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Corporatization And Performance In Brazilian Football: An Econometric Assessment Of The SAF Model

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Abstract:
This study investigates the relationship between financial variables and the sporting performance of Brazilian football clubs that competed in Série A of the Brasileirão, through multiple regression using panel data for the 2013-2024 period. The econometric analysis was conducted across five regression models that examined the relationship between financial indicators and the clubs' sporting performance. The results indicate that traditional financial indicators, such as revenues, indebtedness, and deficit/surplus, exert a limited influence on both the National Club Ranking and the final position in the Brazilian Championship. Only proportional investment in the football department showed a statistically significant effect, suggesting that competitiveness derives mainly from the capacity for technical investment. The adoption of the Football Corporation (SAF) regime showed no measurable impact in the short term.

Keywords: *Football Corporation (SAF); Economic performance; Panel data regression.*

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I. Introduction

Among the sports practiced in Brazil, professional football moves the largest volume of financial resources, concentrating revenues from broadcasting rights, sponsorships, ticketing, supporter-member programs, and player transactions [1].

Transactions involving players, in both the domestic and international markets, show that Brazilian football remains a protagonist of the sport, exerting significant influence on the economic landscape of football and maintaining a prominent position as a developer and exporter of talent to the world's leading leagues [2-7].

Brazil led the world in the financial value of transfer transactions in 2023, generating approximately USD 591.5 million in revenue from international operations, which placed the country among the five largest earners in this segment in 2024. This dynamism in the player market contributes significantly to the economic relevance of the sector, which reached a historic record of R$ 10.2 billion in revenue among Série A clubs in 2024 [3,5,8,9].

Throughout its history, football has been played within non-profit sporting associations, the model predominantly adopted by the professional clubs that compete in Série A of the Brasileirão. This format proved efficient for decades, especially with respect to sporting performance and the construction of local and regional identities. As these sporting organizations grew, new management challenges arose alongside increasing economic, regulatory, and competitive demands, revealing structural limitations of the traditional model, which became inadequate to meet contemporary standards of governance, professionalization, and financial sustainability in the sports sector [2].

The Zico Law was the first relevant regulatory milestone aimed at modernizing sports management in Brazil, inaugurating a transition phase between the associative model of clubs and the possibility of creating a for-profit legal entity. The law sought to establish principles of administrative rationalization and transparency by allowing sporting entities to organize as companies, permitting clubs to structure themselves as private-law legal entities with economic purposes [10].

Subsequently, the Pelé Law deepened and systematized the transformations initiated by the Zico Law. Its main objective was to bring greater rationality to the management of club squads, with transparency and professionalization in the management of sporting entities, aligning them with contemporary principles of governance and financial sustainability [11].

Later, PROFUT established principles of fiscal responsibility, financial balance, and transparency in club management. The law created the Program for the Modernization of Management and Fiscal Responsibility of Brazilian Football (PROFUT), whose objective was to promote more efficient administrative practices, granting tax benefits and special debt-installment conditions in exchange for the adoption of internal control mechanisms, labor and social-security compliance, and transparency [12].

More recently, the Football Corporation Law was designed as a comprehensive and institutionally structured legal solution to address the financial and organizational crisis that historically affects a large share of Brazilian clubs. Unlike previous rules, which merely permitted the adoption of already-existing corporate models, the SAF Law establishes a specific corporate regime, with rules tailored to the economic reality of professional football, including mechanisms to protect the identity and interests of the original association and its stakeholders [13].

The possibility of transforming the club into a corporation, together with the separation between the sporting department and the original civil association, seeks to reduce the influence of political and associative decisions on football management. The corporate structure allows, in theory, for professionalization and decision-making autonomy, distancing the internal conflicts, power disputes, and electoral cycles characteristic of traditional associative entities.

The phenomenon of "corporatization," understood as the incorporation of typical market practices into sporting associations, represents a relevant structural change in the way football clubs came to organize their management, economic activities, and sustainability strategies. This transformation implies the adoption of professional management methods, stricter control mechanisms, long-term financial planning, and a business logic oriented toward efficiency, competitiveness, and the attraction of investment [14-16].

The objective of this article is to analyze the relationships between the sporting and economic performance of football clubs in Brazil between 2013 and 2024, adopting as a dummy variable the existence, or not, of transformation into a football corporation. To this end, it seeks to identify the effect of SAF adoption on sporting and financial performance variables.

The first section of the article presents the theoretical foundation underpinning the research. The second describes the methodological path adopted for obtaining and analyzing the data. The third presents the results obtained through the panel-data regression model. Finally, the conclusion synthesizes the main theoretical and practical implications of the findings, indicates the study's limitations, and suggests topics that may be explored in future research.

II. Theory And Hypotheses On The Sporting And Financial Performance Of Football Clubs

The contemporary dynamics of professional football are influenced by structural factors of global reach, which shape both club management and competitive positioning. Patterns related to globalization, the need to reconcile an international vision with local roots, the reconfiguration of commercial partnerships, and the transformation of the media environment are vectors for understanding the evolution of the sector [17].

Although football clubs do not have profit maximization as their primary purpose, their operational continuity and the maintenance of adequate competitive levels depend, directly or indirectly, on the efficient management of the financial resources available to them [18]. Economic and financial sustainability, in this sense, is a precondition for these organizations to fulfill their institutional objectives, preserve their investment capacity, and ensure sporting performance compatible with the demands of the contemporary football market [19,20].

The field of inquiry relating finance and sporting performance is not new, constituting a consolidated area of study within sports management. Several previous studies have shown that economic and financial variables such as operating revenues, cost structure, and cash-generation capacity exert a direct or indirect influence on the competitive performance of teams [19-23].

In addition, prior research has shown that the allocation of resources to intangible assets, especially those related to human capital, has a direct and positive influence on the sporting performance of clubs [24,25].

In the pursuit of titles, football clubs tend to direct resources toward hiring more qualified athletes. Sporting performance increases the likelihood of winning titles and, consequently, enhances the generation of revenue from ticketing, sponsorships, and other sources associated with increased visibility [20,26].

The literature has developed a strategic management model for sporting entities that links the club's institutional mission to its main strategic objectives. The mission, positioned as the central element, guides the formulation of organizational goals and defines the purpose underlying administrative and sporting decisions. From it, three essential objectives unfold: accumulating titles, increasing the number of supporters, and maximizing profit, which represent, respectively, the pursuit of sporting performance, the expansion of the support base, and financial sustainability [19].

Furthermore, various studies have found no statistically significant correlation between sporting and economic performance, indicating that on-field results do not influence the financial performance of clubs [22,27-29].

Internationally, other studies have demonstrated a dichotomy between financial health and short-term sporting success. Although the positive association between investment in intangible assets and sporting performance yields positive results, there is an inverse relationship with short-term economic outcomes and rising debt levels [20,30].

Beyond the field of finance, institutionalist studies have found evidence related to governance practices, which, in addition to being technical instruments of management and efficiency, have functioned as symbolic factors of legitimation of clubs before their external and internal audiences [31,32]. This understanding of corporate governance, as a practice tied both to financial performance and to the affirmation of institutional legitimacy, allows formal structures to be interpreted not only as technical instruments but also as symbolic artifacts of legitimation [33].

III. Methodology

This research is explanatory in nature, since it seeks to describe a phenomenon already addressed in the literature while pursuing new approaches for the evolution of the econometric model [34].

As for procedures, the research is documentary, since secondary data were collected from the financial and sporting-performance reports of the clubs that competed in Série A of the Brasileirão between 2013 and 2024. As for the approach to the problem, the research is quantitative, given the treatment of statistical data [34].

The study's time frame is justified by the enactment of CFC Resolution No. 1,429/2013, which approved the General Technical Interpretation ITG 2003, establishing the standardization of accounting for sporting entities in Brazil. The rule regulated the treatment of intangible assets linked to athletes, segregating sporting activities from the others for the recognition of revenues and expenses on an accrual basis, enabling the standardization of the analyzed data [35].

The choice of teams participating in the Série A Brasileirão has two methodological justifications: first, this tournament is the main national competition; second, the standardization of the teams' sporting-performance data within a single competition. The final sample comprises a cross-section of 35 football clubs, with a total of 230 observations in an unbalanced panel, of which 6 clubs formed a SAF and 29 did not. The techniques used for data analysis were descriptive statistics and, subsequently, panel-data regression [36].

Variables and models used in the analysis

The variables were selected on the basis of their adherence to the research objective. To measure sporting performance, the National Club Ranking (NCR) and the final position in Série A of the Brazilian Championship were adopted. The NCR functions as a medium-term performance indicator, since it consolidates, through a points system, the results obtained by clubs over the last five seasons, capturing sustained performance trends. In contrast, the final position in the Brasileirão is a short-term measure, reflecting the team's immediate performance in a round-robin points system that synthesizes, at the end of each edition of the championship, the competitiveness shown during the season.

For this research, independent variables already identified in the literature were selected to form the econometric model, and the dummy variable "SAF" was included for the correlation and regression tests, as shown in the table below:

Table 1: Independent variables used

Variable	Description	Transformation	Expected Sign
TotalRevenue	Club total revenue	ln (ln_TotalRevenue)	+
TotalDebt	Club total debt	ln (ln_TotalDebt)	-
DebtToRevenue	Debt/revenue ratio	Level	+
OpResult	Operating deficit/surplus	ln (ln_OpResult)	+
FootballCost	Football department expense	ln (ln_FootballCost)	+
FootballCostRatio	Football expense/revenue ratio	Level	-
SAF	Dummy: 1 = SAF, 0 = Non-SAF	Level	+

Source: prepared by the authors.

For the proposed scientific investigation, the following regression models were formulated:

Model 1: $NCR_{it} = \beta_0 + \beta_1 ln(TotalRevenue_{it}) + \beta_2 ln(TotalDebt_{it}) + \beta_3 ln(OpResult_{it}) + \beta_4 SAF_{it} + \alpha_i + \varepsilon_{it}$

Model 2: $Position_{it} = \beta_0 + \beta_1 ln(TotalRevenue_{it}) + \beta_2 ln(TotalDebt_{it}) + \beta_3 ln(OpResult_{it}) + \beta_4 SAF_{it} + \alpha_i + \varepsilon_{it}$

Model 3: $NCR_{it} = \beta_0 + \beta_1 ln(FootballCost_{it}) + \beta_2 ln(TotalDebt_{it}) + \beta_3 ln(OpResult_{it}) + \beta_4 SAF_{it} + \alpha_i + \varepsilon_{it}$

Model 4: $Position_{it} = \beta_0 + \beta_1 ln(FootballCost_{it}) + \beta_2 ln(TotalDebt_{it}) + \beta_3 ln(OpResult_{it}) + \beta_4 SAF_{it} + \alpha_i + \varepsilon_{it}$

Model 5: $NCR_{it} = \beta_0 + \beta_1 DebtToRevenue_{it} + \beta_2 FootballCostRatio_{it} + \beta_3 ln(OpResult_{it}) + \beta_4 SAF_{it} + \alpha_i + \varepsilon_{it}$

The cost and revenue variables were used in separate models because of their collinearity (VIF > 5), thereby avoiding bias in the results.

Determining the most appropriate econometric technique for the panel dataset required a set of tests intended to verify the presence of heterogeneity and the consistency of the estimators available for this type of

longitudinal structure. Three tests were employed: Chow, Breusch-Pagan, and Hausman, each contributing to distinct stages of the methodological decision.

The application of these tests allowed the relevant conditions to be verified and guided the final choice of model, ensuring methodological adherence to the nature of the data.

Table 2: Panel model selection tests (p-values)

Test	Model 1	Model 2	Model 3	Model 4	Model 5
Chow	p < 0.001	p = 0.0316	p < 0.001	p = 0.0322	p < 0.001
Breusch-Pagan	p = 0.0511	p = 1.000	p < 0.001	p = 1.000	p < 0.001
Hausman	p = 0.0235	p < 0.001	p = 0.0108	p = 0.0004	p = 0.0108

Source: prepared by the authors.

These procedures, applied sequentially and in a complementary manner, ensure the selection of the estimator most appropriate to the empirical behavior of the sample. In addition, tests were applied to verify the basic regression assumptions:

Table 3: Regression assumption tests

Metric	Model 1	Model 2	Model 3	Model 4	Model 5
Normality (Shapiro-Wilk)	W=0.545, p<0.001	W=0.990, p=0.090	W=0.533, p<0.001	W=0.991, p=0.136	W=0.682, p<0.001
Normality (Skew/Kurt)	p<0.001	p=0.0108	p<0.001	p=0.0300	p<0.001
Homoscedasticity	p<0.001	p=0.6084	p<0.001	p=0.4796	p<0.001

Source: prepared by the authors. All VIF values remained below 2.0 (< 5), ruling out substantial multicollinearity.

Regarding heteroscedasticity, the Breusch-Pagan test rejected the null hypothesis of homoscedasticity in the models, suggesting non-constant error variance. To minimize the effects of residual heteroscedasticity, robust standard errors were used in the regressions.

In all models, the Variance Inflation Factor (VIF) values remained below the limits traditionally accepted in the econometric literature (VIF < 5), ruling out the possibility of substantial multicollinearity among the explanatory variables.

In summary, the results of the diagnostic tests confirm that the econometric specifications adopted are appropriate to the nature of the data analyzed. There is no evidence of structural collinearity, the identified heteroscedasticity is manageable through robust corrections, and the residuals present patterns consistent with the composition of the variables.

IV. Presentation Of Data And Analysis Of Results

Descriptive statistics

Descriptive statistical analysis is the initial stage that allows the structure of the data to be understood before the application of more sophisticated econometric models. From it, it is possible to identify general behavior patterns, relevant dispersions, and possible asymmetries that may directly influence the interpretation of the results.

Table 4: Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Year	240	2018.5	3.459	2013	2024
Final Position	240	10.500	5.778	1	20
Wins	240	13.896	4.438	1	28
Goal Difference	240	0.054	16.829	-57	49
Points	240	51.850	12.847	15	90
NCR	240	13.396	12.504	1	145
Total Revenue (R$ mn)	240	286.30	246.80	31.5	1374.0
Total Debt (R$ mn)	236	401.78	345.68	0.9	1902.1
Debt/Revenue	240	1.539	1.164	0	9.011
Deficit/Surplus (R$ mn)	239	-5.400	81.919	-394.1	383.3
Football Dept Cost (R$ mn)	231	218.32	182.19	8.2	982.4
Football Cost/Revenue	240	0.730	0.265	0	2.288
SAF	240	0.067	0.250	0	1

Variable	Obs	Mean	Std. dev.	Min	Max
ln_TotalRevenue	240	5.317	0.853	3.450	7.225
ln_TotalDebt	236	5.433	1.356	-0.105	7.551
ln_OpResult	239	3.110	1.387	0.095	5.979
ln_FootballCost	231	5.025	0.905	2.104	6.890

Source: prepared by the authors. Monetary values in R$ millions; ratios and logs standardized to three decimals.

The descriptive statistics show the heterogeneity among the analyzed clubs, both in sporting and in economic-financial terms. The performance variables display wide dispersion: final positions range from 1st to 20th, and the number of wins oscillates from 1 to 28. The economic overview reinforces this inequality: total revenues range from R$ 31.5 million to R$ 1.1 billion, and the maximum observed indebtedness reaches R$ 1.9 billion, confirming the high concentration of resources. The relative metrics make this picture even clearer, with average debt corresponding to 153% of annual revenue and football-department costs consuming, on average, 73% of that revenue.

By contrast, total revenues showed cumulative growth of nearly 250% between 2013 and 2024. In parallel, clubs increased their investment in athletes: player costs grew by 244%.

Individual analysis confirms that Flamengo and Palmeiras are the most expressive cases of sustainable growth. Between 2013 and 2024, Flamengo increased its revenues by 389%, reduced its Debt/Revenue ratio by 48.5%, and achieved sporting performance with an average NCR of 3.92. Palmeiras experienced similar behavior, with revenue growth exceeding 414%, a decline in leverage, and high sporting performance.

On the other hand, clubs such as Grêmio, São Paulo, and Corinthians recorded significant revenue growth, but accompanied by a substantial increase in debt and operating costs, resulting in more volatile sporting performance and lower efficiency.

In summary, the economic and sporting evolution of Brazilian clubs between 2013 and 2024 reveals that competitive sustainability depends on three financial factors: consistent revenue expansion, debt control, and efficient management of athlete costs.

Regression analysis of Model 1

Model 1, which assesses the relationship between the National Club Ranking (NCR) and the clubs' economic-financial indicators (ln_TotalRevenue, ln_TotalDebt, ln_OpResult, and SAF), yields the following results:

Table 5: Results of Model 1 (dependent variable: NCR)

Variable	Coefficient	Std. Err.	z	P>|z|	95% CI
ln_TotalRevenue	-2.1656	1.2399	-1.75	0.081	[-4.596, 0.265]
ln_TotalDebt	0.1422	0.5924	0.24	0.810	[-1.019, 1.303]
ln_OpResult	-0.0535	0.2401	-0.22	0.824	[-0.524, 0.417]
SAF	0.2790	2.5142	0.11	0.912	[-4.649, 5.207]
m_ln_TotalRevenue	-4.5410	3.0563	-1.49	0.137	[-10.531, 1.449]
m_ln_TotalDebt	-0.2239	2.8390	-0.08	0.937	[-5.788, 5.340]
m_ln_OpResult	-9.1125	8.7286	-1.04	0.296	[-26.220, 7.995]
m_SAF	18.3488	15.1687	1.21	0.226	[-11.381, 48.079]
Constant	77.9376	15.7080	4.96	0.000	[47.151, 108.725]

Source: prepared by the authors. Correlated random effects (Mundlak) specification; robust standard errors. $\sigma_u = 20.80$; $\sigma_e = 5.50$; $\rho = 0.935$. The m_ prefix denotes club-level means (between component).

The estimated model shows that, at the 5% significance level, none of the independent variables presented a coefficient statistically different from zero, either in the within decomposition, which captures temporal variation inside each club, or in the between decomposition, associated with structural differences across institutions over the analyzed period. This result indicates that annual variations in revenue, indebtedness, operating deficit, or the adoption of the SAF corporate regime were not sufficient to explain changes in club performance in the National Club Ranking.

The model reinforces the need for approaches that integrate qualitative dimensions and technical-performance indicators to adequately explain the heterogeneity among clubs and the persistence of their relative positions over time, given the high fraction of variance attributed to the clubs' unobserved effects.

Regression analysis of Model 2

Model 2, which assesses the relationship between the final position in the Brasileirão and the clubs' economic-financial indicators (ln_TotalRevenue, ln_TotalDebt, ln_OpResult, and SAF), yields the following results:

Table 6: Results of Model 2 (dependent variable: Final Position)

Variable	Coefficient	Std. Err.	t	P>|t|	95% CI
ln_TotalRevenue	-1.1013	1.1176	-0.99	0.331	[-3.370, 1.168]
ln_TotalDebt	1.0331	0.4773	2.16	0.037	[0.064, 2.002]
ln_OpResult	0.0413	0.2410	0.17	0.865	[-0.448, 0.531]
SAF	-0.1444	1.6834	-0.09	0.932	[-3.562, 3.273]
Constant	10.5127	5.2687	2.00	0.054	[-0.183, 21.209]

Source: prepared by the authors. Fixed effects; robust standard errors clustered by club (36 clusters). $\sigma\_u = 4.88$; $\sigma\_e = 4.47$; $\rho = 0.545$; within $R^2 = 0.0233$.

The results of Model 2, estimated by fixed effects with robust standard errors clustered by club, indicate that only the level of indebtedness exerts a statistically significant influence on sporting performance in the Brazilian Championship. The positive coefficient of the variable ln_TotalDebt, equal to 1.033 and significant at the 5% level, shows that increased indebtedness tends to worsen the clubs' final position in the standings. However, the model explains a very small portion of the total variability (within R^2 of only 0.0233), reinforcing that the determinants of sporting performance transcend the selected financial indicators.

Regression analysis of Model 3

Model 3 aims to assess the relationship between the National Club Ranking and a specific set of explanatory variables, composed of the logarithm of the football-department cost, the logarithm of total debt, the logarithm of the annual financial deficit or surplus, and the dichotomous variable indicating the adoption of the Football Corporation model.

After the diagnostic tests, the coexistence of heteroscedasticity, contemporaneous dependence, and signs of autocorrelation among some units, although not systematic, was verified. Given this scenario, the model was re-estimated using the Driscoll and Kraay estimator, which simultaneously corrects these violations and is recommended for panels with cross-sectional dependence.

Table 7: Results of Model 3 (dependent variable: NCR)

Variable	Coefficient	Std. Err.	t	P>|t|	95% CI
ln_FootballCost	-2.7038	0.9360	-2.89	0.015	[-4.764, -0.644]
ln_TotalDebt	0.3050	0.5726	0.53	0.605	[-0.955, 1.565]
ln_OpResult	-0.0430	0.1958	-0.22	0.830	[-0.474, 0.388]
SAF	0.8682	1.4438	0.60	0.560	[-2.310, 4.046]
Constant	25.0265	6.4290	3.89	0.003	[10.876, 39.177]

Source: prepared by the authors. Fixed effects with Driscoll-Kraay standard errors (max lag 2). $N = 230$; groups = 35; $F(4,11) = 3.94$; Prob > F = 0.0319; within $R^2 = 0.0434$.

The estimated regression reveals that only the variable ln_FootballCost is statistically significant at the 5% level, with a p-value equal to 0.015. This result indicates that increases in football-department cost, when weighted by each club's internal temporal dynamics, are associated with an improvement in sporting performance measured by the National Club Ranking, since the negative coefficient suggests that higher expenditures correlate with better ranking positions.

The indicator variable for SAF adoption, whose coefficient is 0.868 and lacks statistical significance, also has no measurable impact on the club's ranking position.

Regression analysis of Model 4

The purpose of Model 4 is to examine whether financial and institutional variables exert a systematic influence on the sporting performance of Brazilian clubs, measured by the final position in Série A of the Brazilian Championship. Since lower positions represent better performance, this model seeks to identify whether aspects such as football-department cost, indebtedness level, surplus or deficit condition, and SAF adoption are associated with significant variations in the ranking obtained by clubs over the analyzed seasons.

Table 8: Results of Model 4 (dependent variable: Final Position)

Variable	Coefficient	Std. Err.	t	P>|t|	95% CI
ln_FootballCost	-1.4586	0.9753	-1.50	0.144	[-3.441, 0.523]
ln_TotalDebt	1.0837	0.4352	2.49	0.018	[0.199, 1.968]
ln_OpResult	0.0703	0.2421	0.29	0.773	[-0.422, 0.562]
SAF	0.1878	1.7681	0.11	0.916	[-3.405, 3.781]
Constant	11.4814	4.8616	2.36	0.024	[1.601, 21.361]

Source: prepared by the authors. Fixed effects; robust standard errors clustered by club (35 clusters). Within R^2 = 0.0314; Between = 0.0306; Overall = 0.0234; F(4,34) = 2.09; Prob > F = 0.1039.

The interpretation of the results reveals that only the total-debt variable was statistically significant at the 5% level. The estimated positive coefficient indicates that increased indebtedness is associated with a worsening of the final position in the championship, suggesting that financially more pressured clubs tend to present inferior sporting performance. The other variables investigated, namely football-department cost, deficit/surplus, and SAF adoption, showed no statistical significance in the observed period, implying an absence of evidence to sustain that these factors directly influence the final ranking.

This set of results indicates that, unlike the relationships observed in models using the National Club Ranking as an aggregate performance measure, performance in an annual round-robin competition appears to be less sensitive to short-term operational investments and more conditioned by structural financial stability. The absence of statistically significant effects of the other variables reinforces the need for deeper study in future research, especially regarding the mechanisms by which sporting investments and institutional changes convert, or fail to convert, into on-field results.

Regression analysis of Model 5

The analysis of Model 5 was based on the estimation of panel data with the objective of identifying the effects of the clubs' financial structure on sporting performance measured by the National Club Ranking. The model specification incorporated four explanatory variables: the ratio of debt to operating revenue, the ratio of football-department costs to total revenue, the logarithm of the annual deficit or surplus, and a dichotomous variable indicating the adoption of the Football Corporation regime.

Table 9: Results of Model 5 (dependent variable: NCR)

Variable	Coefficient	Std. Err.	t	P>|t|	95% CI
DebtToRevenue	0.1367	0.5180	0.26	0.797	[-1.003, 1.277]
FootballCostRatio	-3.2551	1.3702	-2.38	0.037	[-6.271, -0.239]
ln_OpResult	-0.1082	0.2288	-0.47	0.646	[-0.612, 0.396]
SAF	-0.0477	1.6147	-0.03	0.977	[-3.602, 3.506]
Constant	15.7837	1.3565	11.64	0.000	[12.798, 18.764]

Source: prepared by the authors. Fixed effects with Driscoll-Kraay standard errors (max lag 2). N = 239; groups = 36; F(4,11) = 2.52; Prob > F = 0.1018; within R^2 = 0.0173.

The analysis of the results estimated by Model 5 shows that only one of the explanatory variables was statistically significant at the 5% level. The coefficient associated with the variable FootballCostRatio has a p-value equal to 0.037, indicating that the relationship between football-department cost as a proportion of total revenue and the National Club Ranking position is statistically significant. Since the estimated coefficient is negative, this result suggests that as the club increases the share of its resources allocated to the football department, a reduction in the NCR value is observed, indicating an improvement in aggregate performance, since lower positions represent better ranking placements.

V. Conclusion

The econometric analysis developed across the five estimated models demonstrates that the financial variables of Brazilian clubs exert a limited influence on sporting performance, whether measured by the National Club Ranking or represented by the final position in the Brazilian Championship. Despite the diversity of specifications and the incorporation of different error-correction structures, the results converge consistently. Most financial variables have a statistically weak impact on sporting indicators, suggesting that the competitive dynamics of professional football are determined by factors that transcend traditional accounting records.

In Model 1, which related revenues, debts, and budgetary performance to the National Club Ranking, total revenue presented a negative coefficient but without statistical significance after robust adjustments. The other financial variables, as well as the adoption of the SAF corporate regime, showed no statistical significance.

This pattern indicates that the institutional transformation promoted by the SAF does not generate an immediate impact on the clubs' historical performance.

Model 2, which analyzed the determinants of the final position in the Brazilian Championship, presented similar conclusions. Only variables linked to the financial effort directly tied to the football department showed some level of relevance, while the others demonstrated an absence of statistical significance. This result reinforces the interpretation that, although finances constitute an essential part of the competitive structure, they do not capture decisive elements for the annual outcome, such as the technical quality of the squad, tactical strategies, short-term managerial decisions, and the unpredictable events inherent in competition.

Model 3 specifically incorporated the operating costs of the football department as an explanatory variable of performance in the National Club Ranking. The estimated coefficient for this variable proved statistically significant and had a negative sign. This finding suggests that a relative increase in costs may indicate an improvement in ranking position.

Model 4 directly examined the final position in the Brazilian Championship and provided additional evidence that indebtedness exerts a significant influence on sporting performance. The total-debt coefficient was positive and statistically significant, indicating that higher indebtedness is associated with a worse final position in the championship. This result reinforces the findings of the previous models, showing that financial pressure, rather than the volume of spending itself, tends to constrain sporting performance.

Model 5 incorporated proportional and structural variables, such as the debt-to-revenue ratio and the relative cost of the football department. The results confirmed the pattern observed in the previous models. The findings show that disproportionate expense structures are associated with worse accumulated ranking performance. Conversely, the debt-to-revenue ratio and the SAF variable remained non-significant, indicating that indebtedness alone and corporate transformation are not immediate determinants of aggregate sporting performance.

The joint interpretation of the five models reveals limitations inherent in the explanatory capacity of financial variables. Although widely used in the literature, such variables capture only part of the clubs' organizational reality. Sporting performance depends on frequently unobservable factors, such as organizational culture, governance practices, the technical quality of the squad, preparation and training strategies, the use of youth academies, and the capacity to adapt to adverse competitive contexts. The inclusion of fixed effects mitigates, but does not completely eliminate, this structural heterogeneity. Moreover, differences in accounting standards among clubs and the recent implementation of the SAF model limit the identification of long-term effects.

These limitations open space for recommendations of methodological deepening in future research. The incorporation of qualitative variables related to governance and management, as well as the use of dynamic models, may more precisely capture the adjustment mechanisms between finance and sporting performance. In addition, future studies may explore more detailed comparisons between SAF and non-SAF clubs, especially as the corporate model consolidates in the Brazilian scenario.

In summary, the results show that the sporting performance of Brazilian clubs exhibits low sensitivity to variations in traditional financial indicators, especially in the short term. Professional football is an activity whose performance results from multiple dimensions, many of them outside the scope of financial accounting. A full understanding of the relationship between finance and sporting results therefore requires broader methodological approaches, capable of integrating institutional, organizational, and strategic variables into econometric modeling.

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