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Win and Profit Maximization in Brazilian Football Clubs: The Dilemma

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Resumo/Abstract

The financial constraints in football clubs' budgets are essential to indicate how much can be invested in playing talent. Whether the club maximizes profit or wins is a meaningful discussion since the latter could have a softer budget limitation. Therefore, this study analyzes the performance strategies of Brazilian football clubs and their financial constraints. We also include identifying productivity and demand shocks, defined as the gap between the actual sporting and financial performances and what the club might have expected at the beginning of the season. Our sample comprises 32 Brazilian football clubs that disputed the Brazilian Championship first division between 2011 and 2019. Our results indicated that different proxies, when calculating the profit measures, present different scenarios. Considering the operating profit or loss, most clubs operate in a profit maximization scenario. However, when using EBIT and net income as proxies, most clubs operate under a win maximization scenario. Our demand and productivity models indicate that most shocks occur in a win maximization scenario. Our main contribution is to shed light on the Brazilian football scenario and the significance when choosing profit measures.

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Abstract: The financial constraints in football clubs' budgets are essential to indicate how much can be invested in playing talent. Whether the club maximizes profit or wins is a meaningful discussion since the latter could have a softer budget limitation. Therefore, this study analyzes the performance strategies of Brazilian football clubs and their financial constraints. We also include identifying productivity and demand shocks, defined as the gap between the actual sporting and financial performances and what the club might have expected at the beginning of the season. Our sample comprises 32 Brazilian football clubs that disputed the Brazilian Championship first division between 2011 and 2019. Our results indicated that different proxies, when calculating the profit measures, present different scenarios. Considering the operating profit or loss, most clubs operate in a profit maximization scenario. However, when using EBIT and net income as proxies, most clubs operate under a win maximization scenario. Our demand and productivity models indicate that most shocks occur in a win maximization scenario. Our main contribution is to shed light on the Brazilian football scenario and the significance when choosing profit measures.

Keywords: Win Maximization; Profit Maximization; Brazilian Football Clubs

1. INTRODUCTION

Sloane (1971), in his seminal paper, proposes England football clubs as utility maximizers. In oppose to baseball (Rottenberg, 1956), which would maximize profits, he suggested that European football clubs aim to maximize their wins in the field. This is still an ongoing debate in the literature (Garcia-del-Barrio & Szymanski, 2009; Késenne, 2006; Terrien et al., 2017). Authors analyze different sports and championships around the world, indicating which performance (i.e. sports or economic) clubs aim to maximize. However, it seems to be clear that most European clubs have soft budget constraints and aim to maximize wins in contrast to North American sports that intend to maximize profits (Sloane, 2006, 2015).

Andreff (2007) proposes a subdivision in the win maximization path of French football clubs. He argued that the financial problems in the French leagues were caused by lax financial management and a soft-budget constraint. Therefore, even in a win maximization path, the clubs would have a budget constraint. Clubs with hard-budget restrictions would limit the investment in playing talent as opposed to soft-budget ones. Players have an essential impact and sporting performance is determined by their quality (S. Leach & Szymanski, 2015; Scafarto & Dimitropoulos, 2018; Szymanski & Smith, 1997). However, the win maximization strategy could not allow football clubs to not worry about financial performance.

In Brazil, since most clubs are structured as not-for-profit organizations (Dantas et al., 2015), they may maximize wins as it is an established pattern in the literature for European clubs (Sloane, 2015). European clubs, structured as for-profit companies, share a common problem with Brazilian football clubs. Insolvency in the European context is a major problem (Alaminos & Fernández, 2019; Scelles et al., 2018; Szymanski, 2017; Szymanski & Weimar, 2019). In Brazil, football clubs also have financial difficulties (Dantas et al., 2015, 2017). Therefore, the win maximization strategy with soft budget constraints could lead to Brazilian clubs' financial difficulties, such as insolvency, high leverage, and late wages payment. However, the debate about performance strategies demands a more robust basis.

Since 2010, in a more pronounced rhythm, the revenues of Brazilian clubs have been increasing. New Television rights agreements, which is the primary revenue source of Brazilian football clubs (Minatto et al., 2019), were signed. However, even with the increase in revenues, which could have led to profits and reduced debts, most clubs are in an insolvent situation (Dantas et al., 2015, 2017).

This discussion about performance strategies and financial constraints in sport opens a path to analyze in the Brazilian context, more specifically in football clubs. Therefore, this paper analyzes the performance strategies of Brazilian football clubs (i.e. Win or Profit maximization) and their financial constraints (i.e. soft and hard budget constraints). Our sample comprises 32 Brazilian football clubs that participated in the Brazilian Championship first division between 2011 and 2019.

Based on Terrien et al. (2017), we also include identifying productivity and demand shocks, defined as the gap between the actual sporting and financial performances and what the club might have expected at the beginning of the season. Productivity and demand shocks are used in sports literature to determine insolvency problems (Scelles et al., 2018; Szymanski & Weimar, 2019) and conjunctively analyze football clubs' strategies (Garcia-del-Barrio & Szymanski, 2009; Terrien et al., 2017).

Our results indicate that different proxies, when calculating the strategies measures, present different scenarios. Considering the operating profit or loss, most clubs operate in a profit maximization scenario. However, when using EBIT and net income as proxies, most clubs operate under a win maximization scenario. We propose that the EBIT and net income present a better scenario, since there are relevant expenses in the Brazilian context (e.g. financial expenses) that impact the income of Brazilian football clubs.

The demand and productivity models suggest that most shocks occur in a win maximization scenario. Finally, the results suggest a reversion of trend since most clubs operate in a win maximization strategy at the beginning of the decade and the latest years, there is a more balanced scenario.

Several papers were elaborated about the win and profit maximization in sports leagues since Sloane (1971). Fort (2015) indicates that the win and profit maximization debate is an essential avenue for sports economics. Moreover, Terrien et al. (2017) suggest that analyzing this theme with an organizational perspective is important in other leagues besides France. Football in Brazil is essential to society from a cultural perspective since it is in its roots. Also, it is an economic activity that provides direct and indirect jobs. Therefore, analyses that can give insights on clubs and the league can be helpful to regulators since they can better understand the economic incentives present in this context. Also, shedding light on the Brazilian football scenario and the significance when choosing profit measures is an intended contribution.

The remainder of the paper is organized as follows: The following section provides an overview of the related literature and the development of our research hypotheses. The third section presents the data selection procedure and the methodological framework. The fourth section provides the empirical findings of our paper. The final section presents the main conclusions, limitations, and potential future research directions.

2. LITERATURE REVIEW

2.1. Win and Profit Maximization

Competition in a league is a fundamental aspect of a sports environment. The higher the competition among clubs in a league, the more fans will feel attracted to it. Therefore, more revenues will be generated since monopoly in this market is not beneficial from a league perspective (Plumley et al., 2017). Moreover, as Rottenberg (1956) proposed, some uncertainty is critical to sporting competition to attract viewers.

It is argued (Kessenne, 2000; Szymanski, 2003) that European football clubs can be treated as win maximizers and American leagues, such as MLB (Baseball), NBA (Basketball), and NFL (Football) as profit maximizers. This has implications in the league design. For example, suppose profit maximizers share gate revenues (i.e. revenues derived from matchday). In that case, the incentive to invest in players is reduced since each club receives a smaller

marginal return on its investment. If win maximizers share revenues, spending incentives are not affected since teams are expected to spend all the money they receive (Garcia-del-Barrio & Szymanski, 2009). Therefore, before implementing policy prescriptions in a league is important to understand which objectives clubs in that league aim to maximize.

While North American teams attempt to maximize profits and most European football clubs operate under the maximization of playing success (Sloane, 2015), the empirical evidence about Brazilian football clubs has so far been scarce. The league in Brazil has a promotion and relegation system and most clubs are structured as not-for-profit organizations and the league, which could indicate that they would aim to maximize on-field wins over financial performance. Moreover, financial problems (Dantas et al., 2015, 2017) could suggest that clubs operate in soft budget constraints.

However, even as win maximizers, clubs would have a budget and breakeven constraints. Andreff (2007) proposed that the French leagues' financial problems were caused by lax financial management and a soft-budget constraint. Clubs with hard-budget restrictions would limit the investment in playing talent as opposed to soft-budget ones.

In the Brazilian football context, a formal analysis is yet to be done. However, Brazilian football clubs can be considered as win maximizers. The relegation and promotion system diminishes the possibility that clubs would maximize profits. How can a club maximize earnings if there is a possibility that reduced investment in players can lead to relegation? For example, in the American context, clubs have the certainty that they will play the same league next year. Brazilian football clubs, as European football clubs, do not have this guaranteed.

The promotion and relegation system can be considered a determinant of insolvency problems in clubs (Szymanski, 2017; Szymanski & Weimar, 2019). Since the investment in player talent is crucial to be in the same championship next year, clubs aim to maximize it. The maximization of these costs can bring sportive results in the short term at the expense of financial sustainability in the long term.

Another argument that can be drawn about Brazilian football clubs is that most of them are structured as nonprofit organizations. Since there is no single owner interested in maximizing profits, governance is a fundamental aspect of maintaining financial sustainability in the long term in football clubs. However, most Brazilian football clubs have structural problems (Rezende et al., 2010; Rezende & Dalmácio, 2015). As Andreff (2007) indicates, governance is a relevant factor since shareholders do not efficiently supervise managers in a weak corporate governance structure. Moreover, this appears to be a global problem in football, since European clubs, even structured as companies, present governance weakness (Andreff, 2007; Hamil et al., 2010).

Terrien et al. (2017) elaborated a framework to categorize clubs as profit or win maximizers each year. If operating profit relative to revenues is greater than 5%, that club would be categorized as a profit maximizer. If this ratio is lesser than this threshold, the club would be classified as a win maximizer. Therefore, clubs would not maximize wins or profits every year, but an adaptive strategy would be designed each year.

Moreover, Terrien et al. (2017) subdivided the win maximization category according to budget constraints. If the ratio is between a profit of 5% relative to revenues or a loss of the same percentage, the club would be categorized as a hard budget constraint. If this loss is greater than 5%, the club operated under a soft budget constraint.

2.2. Productivity and Demand Shocks

Productivity shocks can be identified by analyzing the players' wages and sports performance relationship. Wages are a proxy of playing talent and there is evidence that investment in talent is a predictor of sports performance (Mnzava, 2013; Scafarto & Dimitropoulos, 2018; Szymanski & Smith, 1997). Thus, when this relationship produces

negative or positive residuals, below or above certain threshold, there is an indication of an extraordinary performance. Positive residuals above a certain level can be defined as positive shocks and indicate overperformance. Negative residuals below a certain level are defined as adverse shocks and are a sign of underperformance.

Demand shocks, on the other hand, are analyzed in the revenues and financial performance relationship. Considering the level of revenues a club has each year, a certain amount of profit is expected. Therefore, when this relationship deviates from a pattern, it is an indication of a demand shock. Positive residuals above a certain level can be defined as positive shocks and indicate overperformance. Negative residuals below a certain level are defined as negative shocks and are a sign of underperformance.

Szymanski (2017) suggests that the probability of failure significantly increases when clubs experience a series of negative shocks. Moreover, shocks have financial implications that will appear in the short term as financial losses or lower profits. Thus, underperformance in the financial or sportive perspective can be a determinant of the insolvency of football clubs. He analyzed the influence of productivity and demand shocks in the bankruptcy of English football clubs. His results suggested that insolvency could be explained by the underperformance of the players or revenues falling below expected levels, also defined as negative productivity and demand shocks, respectively.

In the French context, Scelles et al. (2018) examined the causes and consequences of insolvencies. The authors structured demand shocks as the attendance of fans in the stadium. Their results suggested that negative demand shocks significantly increase the likelihood of insolvency. Moreover, the adverse consequences of insolvency are long-lasting when analyzing the post insolvency of clubs.

Also in the French context, Terrien et al. (2017) analyzed the strategies of football clubs over twelve years. The authors analyzed conjunctly win and profit maximization with budget constraints. Their results indicated that a team could switch from one strategy to another from year to year due to the stochastic nature of the sports industry.

Szymanski and Weimar (2019) analyzed the insolvency events in German football over a twenty-two seasons period (1994/95-2016/17). Their results indicated that deviations of actual team performance from the expected performance are crucial for insolvency risk. Also, these shocks frequently result in relegation to a lower tier of competition, which generates lower match attendance and revenues.

There is an observed caveat in the literature since we do not observe this discussion about Brazilian football clubs. We posit that the information needed to analyze this subject was limited. Since Brazilian clubs did not have an obligation to publish financial statements before 2011, most did not publish. Also, most clubs that published used to do it in newspapers that do not have online editions on their websites.

3. METHODS

The population of this study is composed of the 32 Brazilian football clubs that participated in the Brazilian Championship first division between 2011 and 2019. This Championship, in the first division, comprises 20 clubs yearly. However, since there is a promotion and relegation system, the worst four clubs in the year are relegated to the second division, while the four best teams of the second division are promoted. Since we need the financial statements of these clubs, we hand-collect them on the Brazilian football clubs' websites. If the financial statements are not available on their website, we use financial statements published in state football federations or newspaper websites. However, four clubs did not publish their accounting information in their website nor newspaper websites. Therefore, we could not have a balanced panel, which is a limitation. We do not have the information of Náutico in 2013, Chapecoense in 2014 and 2015, and CSA in 2019.

Concerning our main financial variables, the operating profit and revenues, we employ the definition of objectives used by Terrien et al. (2017) in French football clubs. According to their definition, the magnitude of the operating profit/loss scaled by total revenues defines the objective that club realized each year and it is considered preferable to the net financial result since the latter can be distorted due to exceptional income or expenditure. However, as a complementary analysis, given the context in Brazilian football, we also use the EBIT and Net Income measures as a complementary proxy related to operating profit/loss. Since there are relevant financial expenses among others, the scenario can change when considering this measure. In Table 1, we present the operationalization and definition of those possible objectives.

Table 1:

Financial Objectives and Operationalization

Objectives	Operationalization
Profit maximization under sporting constraint (i)	Relative operating profit is greater than 5% *
Win maximization under hard budget constraint (ii)	Relative operating profit / (loss) is between (5%) and 5% *
Win maximization under soft budget constraint (iii)	Relative operating loss is greater than 5% *

Source: Terrien et al. (2017). Note: * We also employ EBIT and net income as complementary measures.

Since we have specific characteristics in Brazilian football clubs, we need to adapt this classification. For example, revenues derived from the selling of players are considered in the extraordinary result in European clubs. However, in Brazil, this revenue is considered as ordinary revenue according to the legislation. Also, some clubs did not disclose the sources of revenues which would permit the calculus of the revenue without this source.

To measure the demand and productivity shocks we employ the econometric model proposed by Leach (2006) and applied by Terrien et al. (2017) in the French context. Those shocks measure the deviation from the expected sportive (productivity) and financial performance (demand) considering some variables. Therefore, if the econometric model predicts a value and the observed value is higher than the mean plus standard deviation (positive shock) or lower than the mean minus standard deviation (negative shock), this club will be analyzed more closely with descriptive analysis to understand what happened in that year.

We estimate the productivity function as exposed in equation 1 and the demand function as equation 2.

$$\Delta \ln p_{i,t} = \beta_0 + \beta_1 \ln p_{i,t-1} + \beta_2 \Delta \ln p_{i,t-1} + \beta_3 \ln \text{rel } w_{i,t-1} + \beta_4 \Delta \ln \text{rel } w_{i,t} + \text{promotion} + \varepsilon_{i,t} \quad (1)$$

$$\Delta \ln \text{relrev}_{i,t} = \alpha_0 + \alpha_1 \ln \text{rel } rev_{i,t-1} + \alpha_2 \Delta \ln \text{rel } rev_{i,t-1} + \alpha_3 p_{i,t} + \alpha_4 \Delta \ln p_{i,t} + \text{promotion} + \eta_{i,t} \quad (2)$$

$\ln p$ is the log odds position ($-\ln(P/(45-P))$) of team i during season t , with 45 being the worst ranking in $t-2$ (4th of the third division) plus one. $\text{rel } w$ is the club operating costs divided by the sum of the operating costs for all clubs in that season. Compared to other studies (e.g. Terrien et al., 2017), we adapt this variable because most Brazilian clubs did not disclose wages in that period. Therefore, we change the proxy to measure the costs incurred by a club scaled by the sum of costs of all clubs in that year. This is a limitation of our work compared to what is discussed in the literature and therefore reduces the comparability with their results. Promotion is a dummy variable that assumes one if the club is promoted in that year to the first division and zero otherwise. $\text{rel } rev$ is the total revenues of a club divided by the sum of the revenues of all clubs in that season. We use 179 observations in the 2011-2019 period to

estimate our models. However, since we need two years before to estimate lagged variables, our demand (productivity) model is estimated with 136 (155) club-years observations. We estimate with club fixed effects and also as a pooled regression as employed in Terrien et al. (2017) and Garcia-del-Barrio and Szymanski (2009).

Finally, to analyze the demand and productivity shocks derived from our models, we based on the Terrien et al. (2017) criteria. Negative shocks are defined as when the residual from the regression is lower than the mean minus the standard deviation. On the other hand, positive shocks are defined as when the residual from the regression is higher than the mean plus the standard deviation. When the residual is between this interval, no shock is identified, and the performance is interpreted as "expected performance".

4. RESULTS

Descriptive statistics

Table 2 presents the descriptive statistics of economic variables, the mean position in the first division Brazilian Championship and the number of participations in the first division in the period.

Table 2:
Economic Variables

Club	Mean Revenue	Mean OP.	Mean OP./Rev.	Mean EBIT	EBIT/Rev.	Mean Position	N
América MG	\$ 46.618.977	\$ 15.818.164	34%	\$5.186.046	11%	19	3
Athletico PR	\$142.120.741	\$ 27.585.195	19%	\$25.751.147	18%	8	8
Atlético GO	\$ 32.597.521	-\$90.554	0%	-\$3.880.300	-12%	17	3
Atlético MG	\$236.771.407	\$ 43.531.997	18%	\$15.749.310	7%	7	9
Avaí	\$ 49.075.373	\$ 10.570.978	22%	\$252.586	1%	19	4
Bahia	\$ 96.634.714	\$ 19.911.857	21%	-\$ 22.337.571	-23%	13	7
Botafogo	\$160.882.528	\$ 50.796.647	32%	-\$ 32.621.831	-20%	10	8
Ceará	\$ 81.432.310	\$ 5.751.675	7%	\$5.751.676	7%	16	3
Chapecoense	\$ 64.074.426	-\$1.613.677	-3%	-\$ 12.562.497	-20%	14	6
Corinthians	\$346.868.000	\$ 55.482.222	16%	\$31.765.667	9%	6	9
Coritiba	\$ 81.480.297	\$ 25.153.868	31%	-\$4.319.495	-5%	13	7
Criciúma	\$ 44.139.699	\$ 13.624.175	31%	\$4.277.571	10%	17	2
Cruzeiro	\$244.527.922	\$ 12.904.183	5%	-\$ 28.177.527	-12%	9	9
Figueirense	\$ 48.406.053	\$ 8.246.899	17%	\$578.957	1%	15	5
Flamengo	\$431.700.545	\$119.649.974	28%	\$71.531.086	17%	7	9
Fluminense	\$195.702.444	\$ 54.840.333	28%	\$13.984.000	7%	10	9
Fortaleza	\$108.600.138	\$ 39.202.530	36%	\$5.377.125	5%	9	1
Goiás	\$ 72.236.094	\$ 31.065.289	43%	\$13.511.220	19%	12	4
Grêmio	\$238.609.778	\$ 46.785.333	20%	\$32.816.411	14%	5	9
Internacional	\$265.371.120	\$ 78.392.025	30%	\$9.715.802	4%	8	8
Joinville	\$ 40.266.389	\$ 10.822.748	27%	\$2.620.290	7%	20	1
Náutico	\$ 42.791.902	\$ 31.038.928	73%	-\$41.366	0%	16	2
Palmeiras	\$407.479.125	\$121.118.375	30%	\$47.062.000	12%	8	8
Paraná	\$ 48.670.000	\$ 24.274.000	50%	\$9.944.000	20%	20	1
Ponte Preta	\$ 52.563.127	\$ 5.235.685	10%	-\$2.928.582	-6%	14	5
Portuguesa	\$ 36.592.000	\$ 8.088.000	22%	-\$4.244.500	-12%	16	2
Santa Cruz	\$ 36.854.071	\$ 5.671.616	15%	-\$3.717.270	-10%	19	1
Santos	\$235.279.667	\$ 75.679.667	32%	\$6.829.222	3%	6	9
São Paulo	\$344.969.111	\$ 73.145.333	21%	-\$4.969.444	-1%	7	9
Sport	\$ 93.746.766	\$ 29.463.479	31%	\$5.709.689	6%	13	6
Vasco	\$179.551.367	\$104.835.276	58%	\$36.571.963	20%	11	7
Vitória	\$ 80.216.275	\$ 16.802.351	21%	\$25.508.346	32%	15	5

Note: OP. = Operating Profit or loss; Rev. = Revenue; Mean Position = Mean position in the first division Brazilian Championship; N = Number of participations in the first division in the period.

There is heterogeneity among clubs since some clubs present positive operating profit and EBIT (e.g. América MG, Athletico PR, and Avaí) and Chapecoense incurred in accumulated losses in both. Moreover, some clubs present one positive measure and the other as a negative value (e.g. Bahia and Botafogo).

When analyzing the volume of revenues there is also heterogeneity among clubs. Flamengo and Palmeiras presented the highest values, whereas Atlético GO and Portuguesa the lowest. The majority of revenues is earned from the television source (Minatto et al., 2019) and only recently this revenue started to be more balanced. Since 2019 the revenues from television started to be shared considering the sportive performance, audience in games, and an equal amount for every team. This division could stimulate the competitive balance in the league and could promote more disputed games (Kesenne, 2000).

The ratios of operating profit or loss and EBIT demonstrate that some clubs have significant expenses that reflect the difference among measures. Also, this reflects different ways to calculate the operating profit and EBIT among clubs. For example, Náutico presents an expressive operating profit and a negative EBIT. This could express that the club allocated some important expenses outside the operating profit. We could not calculate a standard measure for every club because most of them do not disclose accordantly. In 2011 and 2012, especially, most Brazilian clubs published synthetic financial statements that could not permit who analyzed a profound assessment.

As shown in Table 3, the objectives alter since we change the measure. We use three measures because if we use only one measure the results could differ significantly. If we consider operating profit, we could infer that most Brazilian football clubs operate in a profit maximization strategy. However, we think EBIT and Net Income give better proxies to measure their strategies.

Considering Net Income, most clubs operate in a Win maximization strategy with soft budget constraints or hard budget constraints. The difference between EBIT and Net Income is especially related to the financial result since football clubs as nonprofit organizations do not pay any taxed based on profit. Moreover, most clubs have significant negative financial results in the period. This relates to the insolvency scenario, given insolvent clubs need loans to pay current expenses and enter in a negative path, in which year after year the club needs more loans and the risk reflected in the interest expense elevates.

Analyzing panel B, clubs present more profit maximization strategies in the latest years. In the beginning of the analyzed period, most clubs operated in the win maximization strategy. This could be explained by the government implementing a law (13.155/2015, known as PROFUT law) that limits losses to renegotiate debts.

In the French context, Terrien et al. (2017) suggested a more balanced strategy among clubs, since there was almost one-third of clubs per strategy. This difference could be explained since most clubs in France are structured as companies and the owners do not permit a win maximization strategy every year, especially with soft budget constraints.

Table 3:
Clubs' Objectives and budget constraints

Panel A: Objectives per club										
	Operating Profit (Loss)			Wm Soft	EBIT			Wm Soft	Net Income	
	WM Soft	WM Hard	PM		WM Hard	PM	WM Hard		PM	
América MG	0	0	3	0	2	1	1	1	1	
Athletico PR	2	0	6	1	0	7	2	0	6	
Atlético GO	1	0	1	1	0	1	1	0	1	
Atlético MG	1	1	7	2	1	6	6	3	0	
Avaí	1	0	3	2	0	2	1	1	2	
Bahia	1	0	6	3	0	4	4	3	0	
Botafogo	1	1	6	4	0	4	7	0	1	
Ceará	0	0	2	0	0	2	0	1	1	
Chapecoense	2	0	4	2	2	2	2	1	3	
Corinthians	1	2	6	2	3	4	3	4	2	
Coritiba	1	0	6	3	2	2	7	0	0	
Criciúma	0	0	2	0	1	1	0	1	1	
Cruzeiro	1	1	7	4	4	1	8	0	1	
Figueirense	0	0	5	3	0	2	3	2	0	
Flamengo	0	0	9	2	0	7	3	0	6	
Fluminense	1	0	8	2	3	4	3	5	1	
Fortaleza	0	0	1	0	1	0	0	1	0	
Goiás	0	0	4	1	0	3	1	1	2	
Grêmio	0	1	8	1	3	5	4	2	3	
Internacional	0	0	8	2	2	4	2	5	1	
Joinville	0	0	1	0	0	1	0	1	0	
Náutico	0	0	2	0	2	0	0	2	0	
Palmeiras	0	0	8	0	3	5	2	3	3	
Paraná	0	0	1	0	0	1	0	0	1	
Ponte Preta	1	1	3	2	2	1	2	3	0	
Portuguesa	0	0	2	1	0	1	1	1	0	
Santa Cruz	0	0	1	1	0	0	1	0	0	
Santos	0	0	9	4	0	5	4	2	3	
São Paulo	1	0	8	3	1	5	3	5	1	
Sport	0	0	6	2	2	2	4	1	1	
Vasco	0	0	7	1	0	6	1	4	2	
Vitória	1	0	4	0	4	1	0	4	1	
Total	16	7	154	49	38	90	76	57	44	

Panel B: Objectives per year										
Proxy	Strategy	2011	2012	2013	2014	2015	2016	2017	2018	2019
OP	WM Soft	2	2	2	2	2	0	2	1	3
	WM Hard	2	0	0	0	1	0	2	1	1
	PM	14	18	18	18	17	20	16	18	15
	Total	18	20	20	20	20	20	20	20	20
EBIT	WM Soft	9	7	8	8	5	1	4	3	4
	WM Hard	4	2	4	6	6	4	4	6	2
	PM	5	11	8	6	9	15	12	11	13
	Total	18	20	20	20	20	20	20	20	20
NI	WM Soft	12	8	11	13	8	4	8	7	5
	WM Hard	6	8	7	3	5	8	4	8	8
	PM	0	4	2	4	7	8	8	5	6
	Total	18	20	20	20	20	20	20	20	20

Note: WM = Win Maximization; PM = Profit Maximization; OP. = Operating Profit or loss; NI = Net Income.

Models

Table 4 reports the models' results. We estimate both models with pooled data and club fixed effects similar to Terrien et al. (2017) and Garcia-del-Barrio and Szymanski (2009).

Concerning the results in the Demand model with fixed effects, both measures related to revenues had a negative signal. On the other hand, as expected, both measures that reflect sportive performance had a positive impact. Both the position in the last Championship, the variation of positions, and the promotion to a higher division positively impact the variation of revenues. Our pooled model could explain approximately 44% of the variation on the dependent variable, which is almost half compared to Terrien et al. (2017) results. On the other hand, the fixed effects model could explain a higher percentage of the variation which is aligned to Terrien et al. (2017) results.

Table 4:

Demand and Productivity econometric models

	Demand		Productivity	
$\ln \text{rel rev}_{i,t-1}$	-1.049*** (0.216)	-0.254*** (0.062)		
$\Delta \ln \text{rel rev}_{i,t-1}$	0.006 (0.079)	-0.273*** (0.038)		
$\ln p_{i,t-1}$	0.125*** (0.033)	0.179*** (0.044)	-0.925*** (0.226)	-0.859*** (0.194)
$\Delta \ln p_{i,t}$	0.036 (0.027)	0.070* (0.038)		
$\Delta \ln p_{i,t-1}$			0.037 (0.159)	-0.003 (0.136)
$\ln \text{rel } w_{i,t-1}$			0.142 (0.240)	0.707*** (0.114)
$\Delta \ln \text{rel } w_{i,t}$			0.627 (0.354)	0.751*** (0.228)
Promotion dummy	-0.040 (0.055)	0.191*** (0.044)	0.361 (0.190)	0.323 (0.203)
Constant		-1.042*** (0.262)		3.469*** (0.628)
Club Fixed Effects	Yes	No	Yes	No
Observations	136	136	155	155
R ²	0.695	0.441	0.572	0.512
Adjusted R ²	0.588	0.420	0.442	0.496
Residual Std. Error	0.213 (df = 100)	0.253 (df = 130)	0.804 (df = 118)	0.764 (df = 149)

Note: In parenthesis, robust standard errors clustered on club and year.

Concerning the results about the productivity model, in the pooled model, the lagged operating costs proxies had a positive effect on the current operating costs as expected. On the other hand, the lagged sportive performance had a negative effect. This implies that clubs with better positions in the last Championship tend to invest less in the current Championship. Concerning the model explanatory power, the results lower but similar compared to Terrien et al. (2017).

Shocks

When the residual of the fixed effects model is higher (lower) than the mean residual plus (minus) standard deviation we interpret as an unexpected result. Residuals from the demand model are considered demand shocks and residuals from the productivity model as productivity shocks (Szymanski & Weimar, 2019; Terrien et al., 2017). Table 5 reports the

demand and productivity shocks and compare them to the strategy in that year. Moreover, we segregate the strategies in the three proxies analyzed in this study. As shown in Table 5, we have 13 negative shocks and 17 positive shocks in the demand model. In the productivity model we have 18 negative shocks and 25 positive shocks.

Considering the demand shocks and the net income proxy, most negative shocks are related to win maximization strategies. Therefore, clubs that maximize sportive performance do not have the expected financial performance when analyzing the extraordinary residuals, according to our model. Concerning the positive shocks, most of them occur under a profit maximization strategy. Thus, clubs that operate in a profit maximization strategy overperformed what was expected according to the model.

Table 5:

Demand and Productivity shocks

Proxy	Strategy	Demand			Productivity		
		Negative Shock	Positive Shock	No Shock	Negative Shock	Positive Shock	No Shock
OP	WM Soft	4	0	8	1	2	10
	WM Hard	0	0	5	0	1	4
	PM	9	17	93	17	22	98
	Total	13	17	106	18	25	112
EBIT	WM Soft	5	2	26	10	11	63
	WM Hard	1	6	23	4	5	23
	PM	7	9	57	4	9	26
	Total	13	17	106	18	25	112
NI	WM Soft	8	4	44	7	12	44
	WM Hard	3	4	34	8	7	33
	PM	2	9	28	3	6	35
	Total	13	17	106	18	25	112

Note: OP = Operating Profit or loss; NI = Net Income; WM = Win Maximization; PM = Profit Maximization.

Most negative shocks are related to win maximization strategies when considering the productivity shocks and the net income proxy. This is counterintuitive at first sight, but we must remember that our measure of win maximization is measured as a financial proxy. Therefore, clubs that maximize sportive performance do not have the expected sportive performance when analyzing the extraordinary residuals, according to our model. Thus, this reflects that even investing more in these clubs' sportive performance did not meet the expectations. Moreover, when analyzing the positive shocks, most occurred in clubs with win maximization strategies, as expected. This implies that these clubs overpassed the predicted results according to our models, indicating overperformance and efficiency in allocating resources.

5. CONCLUSIONS

This study analyzed the performance strategies of Brazilian football clubs and their financial constraints based on 32 Brazilian football clubs that participated in the Brazilian Championship first division between 2011 and 2019. We also identified the gaps between the actual sporting and financial performances and what the club might have expected at the beginning of the season based on Terrien et al. (2017).

The results suggested that clubs present variability in their strategies since most of them change between win and profit maximization over the years. There is also variability among the metrics employed to analyze the strategies. Since the disclosure of clubs did not follow a pattern, the comparability of operating profit is reduced. Also, some clubs have a social structure, and these costs can influence the operating profit if the disclosure is not done segregating those activities. We think clubs could improve their disclosure in the notes of

financial statements and provide analytical data, supplying the information needed to calculate standard measures among clubs.

EBIT and Net income are more comparable measures among clubs since there is less variability among them in their calculus. The financial result is important for Brazilian football clubs since most of them have financial difficulties and disclose a high negative financial result, primarily because of high interest rates that the debts are committed. Most clubs present a win maximization strategy under a soft budget constraint according to the net income measure. On the other hand, when analyzing the operating profit, most clubs present a profit maximization strategy. Thus, it is important to consider the financial result of Brazilian clubs, especially in higher leveraged teams.

We aim to contribute to the extensive literature about strategies of sportive entities (Fort, 2015; Sloane, 1971), especially providing evidence about the context in Brazil, since there is a need to investigate Brazilian football clubs. Brazilian football clubs are recognized for their titles and players but need to improve the disclosure of financial statements. Thus, the scarce literature about them in the economic context is derived from the lack of management controls and corporate governance, especially transparency of information.

This study has several limitations. First, we only analyzed the Brazilian context of the first division since there are limitations on data availability of lower divisions. Also, we could not analyze the years before 2011 since most clubs did not publish financial statements before that year. Therefore, our conclusion is limited to the context of the 2010 decade for first division clubs. Second, we could not use salary costs as Terrien et al. (2017) employed since most clubs did not publish this information. Finally, criteria used to determine operating profit can vary among clubs since we depend on their disclosure and there is no pattern to publish the financial statements.

Future research can investigate the consequences of productivity and demand shocks in the insolvency of Brazilian football clubs, as analyzed in French, German and English contexts (Scelles et al., 2018; Szymanski, 2017; Szymanski & Weimar, 2019). Moreover, the analysis of predicted sportive position in the Championship as explored in Garcia-del-Barrio & Szymanski (2009) could be insightful in the Brazilian context.

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