outgoing) as sporting competition (Olson & Schwarb, 2000). Indeed, loaning with foreign teams can mean a refusal to interact with clubs within the domestic league. This can be the consequence of buying a domestic stock of talent (players) then loaning the surplus to foreign leagues to avoid the domestic sporting competition those players would have represented. A further distinction is made at the international level between the Big 4 and others.

Methods

We proceeded with an exploratory statistical analysis. First, a Pearson's principal component analysis (PCA) was conducted to summarise the structure of the observations in relation to the variables and help conduct the taxonomic analysis. The PCA summarises the information from variables to represent it through synthetic factors. This allows us to understand the different strategies or behaviours of each team and their evolution over time. Factors 1 and 2 (F1 and F2) represent the two synthetic dimensions of the whole data (all variables) that best represent the data. The length of the variables' vectors represents how well they are represented by the two factors of the PCA (F1 and F2). Second, we identified a taxonomy of behaviours among clubs and their contingency to strategic groups with a K-means classification aiming to form clusters. This is a classification method that generates groups following an iterative

process. The advantage of this method is the possibility to choose the number of categories to display.

Results

Pearson's principal component analysis (PCA)

Correlations between variables are presented in Annex 2 (correlation matrix between non-player transaction variables) and Annex 3 (correlation between player transaction variables and non-transaction variables). The number of factors to study is decided based on the tests used. The adequacy of the sample is assessed by the KMO (Kaiser-Meyer-Ohlin) index (Annex 4) that provides an acceptable result (0.655). The Bartlett's test of sphericity (Annex 5) is used (excluding the player transaction variables decomposed by division extra groups and by types of international player transactions due to multicollinearity) to determine the quality of the PCA. This test provides a high level of significance ($p\text{-value} < 0.001$). The criterion of explained variance (Annex 6) brings out two explanatory factors which, when cumulated, explain 31.615 % of the total variance. In the figure resulting from the PCA (Figure 1), sharp angles indicate a strong positive correlation between indicators, right angles no link and obtuse angles a strong negative correlation.

[Insert here: Figure 1]

The first axis (F1) of the PCA biplot represents most of the total variance (24.036 % out of 31.615 %). On this axis, observations on the right are characterised by high levels of sporting performance (SPI), resources (assets, TV rights, sponsoring and advertising), payroll, all sorts of purchases (intra, extra, intl), international and intra-group sales, outgoing loans and incoming international loans. Observations on the left are characterised by high levels of economic performance (profits, gross operating income); intra and extra-group incoming loans, free agent arrivals. The second axis (F2)

provides a lower amount of the total variance (7.58% out of 31.615%). This explains why most of the variables and observations are closer to F1 than F2. Observations at the top are characterised by high levels of purchases in the Big 4 leagues or at the international level and sponsoring and advertising revenue. Observations at the bottom are characterised by high levels of incoming loans from international and all types of sales.

The projections for the PCA biplot variables show the positive correlation between SPI and some competitive variables (e.g. international purchases, payroll, sponsoring & advertising). These variables are negatively correlated with economic performance (especially profits and gross operating income), which may indicate the cost of performance, consistent with the idea of win maximisation (Sloane, 1971). These economic variables are positively correlated with extra incoming loans (especially from higher division), extra group sales to higher division and free agent arrivals. This can be associated with clubs that do not invest in the transfer market and depend on other clubs (using loans) and the market for free agents. This could indicate a 'free rider' strategy. Its aim is to take advantage of the broadcasting rights without investing in players, based on the awareness that the risk of being relegated is high even when investing in players. Although this player loan strategy is negatively correlated with sporting performance, it enables higher financial gains (profits). In most cases, this strategy is used by clubs that do not have the financial ability to recruit on the transfer market. A mix of variables are also correlated, some being competitive (international sales), some other more cooperative (presence in the BA) and some presenting both characteristics (intra group sales, extra group purchases).

The clubs are projected in Figure 2 along axes 1 and 2 in relation to the variables. Olympique Lyonnais (OL) and Paris Saint-Germain (PSG) seem to have

adopted competitive strategies based on payroll, sponsorship and advertising, and purchases intra across different seasons. However, the strategies are not the same from one year to another. Indeed, the position of the clubs varies across seasons. For example, PSG has encountered a massive strategic shift since the State of Qatar bought the club in 2010-2011 according to variables. AS Monaco (ASM) also seems to have completely switched its strategy from a more competitive to a more ‘coopetitive’ one since 2013-2014. Olympique de Marseille (OM) also presents many different strategies. Thus, from 2009-2010 to 2011-2012, the club seems to follow a competitive strategy resulting in a championship title in 2009-2010, while in 2015-2016 and 2016-2017 it seems to have adopted a more coopetitive behaviour.

The K-means classification

We chose the number of classes (four) that minimize intra-group variance and maximize inter-group variance (Annexes 7 and 8). Each category or cluster is linked to a centre (centroid) which corresponds to an observation, and each observation will be associated to the nearest centre thereby forming a cluster. Table 2 shows the centroid classification and allows us to interpret the results of the K-means grouping method.

[Insert here: Table 2]

The first category (C1) includes 250 observations. These are clubs with few resources that have therefore fewer opportunities in terms of competitive strategies (low levels of sponsorship and advertising, TV rights, payroll, purchases, sales, outgoing loans, assets, SPI). They cooperate with other clubs through a high level of extra group incoming loans. Since these clubs have few resources and a need for players, they use the loan system (and free agents) to strengthen their recruitment at a lower cost. This leads to slightly negative profits and gross operating income. These financial results seem to provide evidence of a ‘safety’ strategy. This refers to the sporting vulnerability

of these teams that prevents them from investing additional resources by fear of bankruptcy resulting from the inability to recover considerable debts with even fewer resources in case of relegation (particularly TV rights). This risk has become real for certain clubs belonging to this category (e.g. Bastia, Arles Avignon, Sedan, Evian or Vannes). Despite their (assumed) cautious behaviour, these clubs could have suffered from demand shocks in relation to their attendance (Scelles, Szymanski et al., 2018).

The second class (C2) includes 102 observations. It also presents some features of a revenue model depending on the transfer system that keeps the French clubs alive, given the uncertain nature of their own resources. C2 shows quite important investments in other international purchases (€2.473 million), compared to very low purchases from the Big 4 (€0.378 million). It also unveils relatively important sales to the Big 4 (€3.443 million) compared to sales to other international leagues (€1.998 million). This is consistent with the idea that the French league serves as intermediary ‘springboard’ for players before joining the Big 4 leagues, especially the English Premier League (Feuillet et al., 2019; Poli, 2007).

The third class (C3) includes 54 observations that have strong competition characteristics with high intra group purchases. These clubs also use loans from international leagues to get players. They send 3.59 players on outgoing loans, mainly in lower divisions with 2.40 players sent in Ligue 2, semi-professional or amateur divisions. Their economic and financial results are negative, especially profits (€ -4.349 millions). This could be the consequence of their attempt to acquire players that come from their own strategic groups (intra group purchases). It is worth noting that only two clubs from the strategic group 3 in Ligue 1 (Monaco in 2006-2007 and Auxerre in 2007-2008) appear in C3. This may be explained by these two clubs having historically qualified in European competitions before the season under consideration. Therefore,

Monaco had three participations in a row in the Champions League before the 2006-2007 season, while Auxerre had five participations in a row in European competitions before the 2007-2008 season. During these seasons, both clubs have a positive transfer market balance but still manage to invest to purchase players.

The fourth class (C4) includes 22 observations. C4 has massive international purchases (€46.57 million) and also sent 2.54 players on outgoing loans to international clubs. It may explain their strongly negative gross operating income (€-31.202 million), although their negative profits are not strongly superior in absolute value to C3 (€-4.901 million). C4 is consistent with a win maximiser behaviour. Only one club from the strategic group 2 in Ligue 1 is in C4, the other clubs being all from the strategic group 1 in Ligue 1. This observation is Nice in 2016-2017. It can be explained by a specific context. Indeed, Nice was purchased in the 2016 summer by a duo of Sino-American investors. During that year, they tripled their fixed assets from €4.2 million in 2015-2016 to €13 million in 2016-2017. Then, the club qualified for the Europa League in 2016-2017, performing very well in the Ligue 1. This resulted in additional TV rights revenue. For these reasons, the club spent more money in the transfer market but also in payroll, jumping from €31.6 million to €49.9 million from 2015-2016 to 2016-2017.

The four classes resulting from the K-means classification are analysed further to verify their contingency with the strategic groups formulated by the DNCG (Table 3).

[Insert here: Table 3]

Results show an important contingency: C1 is composed by 78% of observations from Ligue 2; C2 is composed by 89% of observations of Ligue 1; C3 is composed mostly by observations from Ligue 1, in particular from its second strategic group but also for 41% by observations from its first strategic group; and C4 is almost exclusively composed by observations from the first Ligue 1 strategic group. The only two

1 exceptions (OGC Nice 2016-2017 and AS Monaco 2012-2013) can be explained by the
2 arrival of new owners, as developed previously for OGC Nice. For AS Monaco, Dmitry
3 Rybolovlev bought the club in the middle of the 2011-2012 season when it was at the
4 very last position in the Ligue 2 and began his investments at the same time, i.e. during
5 the 2011-2012 winter transfer window. His first full season as owner was in 2012-2013,
6 corresponding to the only presence of an observation from Ligue 2 for C4.

7 It appears that belonging to the highest strategic group (mostly group 1 in Ligue 1)
8 permits different strategic choices. Indeed, we have observations for the clubs from the
9 first strategic group, both in Ligue 1 or Ligue 2, in all four classes. This may indicate
10 the range of choices available for this type of clubs. By contrast, a lower strategic group
11 means a more limited number of classes with at least one observation. For the clubs
12 corresponding to the lower strategic groups, this may illustrate the idea of partially
13 constrained strategy, “between determinism and free choice” (Mintzberg & Waters,
14 1985, p. 268).

15 **Discussion and conclusion**

16 This research aimed to measure the determinants of strategic choices in French
17 football, with an emphasis on coopetitive strategies in addition to cooperation and
18 competition. Using strategic groups, this research goes further compared to previous
19 research on coopetition in general since, to our knowledge, it is the first study to
20 combine the study of coopetition and strategic groups. The taxonomy identified with the
21 K-means classification demonstrates a variety of strategies related to cooperative,
22 ‘coopetitive’ and competitive behaviours. The K-means classification indicates that
23 clubs with low revenues tend to use incoming loans extra (mostly from higher division)
24 as a recruitment strategy. This enables to constitute a team with low or zero transfer
25 investment and, therefore, to limit the extent of the financial losses. Nevertheless, it

1 does present a risk since it is highly negatively correlated with sporting performance
2 (SPI). These teams are probably not able to choose another strategy without accepting a
3 higher financial risk given their limited resources, consistent with the idea of the
4 contingency of strategic choices.

5 Our research contributes to an understanding of the different strategies and
6 behaviours adopted by the different clubs, instead of assuming a single strategy and
7 behaviour for all of them. For the sake of modeling, the leagues are often considered as
8 entities with clubs sharing similar behaviours. However, Zimbalist (2003) identified that
9 clubs follow different objectives. It is in line with a direction first explored by Rascher
10 (1997) who modelled multiple objectives within a league. Since then, few researches
11 have attempted to further develop this direction, some exceptions being Terrien and
12 Durand (2017) who also modelled the multiple objectives. Terrien et al. (2017) also
13 identified them empirically and found that objectives can be different from one club to
14 another but also for a given club from one season to another. Our taxonomy also brings
15 evidence of different club strategies and behaviours, while providing a more nuanced
16 understanding through the use of the coopetition concept that enables to identify the
17 relationships between clubs and discuss the contingency of strategic choices.

18 In a context where player transactions are more and more scrutinized by the
19 regulatory authorities (UEFA, FIFA), this research may inform the potential
20 consequences that some teams could face. FIFA has recently released a project that
21 would limit the number of outgoing loans if they are conducted for ‘commercial
22 exploitation’⁵. Such reforms could put more pressure on teams that use or depend on

⁵ “Development of the regulation of loans of players for the purpose of youth development as opposed to commercial exploitation. The number of loans per season and between each club shall be limited and bridge transfers and sub-loans shall be prohibited” (FIFA, 2018).

loans (e.g. Chelsea FC has 40 players on loans in 2018-2019). Our research may help identify which clubs would be the most likely to suffer from that regulation.

Our research can also inform the recurrent debate about the creation of a European Superleague with the richest clubs in football (Scelles, 2017; Scelles, Durand et al., 2016). The potential relationships between the richest clubs taking part in the Superleague and the other clubs in their respective domestic leagues may be enlightened by our results on the different types of strategy, especially regarding player transactions. On a broader perspective, the approach combining coopetition and strategic groups could be extended to other sports and other sectors to analyse strategic choices.

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Tables

Table 1

Variables and strategies

Variables/Strategies	Competition		Cooperation	
	Sporting competition	Economic competition	Sporting cooperation	Economic cooperation
Payroll		✓		
Sponsorship and advertising revenues		✓		
Broadcasting rights (TV rights)		✓		
Presence in the board of administrators (BA)			✓	✓
Sports performance index (SPI)	✓			
UEFA coefficient	✓			
Profits		✓		
Assets		✓		
Fixed Assets		✓		
Gross operating income		✓		
Purchases intra group	✓			✓
Sales intra group		✓	✓	
Purchases extra group	✓			✓
Sales extra group		✓	✓	
Purchases international	✓			
Sales international		✓		
Incoming loans intra group			✓	
Outgoing loans intra group			✓	
Incoming loans extra group			✓	
Outgoing loans extra group			✓	
Incoming loans international	✓			
Outgoing loans international	✓			

Table 2

K-Means centroid

Class	Unit	C1	C2	C3	C4
Purchases intra group	Thousands €	19	389.95	3064.81	2590.90
Purchases extra group	Thousands €	271.15	2629.41	7822.12	14931.81
Purchases extra group same division	Thousands €	89.52	1454.41	6212.03	13250
Purchases extra group lower division	Thousands €	139.62	1170.09	1591.57	1400
Purchases extra group higher division	Thousands €	42.00	4.90	18.51	281.81
Purchases international	Thousands €	189.03	2852.34	6267.59	46570.90
Purchases big 4 leagues	Thousands €	11.80	378.43	2220.37	30606.81
Purchases international other than big 4 leagues	Thousands €	177.23	2473.91	4047.22	15964.09
Sales intra group	Thousands €	24.6	498.52	1244.90	3211.36
Sales extra group	Thousands €	1150.12	4073.52	5420.37	2209.09
Sales.extra group same division	Thousands €	282.52	3805.88	4925	2050
Sales extra group lower division	Thousands €	23.4	98.03	115.74	90.90
Sales group extra higher division	Thousands €	844.2	169.60	379.62	68.18
Sales international	Thousands €	562.06	5442.51	13908.05	28506.59
Sales big 4 leagues	Thousands €	256.72	3443.77	10762.22	25690
Sales international other than big 4 leagues	Thousands €	300.94	1998.74	3145.83	2816.59
Incoming loans intra group	Player(s)	0.04	0.06	0.05	8.0743E-17
Incoming loans extra group	Player(s)	1.74	0.62	0.31	0.18
Incoming loans extra group same division	Player(s)	0.42	0.49	0.16	0.13
Incoming loans extra group lower division	Player(s)	0.06	0.05	0.05	0.04
Incoming loans extra group higher division	Player(s)	1.28	0.08	0.09	-1.413E-16
Incoming loans international	Player(s)	0.50	0.71	1.07	0.68
Incoming loans big 4 leagues	Player(s)	0.15	0.26	0.62	0.27
Incoming loans other than big 4 leagues	Player(s)	0.35	0.46	0.46	0.40
Free agent arrivals	Player(s)	7.64	2.91	1.87	0.72
Outgoing loans intra group	Player(s)	0.03	0.07	0.01	0.09
Outgoing loans extra group	Player(s)	1.26	2.45	3.59	2.68
Outgoing loans extra group same division	Player(s)	0.18	0.28	1.14	1.45
Outgoing loans extra group lower division	Player(s)	1.00	2.16	2.40	1.18

Outgoing loans extra group higher division	Player(s)	0.07	0.009	0.03	0.04
Outgoing loans international	Player(s)	0.30	1.17	1.74	2.54
Outgoing loans big 4 leagues	Player(s)	0.02	0.20	0.31	1
Outgoing loans intl other than big 4 leagues	Player(s)	0.28	0.97	1.42	1.54
Payroll	Thousands €	8995.29	26144.47	53535.11	114542.18
Sponsoring & advertising	Thousands €	2559.57	6383.16	14099.57	45504.77
Presence in the board of administrators	Representatives ⁶	0.16	0.30	0.51	0.68
Sport Performance Index	Points/game	1.28	1.27	1.57	1.99
UEFA coefficient	UEFA points	179.41	1680.87	5860.66	14977.27
Profits	Thousands €	-397.70	-639.15	-4349.62	-4901.13
Assets	Thousands €	8167.08	29965.27	77777.66	377694.90
TV rights	Thousands €	7204.56	22064.72	40716.83	73509.63
Gross operating income	Thousands €	-2186.62	-7938.36	-18852.88	-31202.77
Fixed assets	Thousands €	2499.38	6129.31	14188.03	92156.45
Sum of weight	Observations	250	102	54	22
Intra-class variance		114229018	468109506	3790483507	6.277E+10

⁶ The presence of a representative is simply counted as 1 and the absence of representative as 0.

Table 3

Contingency table of Ligue 1 (L1) and Ligue 2 (L2) strategic groups from DNCG report (G1 to G5) compared to K-Means classification (C1 to C4)

	Ligue 1					Ligue 2					Observations
	G1	G2	G3	G4	G5	G1	G2	G3	G4	G5	
C1	1	4	23	22	4	39	51	69	30	7	250
C2	2	23	52	11	4	5	3	1	1	0	102
C3	22	26	2	0	0	3	0	1	0	0	54
C4	20	1	0	0	0	1	0	0	0	0	22
Total	44	54	77	33	8	48	54	70	31	7	428

Figures

Figure 1

PCAs biplot representation of variables and observations

