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Beyond Tradition: Uncovering the real worth of Botafogo and Corinthians in the
SAF era

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Thank you notes

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Abstract

The approval of the *Lei da Sociedade Anônima do Futebol* (SAF Law) has led many popular Brazilian football clubs to change their structure from an association to a so-called *clube-empresa* (club-company). The first ones to do it understood it as an opportunity for a fresh start regarding their financial situations and accepted millions in investments from private investors. This brought up the importance of valuation in a market that had never been officially evaluated before.

Inspired by this ongoing movement and its unprecedented nature, this work aims to understand better the connection between a football club's formal valuation and the amount investors are actually paying for them.

To shed light on this topic, firstly, two valuation methods are applied to Botafogo, one of the first Brazilian clubs to become a SAF. With an objective to have a benchmarking reference of a deal already done, the results from the Discounted Cash Flow and Tom Markham's multivariate model are compared to the value paid by John Textor. Then, one of Brazil's biggest clubs, Corinthians, is thoroughly studied with the same two methods in an attempt to estimate a fair value for a possible future sale.

Botafogo's Equity Value estimated at 393 million Reais was a little under the R\$444 million valuation made when it was acquired. Meanwhile, Corinthians 1.3 billion Reais club value reached via Markham's method is consistent with other deals already done in Brazil.

Keywords: valuation, discounted cash flow, football, Corinthians, Botafogo, SAF, Brazilian clubs, Markham multivariate method

Resumo

A aprovação da Lei da Sociedade Anônima do Futebol (Lei da SAF) tem levado muitos grandes clubes de futebol brasileiros a mudar sua estrutura de uma associação para um clube-empresa. Os primeiros a aceitarem milhões de reais de investidores viram isso como uma oportunidade de um novo começo no que diz respeito a saúde financeira e dívidas. Isso trouxe à tona a importância do valuation em um mercado que nunca tinha passado oficialmente por esse processo antes.

Inspirado por esse movimento e sua natureza de novidade, esse trabalho busca entender melhor a conexão entre o valuation formal de um clube de futebol e os valores que investidores estão de fato pagando pela aquisição.

Para ilustrar essa relação, primeiramente, dois métodos de valuation são aplicados ao Botafogo, um dos primeiros clubes brasileiros a se tornar uma SAF. Com o objetivo de se ter um benchmarking de um negócio já concretizado, os resultados do Fluxo de Caixa Descontado e do método multivariado de Markham são comparados ao valor pago por John Textor na aquisição. Então, um dos maiores clubes do Brasil, o Corinthians, é estudado utilizando-se dos mesmos dois métodos em uma tentativa de estimar um valor justo em uma possível futura venda.

O valor patrimonial do Botafogo estimado em 393 milhões de reais ficou um pouco abaixo do valuation de R\$444 milhões feito quando foi comprado. Enquanto isso, o valor de 1,3 bilhão de Reais atingido pelo método de Markham para o Corinthians ficou consistente em comparação com outras vendas de clubes já realizadas no Brasil.

Palavras-chave: valuation, fluxo de caixa descontado, futebol, Corinthians, Botafogo, SAF, clubes brasileiros, método multivariado de Markham

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1. Introduction

Over the past decades, the sporting world has been growing at an astonishing rate. According to the Sports Global Market Report 2022, the sports industry has grown at a 9.0% Compound Annual Growth Rate (CAGR) over the last few years and is projected to reach a US\$700 billion market value by 2026. This process can be largely credited to the professionalization of sports management and how they have been approached as a business by its owners. The initial spark to this revolution began in the 80s, mainly in the United States with the four major American professional leagues - NBA, NFL, MLB, and NHL - and in Europe with football clubs.

The revolution mentioned above directly impacted clubs' and franchises' values. As shown by the Forbes list of the 50 most valuable sports teams in the world, all of them belong to one of the four major American professional leagues or the top 5 European football leagues - English Premier League, Spanish La Liga, German Bundesliga, French Ligue 1, and Italian Serie A.

Unfortunately, this movement took a long time to expand worldwide and reach new markets, such as Brazil. However, in August 2021, the Brazilian Congress approved the *Sociedade Anônima do Futebol* (SAF) law (Law nº 14,193 - BRAZIL, 2021) that could spark the beginning of the professionalization of sports management in the country. Basically, this bill allows clubs to change their financial and organizational structure from a Non-Profit Organization (NPO) to a special kind of private company: the SAFs.

Before the new law, football clubs had their organizational structure formed by associates who elected a Club President and its Directors, similar to how a country elects its representatives. The biggest problem with the current structure is that it largely relies on politics within the club, which often makes club leaders take on enormous debts or even commit corrupt acts to maintain their power.

On the other hand, with the SAF law, clubs can now be bought by private investors and investment funds just like any other regular company or even have an Initial Public Offer (IPO) in the stock market. The bill allows clubs to organize themselves in a similar way as the European ones have been doing for the last 30-plus years. The most significant upside follows from the fact that, now, the clubs that go through this process will have a formal responsible and manager whose only focus is the growth and health of the club, not the politics within it. However, some defend that the new structure with a single owner could also be harmful to the club as the largest shareholder has almost absolute power to make decisions as they see fit.

As soon as the SAF law was approved, some of Brazil's biggest and most traditional clubs underwent this process. As reported by Brazilian news outlet *Globo Esporte* (2022), in January 2022, American businessman John Textor acquired 90% of Botafogo in exchange for R\$400 million in future investments at the club. Just three months later, 90% of Cruzeiro was bought by football legend Ronaldo Nazário for the same amount. The third big purchase was made by the American investment group 777 Partners when in August 2022, they bought 70% of Vasco da Gama for R\$700 million.

All three of the clubs mentioned above were in an analogous situation. Despite possessing a massive number of fans and a winning retrospective throughout its history, they were playing in the second tier and had incurred large debts in the previous years. When we take a closer look at Botafogo, it is possible to observe how critical the moment was. According to the team's own financial reports, they had over R\$800 million in debts and had not won a major title over the past 25 years. Since 1995, its last national title, the club only won five state championships and was relegated to the second tier three times.

Despite that, top-flight Brazilian clubs that have been acquired are still the exception. Most of them are still associative clubs, run in the old-school model. One notable example of that is Corinthians, the club with the second-largest fan base in Brazil, having more than twenty-five million supporters. They had an impressive run in the 2010s winning the Copa Libertadores, FIFA Club World Cup, and three national titles. However, they have also accumulated debts during this period, reaching over R\$1 billion in 2022 (Globo, 2023). In addition to this amount, Corinthians also must pay off the debt related to the construction of their new stadium in 2014, which was financed by the government. As per the deal, Corinthians will pay part of the value back in installments until 2041.

Given this context, in this work, two different methods to estimate a football club's value were analyzed and applied to both Botafogo and Corinthians. The first one was the classic Discount Cash Flow (DCF) method (Damodaran, 2011), lightly adapting it to a football club reality. Then, the Multivariate model, a football club-specific valuation method idealized by Tom Markham (Markham, 2013). The first objective of the work is to confirm whether the amount paid for the *Carioca* club (Botafogo) was fair or if the deal was under/overpriced. After that, we look at the *Paulista* team (Corinthians) to forecast the fair sale value in an eventual deal made for them.

2. Theoretical Background

2.1. Discounted Cash Flow

The first of the two methods utilized to find the fair purchase value of Botafogo and Corinthians is the DCF. According to Damodaran (2011), when applying the Discounted Cash Flow, you seek to estimate the intrinsic value of an asset based on its financial fundamentals.

The DCF is arguably the most popular valuation method. It calculates the value of an investment based on how much money it will generate in the future. The technique is widely used to value companies and considers the amount an investor would receive from an investment, adjusting the time value for money. According to this principle, an expected cash flow in the future, plus its terminal value, must be brought to its present value using a discount rate that reflects the risk of the operation.

Equation 1 – Discounted Cash Flow

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \dots + \frac{CF_n}{(1+r)^n}$$

Where:

CF_t = Cashflow at t

r = Discount rate

2.1.1. Cash Flows

As stated by Damodaran (2011), there are two ways to measure the value of a company by its cash flows, through free cash flows to the firm (FCFF) or free cash flows to the shareholder (FCFE).

FCFF has an approach from both the bondholders' and shareholders' perspectives. These flows will represent the value of a company considering equity plus debt. *“In order to reach the amount that corresponds only to the shareholders, the equity value, the net debt must be subtracted from the amount obtained.”* (Silva, 2019).

Equation 2 - FCFF

$$FCFF = Nopat + D\&A - Capex - \Delta WC$$

Where:

Nopat = Net operating profits after taxes

D&A = Depreciation and Amortization

Capex = Capital Expenditure

ΔWC = Delta of Working Capital

FCFE seeks to calculate the value of the firm through cash flows that only impact the shareholders. In order to do this, the cash flows are based on the net income and corrected by adding Depreciation and Amortization while subtracting Working Capital variation and Capital Expenditure (CAPEX).

Equation 3 - FCFE

$$FCFE = Net\ Income + D\&A - Capex - \Delta WC - \Delta Net\ Debt$$

Additionally, a key component when utilizing the DCF is selecting an appropriate projection period. The annual free cash flows were calculated for a five-year period from the starting year of the valuation because this was considered a period where it was still possible to be precise in the projections.

The terminal value (TV) method was used to project free cash flows for the following years. For this method, the free cash flow from the fifth year of the projection is multiplied by a perpetuity rate and then divided by the difference between this rate and the discount factor. Each club will have specific perpetuity rates based on its past yearly average growth and potential future scenarios.

Equation 4 – Terminal Value

$$TV = \frac{CF_n * 1 + g}{r - g}$$

Where:

CF_n = Cash flow at the last projected year

r = Discount rate

g = Perpetuity growth rate

Finally, the discounted Terminal Value is added to the DCF formula (Equation 1), after the last year of the projection period, to obtain the firm's value.

Equation 5 – DCF with Terminal Value

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n} + \frac{TV}{(1+r)^n}$$

2.1.2. Discount Rate

The Capital Asset Pricing Model (CAPM) was selected to project the discount rate. This method was developed in the 1960s by William Sharpe (1964), Jack Treynor (1965), John Lintner (1965a, b) and Jan Mossin (1966). For Perold (2004), the CAPM takes into account that some risks should affect asset prices while others should not.

Perold (2004) adds that to utilize this method, investors need to know two things: the risk premium of the overall equity market and the assets beta versus the market. The first one represents the upside an investor might have when picking a risky asset over a risk-free one. The second one is a quantitative measurement of the correlation between the returns of the selected asset and the overall market.

Equation 6 - CAPM

$$ER_i = R_f + \beta * (ER_m - R_f)$$

Where:

ER_i = expected return of investment

R_f = risk-free rate

β = beta of the investment

ER_m = expected return of the overall market

The expected return of the market was 11.9%, the average annual return of the Ibovespa index from 2003 to 2022. The twenty-year period was selected to minimize the constant fluctuations the index suffered over the years.

To estimate the beta, it was analyzed how other football clubs perform in their own respective markets. This was necessary because there is not a good track record between Brazilian clubs' returns on investment in correlation to market fluctuations.

Club	Stock	Beta
Manchester United	🏠 Manchester Utd (XNYS:MANU)	0.68
Juventus	🏠 Juventus FC (XMIL:JUVE)	0.48
Lyon	🏠 OL Groupe (XPAR:OLG)	0.38
Benfica	🏠 Sport Lisboa e Benfica - Futebol, SAD (XLIS:SLBEN)	0.58
Borussia Dortmund	🏠 BVB (XFRA:BVB)	1.04
Porto	🏠 FUTEBOL CLUBE DO PORTO, FUTEBOL SAD (XLIS:FCP)	1.00
Sporting	🏠 SPORTING CLUBE DE PORTUGAL – FUTEBOL, S.A.D. (XLIS:SCP)	0.38

Table 1 – Benchmark European clubs' beta

The betas of seven major European football clubs are displayed in Table 1 – these values were obtained with Microsoft Excel native function to calculate an asset beta. The clubs were selected so that most of the major leagues were covered, and a focus could be given to the Portuguese one – with three clubs on the list – as it is the league with the most resemblance to the *Brasileirão*.

When comparing the leverage ratios of these clubs with Botafogo's and Corinthians' it is possible to observe that the most similar ones are Porto and Sporting. It happens due to their negative Shareholders' Equity.

Club	Debt-to-Equity ratio
Manchester United	9.15
Juventus	5.66
Lyon	0.26
Benfica	3.90
Borussia Dortmund	0.40
Porto	-3.94
Sporting	-20.63
Botafogo	-1.18
Corinthians	-11.99

Table 2 – European club's D/E ratio vs. Botafogo and Corinthians

2.2. Multivariate model - Markham's Method

Although DCF represents the purest technique to ascertain the value of a business, it is flawed when valuing a football club (Thornton & Matyszczyk, 2010). The main reason for this affirmation is that a football club's primary goal is not to generate higher profits like regular companies. Instead, it is to perform better while maintaining financial health. Due to these characteristics of football clubs, another method was used to calculate both clubs' values and establish their differences and particularities.

Less known than the first one, the second chosen method is the multivariate model developed by Tom Markham. In his 2013 article "*What is the optimal method to value a football club?*" Markham presented this new technique to value English Premier League clubs after a search for the optimal approach to calculate the value of a football club. Grafietti (2020) highlights the significant impact Markham's article brought to the discussion of football clubs' valuation, stating that it shows how great of a challenge it is to value them.

In a context of a heated market for acquisitions amongst English Premier League clubs and rapidly growing broadcasting deals, Markham deepened his studies in football clubs' valuations. He observed that all the existing methods for valuing football clubs were imprecise, as they presented huge discrepancies between them or were not adapted to a sports club reality. Those included traditional company value methods, such as market capitalization and Discounted Cash Flow, and even contemporary football clubs' valuation techniques like revenue multiples and Forbes' valuation.

Markham also noticed that literature and studies of this area focused mainly on North American sports and leagues. Without entering specific details, these leagues have a quite different operating model. They work with a closed system without relegation, predetermined salary caps, college players drafts, and other rules that make them unique.

The first variable considered by Markham for his method was Revenue, as it is the cash generated by a club operation during a year and is the main form a football club can pay for its expenses.

Secondly, he added Net Assets to the Revenue to represent a club's capability to generate future cash. Then, this sum is multiplied by the club's Net Profit added to its Revenue, all that divided by Revenue to include the profitability factor in the math. This way, profit-making clubs will be multiplied by a factor above 1, while loss-making clubs will have a multiplication factor lower than 1. This result is multiplied by the average percentage of stadium usage.

Markham included this factor in the formula because it represents how well the club uses a vital asset, its supporters. Finally, the overall number is divided by the wage ratio having the total revenue as the reference.

Equation 7 – Markham's multivariate model

$$Club\ Valuation = (Revenue + Net\ Assets) * \frac{(Net\ Profit + Revenue)}{Revenue} * \frac{Stadium\ Capacity\ \%}{Wage\ Ratio\ \%}$$

Maguire (2021) mentions that when Stan Kroenke bought 30% of Arsenal for £550 million in 2018, he valued the club at £1.83 billion. Just three months prior to that, the University of Liverpool Football Industry Group utilized the Markham method to evaluate Arsenal and estimated the club's value at £1.82 billion. This fact demonstrates how precise this method can be in the ideal situation: the English Premier League.

This approach is an attempt to value football clubs considering variables directly related to a sports team's performance and it is simpler to calculate than the DCF method. For these reasons, the multivariate model created by Tom Markham is one of the methods used in this work to value the two football clubs.

3. Case Study Setup

In this chapter, we describe how we applied the methods mentioned in the Theoretical Background to both Botafogo and Corinthians and which premises were adopted in each case. The first analyzed club was Botafogo, as it has already been sold and serves the purpose of being a benchmark. After that, attention shifts to Corinthians as we attempt to determine the appropriate valuation for the *Paulista* team if they were to be sold.

3.1. Botafogo

3.1.1. Discounted Cash Flow

3.1.1.1. Club's past financial reports

In Table 2, it is possible to observe Botafogo's financial reports from 2018 to 2021, the last four years before it was acquired. It is noticeable that the club had an unstable moment, very much due to the pandemic and being relegated at the end of the 2020 season, heavily affecting its capacity to generate revenue during the following season.

Income Statement	2018	2019	2020	2021
Net operating revenue	143,861	174,823	142,469	107,096
Broadcasting	104,538	101,271	74,197	49,711
Player transfers	17,343	38,823	41,874	35,707
Advertising and sponsorship	17,582	9,284	6,091	8,443
Membership	7,773	8,058	7,288	5,379
Tickets	6,631	10,630	2,046	2,509
Other sources of revenue	1,657	17,034	20,364	8,859
Revenue deductions	(11,663)	(10,277)	(9,391)	(3,512)
Operating expenses	(105,261)	(116,418)	(121,415)	(85,005)
Personnel	(57,662)	(67,869)	(64,765)	(58,751)
Materials	(2,178)	(1,012)	(908)	(977)
General and Administrative	(14,799)	(16,106)	(26,466)	(8,004)
Services	(9,645)	(10,605)	(8,624)	(4,675)
Players' image rights	(6,501)	(6,429)	(6,570)	(5,621)
Sports entities	(3,362)	(2,865)	(2,538)	(722)
Competitions and friendlies	(3,187)	(4,805)	(2,481)	(2,009)
Amortization of players	(7,927)	(6,727)	(9,063)	(4,246)
EBIT	38,600	58,405	21,054	22,091

Table 3 – Botafogo's income statements 2018 - 2021

This period of scarce revenues was also accompanied by a cost reduction period that enabled Botafogo to maintain positive Earnings Before Interest and Taxes (EBIT) levels.

Despite that, they could not lower their debts which led the club to be sold as an alternative solution to become financially healthy.

It is possible to observe that the club relies heavily on TV rights income and earnings from player sales, which is dangerous because of the unpredictable nature of this revenue source. Regarding expenses, players' salaries (Personnel) represent the largest share of outflow.

3.1.1.2. Premises

3.1.1.2.1. TV Rights

Botafogo's TV rights payments come from the tournaments they participate in: the state league (*Campeonato Carioca*), Brazilian league (*Campeonato Brasileiro*), Brazilian cup (*Copa do Brasil*), and the continental competition (*Copa Libertadores* or *Copa Sudamericana*).

In the *Campeonatos Cariocas* between 2020 and 2022, TV rights revenues were an issue for the participants because of imbroglios involving the previous primary and sole broadcaster, TV Globo, and the clubs. Because of that, this source of income was jeopardized for the whole league during that period. For the following years, it is expected that those broadcasting contracts will gradually return to normality. So, the amount considered for the 2023 season was a conservative forecast of R\$8 million considering that in 2019 Botafogo received R\$15 million.

Regarding future ones, this amount paid for the 2023 edition will maintain for the following years and will only be adjusted with the IPCA rate.

For the *Campeonato Brasileiro*, money is divided in a more complex way between all clubs. All the following values were also reported by TV Globo, the TV network that broadcasts *Brasileirão* games.

In the agreement between TV Globo and the clubs that play in the league, it was decided that the total amount to be divided by the clubs would be R\$600 million. 40% of this value is divided equally between the clubs that signed the agreement, 30% is paid according to the number of games televised - either on broadcast television or TV Globo cable subsidiary *SporTV* - and the last 30% varies depending on the club's final position in the tournament. This contract is valid until the end of the 2024 season. After that, a new one will be negotiated between all the clubs and whoever intends to broadcast their games.

For the 2022 season, it was considered that Botafogo would have approximately nine games on broadcast television, earning R\$1.62 million per each. This number of games was based on what happened in the 2019 and 2020 seasons. The amount received per game is part

of the contract with TV Globo signed by all *Brasileirão* clubs. As for games televised on cable, they would have eleven, making R\$1.35 per game. For the last two remaining years of the current contract, it was considered that Botafogo would have the same number of games televised, and the amount received per game would be adjusted with the IPCA rate.

It was also considered that the 40% split equally (R\$ 22 million in 2022) would be adjusted with the same rate until the end of the contract. Also, Botafogo would average a final standing of 11th, enabling them to receive R\$ 19.3 million as of 2022, adjustable for the future.

Adding to the previous values, the clubs are also entitled to receive money from the pay-per-view subscriptions made by their supporters. The amount of money the club receives from these subscriptions depends on how many fans pay for the service once TV Globo pays the teams a percentage of the gross revenue generated. For the last couple of years of the current contract with TV Globo, it was assumed that Botafogo would remain with the same level of supporters. Their fans earned them R\$ 11.5 million in pay-per-view subscriptions in 2022. This value is expected to be adjusted with the IPCA rate for the following years.

As of 2025, new contracts will be signed between clubs and TV networks. Considering the imminent formation of a Brazilian league of clubs, according to the journalist Rodrigo Mattos those contracts are expected to rise more than average when the deal is done. Due to that, it was considered an IPCA + 10% raise in all *Campeonato Brasileiro* TV contracts exceptionally in 2025. Then, for the following seasons, the annual adjustment would return to the usual IPCA rate while keeping the same level of club performance as the previous years as a reference.

Knockout competitions have a different and simpler way of paying TV rights. In the case of *Copa do Brasil*, the amount increases as the team progresses through the tournament rounds. In line with previous performances, it was considered that Botafogo would average a finish at the Round of 16 for the following editions. As for the monetary compensation, it was considered the tabulated values for the 2023 edition disclosed by the *Confederação Brasileira de Futebol* (CBF) with the IPCA rate adjustments for the following years.

Since the expected finish in the league for Botafogo is 11th place, it is assumed that the club will take part in the *Copa Sudamericana*, the second-tier South American competition. Like *Copa do Brasil*, TV rights values increase the better the team performs in the competition. For this tournament, it was considered that Botafogo would finish between the Round of 16 and the quarterfinals. The amount received is based on the tabulated value disclosed by

CONMEBOL for the 2023 edition. As those values are disclosed in US dollars, it was considered a conversion rate of US\$1 = R\$5 and an annual adjustment based on the IPCA rate.

Finally, the sum received for those four tournaments represents the line of TV rights in Botafogo's financial statements.

3.1.1.2.2. Player Sales

For the past seasons, player sales have been Botafogo's second largest income source, just behind broadcasting revenues. When it comes to projecting future revenues of this type, it can become very erratic since it has very unpredictable income flows. Some reasons for this unpredictability include variable demand of the market and the needs of other teams, performance from Botafogo's players that increases or decreases their market values, and the capacity of the club to develop players from their youth academy.

Assuming Botafogo will maintain a similar level of performance and a similar rate of youth players developed and sold, the same income for the 2021 season was considered for 2022. It was only adjusted with the IPCA rate to cover the effects of the ongoing average market value raises for football players. The same adjustments were made to the immediate previous season income for the following seasons.

3.1.1.2.3. Ticket Sales

Ticket sales revenue depends on four factors: competitions played in, number of games played at the home stadium, average attendance per game, and average ticket price. Botafogo plays their home games at Nilton Santos Stadium, with a maximum capacity of 45,217. So, their average attendance cannot be over this number.

For the *Campeonato Brasileiro*, as it is a tournament played with a round-robin system, the number of games played at home is predetermined at 19. Regarding the other three competitions Botafogo can play in, this number can vary. It occurs because all three of them include knockout stages.

Past data from 2019 and 2022 were analyzed to estimate future attendance and ticket prices. These two seasons were the last with no Covid-19 restrictions with Botafogo playing in the Brazilian league first tier. Concerning home games played, the same rationale of TV rights revenue was used.

Table 3 refers to the 2024 season projection that was replicated for the following seasons.

Tournament	Number of games	Average attendance	Average ticket price	Tickets revenue
Campeonato Carioca	7	10,000	R\$ 35.00	R\$ 2,450,000
Campeonato Brasileiro	19	18,000	R\$ 29.71	R\$ 10,161,752
Copa do Brasil	3	16,000	R\$ 41.00	R\$ 1,968,000
Copa Libertadores	0	0	R\$ -	R\$ -
Copa Sulamericana	4.5	24,000	R\$ 45.82	R\$ 4,948,258
Season	34	16,955	R\$ 34.38	R\$ 19,528,010

Table 4 – Botafogo ticket sales projection

For the following years, ticket prices were adjusted based on the IPCA rate, given that it is a standard procedure in the football tickets market to readjust those numbers annually. It is possible to observe that competitions with knockout games have more appeal because of their decisive nature. Also, state league games have a lower appeal to the supporters as it occurs at the beginning of the season and the opponents are usually weaker teams.

3.1.1.2.4. Other Revenue Streams

In addition to the previous items, Botafogo's revenue is composed of three other revenue streams: endorsements, memberships, and other sources of revenue. Regarding endorsements, the value considered for Botafogo deals in 2022 was the value achieved in 2021, adjusted with the IPCA rate. For the following years, the same rationale was used. It was considered the previous season amount but with this adjustment. De Vasconcellos (2015) states, "*Endorsements revenue contracts tend to be readjusted every year at a rate close to the IPCA.*".

Membership revenue comes from the monthly amount the fans pay to be members and have unique benefits, especially towards ticket prices and priority. As this amount depends on the number of members and the average membership price, it was established that the number of members would maintain the same level. Considering membership prices, it was established that they would be adjusted with the IPCA rate for the future.

Those other sources of revenue are not explained in Botafogo financial reports, so it was assumed that for every year, the previous year's amount would be adjusted with the IPCA rate.

Finally, to close the revenue statement, some deductions are made from the gross revenue resulting in the net revenue. These deductions are composed of taxes and contributions and were projected based on the average percentage of the gross revenue they represented in previous years.

3.1.1.2.5. Expenses

Table 4 indicates all of Botafogo's sources of expenses, and the rationale used to project each of them for the following years:

Operating Expenses	Rationale
Personnel	average %
Materials	inflation
General and Administrative	arbitrary
Services	average %
Players' image rights	average %
Sports entities	average %
Competitions and friendlies	average %
Amortization of players	average %

Table 5 – Botafogo's expenses rationale

Personnel expenses, services, players image, sportive entities, competitions, and friendlies expenses were calculated based on the average percentage of the total revenue these values represented in the last few years. It was observed that those types of expenses tend to variate alongside the club's revenue, so this average ratio was kept for the projections.

Amortization of athletes was calculated based on its average percentage over intangible assets over the years. For general and administrative expenses, a starting arbitrary value was chosen based on the amount Botafogo spent on non-pandemic years. It is important to note that this value is adjusted annually with the IPCA rate.

3.1.1.2.6. Discount Rate

As mentioned in the previous chapter, the discount rate was calculated using the CAPM model with an 11.90% expected market return and a 0.65 beta.

A different risk-free rate was considered for each club since Botafogo's valuation considers 2022 as starting point and Corinthians' valuation begins in 2023. During this one-year difference, Brazil's risk-free rate grew heavily. In this case, risk-free rate was based on *Taxa Selic*, the Brazilian Central Bank interest rate. The 9.25% obtained rate comes from the *Selic* of January 1st, 2022 since it is the year Botafogo was acquired and year 1 of this Discounted Cash Flow calculation.

Inserting this rate in the CAPM formula generates a 10.96% discount rate that will be used in Botafogo valuation.

3.1.1.2.7. Perpetuity Growth Rate

For the perpetuity growth rate, it was considered the average annual growth that Botafogo had between 2010 and 2021. The values are displayed in Table 5:

Year	Revenue	Growth
2012	119,000	-
2013	150,229	26%
2014	154,643	3%
2015	108,853	-30%
2016	149,059	37%
2017	254,009	70%
2018	155,524	-39%
2019	185,100	19%
2020	151,860	-18%
2021	110,608	-27%

Table 6 – Botafogo revenue growth 2012 - 2021

After a quick analysis of the historical values, it is easy to observe how inconsistent the yearly growth is. The percentage ranges from -39% to + 70%, with a 36% standard deviation and 5% mean. Given this scenario, it was decided to utilize an arbitrary 6% perpetuity growth rate.

3.1.1.3. Club Value

After setting all the rationales to project Botafogo's future revenue and expenses, it was possible to estimate its annual EBIT.

Income Statement	2022	2023	2024	2025	2026
Net operating revenue	152,892	187,611	193,054	209,325	217,698
Broadcasting	87,930	112,349	116,989	130,728	135,957
Player transfers	37,774	39,965	41,616	43,281	45,012
Advertising and sponsorship	8,932	9,450	9,840	10,234	10,643
Membership	5,690	6,020	6,269	6,520	6,781
Tickets	12,312	21,099	19,528	20,309	21,121
Other sources of revenue	9,372	9,916	10,325	10,738	11,168
Revenue deductions	(9,119)	(11,189)	(11,514)	(12,484)	(12,984)
Operating expenses	(115,069)	(138,318)	(142,553)	(153,737)	(159,886)
Personnel	(68,503)	(84,059)	(86,498)	(93,788)	(97,540)
Materials	(1,034)	(1,094)	(1,139)	(1,184)	(1,232)
General and Administrative	(16,000)	(16,928)	(17,627)	(18,332)	(19,065)
Services	(8,864)	(10,876)	(11,192)	(12,135)	(12,621)
Players' image rights	(6,902)	(8,469)	(8,715)	(9,449)	(9,827)
Sports entities	(2,458)	(3,016)	(3,104)	(3,366)	(3,500)
Competitions and friendlies	(3,280)	(4,025)	(4,142)	(4,491)	(4,670)
Amortization of players	(8,028)	(9,851)	(10,137)	(10,991)	(11,431)
EBIT	37,823	49,292	50,501	55,588	57,812

Table 7 – Botafogo's projected income statements 2022 – 2026

To obtain the annual free cash flow, Equation 2 was used. Firstly, Depreciation and Amortization values projected for each year were added back to the EBIT. These values are displayed in Table 9.

Secondly, the change in Net Working Capital was obtained by calculating the difference between the net working capital for the given year and the year before. The Net Working Capital for a given year was calculated using the difference between the club's current assets and current liabilities.

To project future current assets, it was used the same ratio of current assets over the net income of 2019. This specific year of reference was chosen because it was the last full year without Covid-19. For the current liabilities, it was taken its 2021 value and adjusted with the IPCA rate over the years.

	2019	2020	2021	2022	2023	2024	2025	2026
Current assets	29,142	10,082	25,881	25,486	31,274	32,181	34,893	36,289
Cash and equivalents	131	265	2,571					
Accounts receivable	7,404	8,845	22,256					
Other accounts receivable	21,607	972	1,054					
Current Liabilities	129,025	134,434	122,806	129,916	137,452	143,128	148,854	154,808
Loans and financing	51,536	32,309	33,087					
Suppliers	8,847	9,337	10,383					
Image exploration payable	626	3,256	4,939					
Social charges and obligations	28,603	31,474	41,249					
Tax obligations	39,413	58,058	33,148					
Working Capital	(99,883)	(124,352)	(96,925)	(104,430)	(106,178)	(110,947)	(113,960)	(118,519)
Increase in Working Capital		(24,469)	27,427	(7,505)	(1,748)	(4,769)	(3,013)	(4,558)

Table 8 – Botafogo's Net Working Capital projection

Finally, CAPEX was considered to be Investing Activities described in the Cash Flow Statements. These activities are divided into permanent assets additions and intangible assets additions.

The amount of CAPEX of 2021 was replicated in the following years to estimate future annual projections.

	2018	2019	2020	2021	2022	2023	2024	2025	2026
Intangible assets	12,262	27,001	9,415	9,820	14,019	17,203	17,702	19,194	19,961
Property, plant and equipment	63,014	62,869	62,370	62,123	62,123	62,123	62,123	62,123	62,123
Payments for PP&E	(315)	(402)	(25)	(245)	(245)	(245)	(245)	(245)	(245)
Payments for intangible assets	(10,484)	513	(7,720)	(4,651)	(4,651)	(4,651)	(4,651)	(4,651)	(4,651)
Cash flow from investing activities	(10,799)	111	(7,745)	(4,896)	(4,896)	(4,896)	(4,896)	(4,896)	(4,896)

Table 9 – Botafogo's CAPEX projection

After applying Equation 5 to Botafogo's future projected Free Cash Flows, the final value of the club using the Discounted Cash Flow valuation method is 1.2 billion Reais.

This result is displayed in Table 9:

	2022	2023	2024	2025	2026	Terminal Value
EBIT	37,823	49,292	50,501	55,588	57,812	-
(+) Depreciation and amortization	8,028	9,851	10,137	10,991	11,431	-
(-) Increase in Working Capital	(7,505)	(1,748)	(4,769)	(3,013)	(4,558)	-
(-) CAPEX	(4,896)	(4,896)	(4,896)	(4,896)	(4,896)	-
Free Cash Flow to the firm	58,253	65,787	70,303	74,489	78,697	1,681,829
Discounted Cash Flow	52,499	53,433	51,461	49,139	46,787	999,883
						Club value
						R\$ 1,253,201,042

Table 10 – Botafogo's projected club value

3.1.2. Multivariate model - Markham's Method

As presented on the previous chapter, the second method used to estimate Botafogo's value was the multivariate model developed by Tom Markham. Four of the values needed to apply the model came directly from the clubs 2021 financial report. The total revenue was R\$110.61 million, the clubs net assets accounted for -R\$790.91 million, the net profit was R\$22.09 million and the wage ratio was 53%.

To estimate the percentage of the stadium capacity filled every game, it was considered the club's average crowd in 2021 and its maximum capacity. The average number of fans was 16,429 and the values for this estimation can be consulted in Table 3. As for Nilton Santos Stadium maximum capacity, as reported by Botafogo's website, is set at 45,217. This means Botafogo average stadium attendance is 36% of its total capacity.

After gathering all this information and applying Markham's equation, we estimate the value for Botafogo to be negative 558 million Reais. As strange as it seems, when taking a closer look at Markham's formula, the first argument of the formula is Revenue plus Net Assets. However, as the club has a negative Net Asset value, this sum ends up being below zero and it extends to the value of the club. This problem will be analyzed thoroughly in the Results chapter.

3.2. Corinthians

3.2.1. Discounted Cash Flow

3.2.1.1. Club's past financial reports

In Table 10, it is possible to observe Corinthians' financial reports from 2019 to 2022. The two things that stand out are that the club was able to keep growing its revenue year after year and turned its EBIT from negative levels to healthy ones.

Income Statement	2019	2020	2021	2022
Net operating revenue	369,713	425,398	421,651	652,242
Broadcasting	188,972	160,142	265,915	317,609
Advertising and sponsorship	73,251	71,143	126,328	93,628
Tickets	62,366	7,349	14,579	97,598
Prize money	20,970	12,974	12,697	31,750
Player transfers	45,269	189,282	28,231	146,430
Revenue Deductions	(21,115)	(15,492)	(26,099)	(34,773)
Operating expenses	(454,326)	(461,649)	(331,653)	(565,016)
Personnel	(223,517)	(188,048)	(207,753)	(273,761)
Third party services	(33,124)	(31,663)	(12,067)	(65,596)
General and Administrative	(34,739)	(78,519)	(24,185)	(35,231)
Costs with sales and acquisitions of athletes	(10,627)	(63,172)	(870)	(42,043)
Depreciation and amortization	(66,112)	(77,280)	(61,976)	(77,204)
Tickets transfer to fund	(39,211)	(3,602)	388	0
Football	(31,737)	(7,624)	(11,286)	(50,048)
Prorated administrative expenses	(15,259)	(11,741)	(13,904)	(21,133)
EBIT	(84,613)	(36,251)	89,998	87,226

Table 11 – Corinthians' income statements 2019 – 2022

When taking a closer look into the revenue streams, it becomes clear that TV rights, endorsements and ticket sales are its main drives. It is important to clarify that ticket sales were meager in 2020 and 2021 because of the Covid-19 pandemic and crowd restrictions in the stadiums. However, in normal years, such as 2019 and 2022, the numbers are decent for the club because of its passionate supporters.

Another key component to the club's revenues is the value added by player sales. But this is a very unpredictable number, as it depends on many factors that the club does not have control over, such as market valuation for players, other clubs' needs, and the actual performance of youth players versus their projections.

For the expenses, players' salaries are by far the most representative value, accounting for roughly 50% of the total value.

3.2.1.2. Premises

3.2.1.2.1. TV Rights

TV Rights are composed of the value Corinthians receives for the broadcasting of its games in the tournaments they participate in. Those tournaments are the same that Botafogo can also play with only one exception: Corinthians' state league is the *Campeonato Paulista*, from the state of São Paulo.

In the *Campeonato Paulista*, Corinthians is entitled to receive R\$30 million per year and this value is adjusted by inflation every year. This value was reported by TV Globo, the TV network that bought the rights to broadcast *Campeonato Paulista* games.

For the *Campeonato Brasileiro*, Corinthians revenue is calculated with the same rules as Botafogo's because both teams signed the same contract with TV Globo. However, since the contract has variable clauses regarding the final position at the tournament, games broadcasted and supporters paying for the pay-per-view bundle, both clubs have very different TV rights revenue.

Firstly, Corinthians has far more supporters than Botafogo and they also signed a deal that guarantees them at least R\$110 million per season regarding pay-per-view revenue. Besides that, for the last seasons, Corinthians has had better finishes than the carioca club, earning them higher amounts. Finally, TV Globo broadcasts different numbers of live games depending on the clubs involved.

Given that the current contract is valid until the end of 2024, for the 2023 and 2024 seasons, it was considered that Corinthians would have a similar performance as they did in 2022.

Firstly, the 40% that are equally split between the clubs did not suffer any changes, and it was only adjusted with the IPCA rate.

For the 30% paid according to the number of games televised, it was considered that Corinthians would have the same number of games televised as they did in 2022 and be paid the same value, only adjusted with the IPCA rate. That year, Corinthians played twelve games on open television, earning R\$1.62 million per game, and four games on *SporTV*, receiving R\$1.35 million per game.

For the 30% that depends on the club's final position, once again, it was assumed that Corinthians would have a similar performance adjusted by each year's inflation.

Corinthians also receives money for the pay-per-view subscription of their fans. The contract they have with Premiere states that the club is entitled to receive at least R\$110 million

per year. To make a conservative prediction, we assumed this value and adjusted it yearly by the IPCA rate.

Again, considering the formation of a Brazilian league of clubs, it was considered, for 2025 only, an IPCA + 10% raise in all contract renewals for the *Campeonato Brasileiro*. Then, the annual adjustment would return to the usual IPCA rate for the following seasons.

Regarding *Copa do Brasil*, as it is a knockout competition, TV rights values increase as the team progresses through its rounds. For the following years, it was considered that Corinthians would average performance between the quarterfinal and semi-final stages, in line with the previous years. As for the monetary compensation, it was also considered the tabulated values for the 2023 edition disclosed by the *Confederação Brasileira de Futebol* (CBF) with the IPCA rate adjustments for the following years.

For the continental competition, as it was considered that Corinthians would average a top 6 finish at *Campeonato Brasileiro*, they would be eligible to compete in the *Copa Libertadores*. Like *Copa do Brasil* and *Copa Sudamericana*, Libertadores TV rights increase with the club's performance through the phases. For this competition, it was considered a performance between the Round of 16 and the quarterfinal using the tabulated values disclosed by CONMEBOL for the 2023 edition.

As those values are disclosed in US dollars, it was considered a conversion rate of US\$1 = R\$5 and an annual adjustment based on the IPCA rate.

3.2.1.2.2. Ticket Sales

The ticket sales growth was based on the same four factors of the rationale for Botafogo: competitions played in, the number of games at each competition, expected ticket sales in each one and the respective ticket prices. Table 11 represents the projection for the 2023 season:

Tournament	Number of games	Average attendance	Average ticket price	Tickets revenue
Campeonato Estadual	7	41,078	R\$ 59.17	R\$ 17,014,097
Campeonato Brasileiro	19	39,000	R\$ 66.60	R\$ 49,351,415
Copa do Brasil	3.5	41,000	R\$ 63.00	R\$ 9,040,500
Copa Libertadores	4.5	42,000	R\$ 97.00	R\$ 18,333,000
Copa Sulamericana	0	0	R\$ -	R\$ -
TOTAL	34	40,031	R\$ 68.87	R\$ 93,739,012

Table 12 – Corinthians ticket sales projection

All the numbers were based on the club's performance from the previous years, except the supporting crowd in the *Campeonato Estadual*. As this competition has already taken place, the real value was considered.

For the following years, the number of ticket sales for the *Campeonato Estadual* was reduced to 36.000 - a more realistic number according to previous years - but the rest of them were maintained at the same level. The number of games played also stayed the same. Finally, ticket sales were adjusted by the expected IPCA rate for each year as Corinthians tend to adjust prices every year this way.

3.2.1.2.3. Other Revenue Streams

Apart from the three previous topics, there are three other revenue streams: endorsements, fan membership and player sales. As mentioned before, the value added by player sales is highly unpredictable, making it extremely difficult to predict. The total amount collected from fans memberships originates from the average price of the membership plans and how many fans are subscribed to them.

Since, in the base case, it is expected that Corinthians will maintain the same level of performance from the 2022 season, the number of members should stay the same and there is no reason to believe the club will increase the prices charged over the inflation. Additionally, the value from player sales should also remain close to 2022. So, both values were adjusted by the projected IPCA rate for each year.

The value considered for Corinthians endorsement deals in 2023 was 129.4 million Reais, the same amount the club used in its budget projection for the year. This is considered the best value as the club already has the information of all the agreements made, that may not be disclosed to the public, making it the most accurate projection.

As for the following years, the value of the club's endorsements was adjusted by each year's projection of the IPCA rate.

Finally, to close the revenue statement, revenue deductions were calculated with the same rationale as Botafogo.

3.2.1.2.4. Expenses

Table 12 illustrates the premise considered for each of the expenses.

Operating expenses	Rationale
Personnel	inflation
Third party services	average %
General and Administrative	budget
Costs with sales and acquisitions of athletes	inflation
Depreciation and amortization	average %
Football	average %
Prorated administrative expenses	average %

Table 13 – Corinthians' expenses rationale

Third-party services and prorated administrative expenses were projected based on the average percentage of the total revenue these values represented in the last few years. As these values do not significantly impact the result and tend to be stable over the years, this was considered the best course of action. For general and administrative expenses, the value disclosed by Corinthians on its 2023 budget was used.

Personnel expenses - that mostly include player salaries - and acquisition costs were both projected based on the 2022 value and adjusted each year by the IPCA rate. Given that the club maintains the performance of the 2022 season, which is expected in the base case, both expenses should remain at similar levels given each year's inflation.

Football Operations related expenses were projected based on the average percentage of the total revenue it represented in the last years. In addition to that, Corinthians is expected to use half of its ticket-selling revenue to pay installments of the stadium financing. So, this amount is projected here as well.

Depreciation and amortization were calculated based on the average percentage these values represented over the intangible assets in the past years. This average percentage was maintained to project these values for the following years.

3.2.1.2.5. Discount Rate

As mentioned in the previous chapter and used for Botafogo's premises, the discount rate was also calculated using the CAPM model with an 11.90% expected market return and a 0.65 beta.

However, the risk-free rate for Corinthians was based on Brazilian State Bonds, as these are known to be the safest investments in the country. The considered return rate was 12.76% per year, the rate offered on the *Tesouro Direto* website on March 30th, 2023, for the *Tesouro Pré-Fixado* 2029.

With all the information provided and applying the CAPM formula, the discount rate considered was 12.20% per year.

3.2.1.2.6. Perpetuity Growth Rate

For the perpetuity growth rate, it was considered Corinthians's average annual growth from 2010 until 2022. The values are displayed in Table 13:

Year	Revenue	Growth
2009	149,485	-
2010	173,615	16%
2011	258,445	49%
2012	310,917	20%
2013	279,138	-10%
2014	229,697	-18%
2015	269,619	17%
2016	458,295	70%
2017	421,890	-8%
2018	438,053	4%
2019	390,828	-11%
2020	440,890	13%
2021	447,750	2%
2022	687,015	53%

Table 14 – Corinthians' revenue growth 2010 - 2022

After a brief analysis of the historical values, it is easy to observe how erratic the year-on-year growth is. The value spans from -18% to + 70% with a 27% standard deviation and 15% mean. Given this scenario, it was decided to utilize an arbitrary 8.5% perpetuity growth rate as this value is close to the mean but more realistic than a 15 percent growth every single year.

3.2.1.3. Possible Scenarios

Different from most regular companies, a slight change in a football club's performance can have an enormous impact on its financial results. In order to try to minimize this effect on the club's valuation, two different scenarios were drawn, the first one where the club performance skyrockets and the second one where Corinthians does not have much success. With this, it is possible to determine a range where the club sale price should be depending on the expectations of its performance.

3.2.1.3.1. High Performance

For the high-performance scenario, it was considered that Corinthians would have a performance like what Flamengo and Palmeiras have presented in the last few years. This means finishing the *Campeonato Brasileiro* in the top 3 spots and, on average, reaching the semi-finals in *Copa Libertadores* and *Copa do Brasil*. This would impact TV rights, competition prizes and bump ticket sales up.

Endorsement deals would also grow as the current ones expire and a winning club tends to gain more money through renegotiations. Lastly, it is also expected that Corinthians increases the amount spent on player acquisition to bring better talent to the club and consequently pay higher salaries.

On the other hand, the club would also sell more players as they would need to rotate the current roster in order to make room for the new signings. Additionally, some players from the roster would be highly valued on the football market and targeted by European clubs due to their good performance.

Changes are also expected in CAPEX values, given the increase in player acquisitions, and on the number of members as the good results would boost fan interest. Finally, the perpetuity growth rate should increase because the club is performing at a higher level and generating greater revenue. In Table 14 the new premises are presented:

Premise	Original Value	Optimistic value
<i>Campeonato Brasileiro</i> final position	Top 6	Top 3
<i>Campeonato Paulista</i> average attendance	36,000	39,000
<i>Campeonato Brasileiro</i> average attendance	39,000	41,000
Number of <i>Copa do Brasil</i> games played	3.5	4
<i>Copa do Brasil</i> average attendance	41,000	42,000
Number of <i>Copa Libertadores</i> games played	4.5	5.5
<i>Copa Libertadores</i> average attendance	42,000	43,000
Endorsement deals	Base case	Extra 15% increase in 2025
Tournament prizes	Base case	Adjusted according to projected performance
Player sales	Base case	Extra 10% increase in 2024 and 2025, and 5% in 2026
Player acquisition	Base case	Extra 5% increase in 2024 and 2025
Personnel	Base case	Extra 5% increase in 2024, 2025 and 2026
Capex	Base case	5% increase over intangible in 2024, 2025 and 2026
Members	Base case	Extra 5% increase in 2024 and 2025
Perpetuity growth rate	8.50%	9.00%

Table 15 – Corinthians' high-performance scenario

3.2.1.3.2. Low Performance

For the low-performance scenario, it was considered that Corinthians would become an ordinary side. The projection estimates they would finish the *Campeonato Brasileiro* around the twelfth spot and on average reach the Round of 16 in *Copa do Brasil*. As for the *Copa Libertadores*, the club would not be able to qualify for the tournament, meaning they would have to play the *Copa Sudamericana* instead. The projection has them playing up to the quarterfinals of the tournament.

As in the previous scenario, these changes would impact TV rights and competition prizes, but drop ticket sales. For the endorsement deals, the growth in value is not expected anymore. But the value should not drop either, as Corinthians is a big market team with the potential to attract much publicity despite poor results.

It is also expected that Corinthians reduces the amount spent on player acquisition, as they would have less money available. They would also have to sell their main players as they would not be able to afford them. This would mean an increase in player sales and a cut in salaries.

Although the value in player sales would rise in the first years, it is important to highlight that this number should drop in a couple of years as the club would have sold its main and most expensive players. Opposite to the previous scenario, the number of members should drop as the team would lose appeal as a result of the poor performance.

Finally, as it happened in the high-performance scenario, the perpetuity growth rate is also adjusted because the club will have a lower performance in the long term in comparison to the base case.

In Table 15 the new premises are presented:

Premise	Original Value	Pessimistic value
<i>Campeonato Brasileiro</i> final position	Top 6	Top 12
<i>Campeonato Paulista</i> average attendance	36,000	25,000
<i>Campeonato Brasileiro</i> average attendance	39,000	32,000
Number of <i>Copa do Brasil</i> games played	3.5	3
<i>Copa do Brasil</i> average attendance	41,000	25,000
Number of <i>Copa Libertadores</i> games played	4.5	0
<i>Copa Libertadores</i> sold tickets	42,000	0
Number of <i>Copa Sudamericana</i> games played	0	4.5
<i>Copa Sudamericana</i> average attendance	0	35,000
<i>Copa Sudamericana</i> ticket price	0	R\$ 58.00
Tournament prizes	Base case	Adjusted according to projected performance
Player sales	Base case	Extra 10% increase in 2024, 8% in 2025 and 30% decrease in 2026
Player acquisition	Base case	10% increase in 2024 and 5% in 2025
Personnel	Base case	10% decrease in 2024 and 2025
Members	Base case	20% decrease in 2024 and 2025
Perpetuity growth rate	8.50%	7.00%

Table 16 – Corinthians' low-performance scenario

3.2.1.4. Club Value

3.2.1.4.1. Base Case

After setting all the rationales to project Corinthians' base case future revenue and expenses, it was possible to estimate its annual EBIT.

Income Statement	2023	2024	2025	2026	2027
Net operating revenue	628,465	654,448	700,576	728,599	757,743
Broadcasting	276,031	287,431	319,920	332,717	346,026
Advertising and sponsorship	129,400	134,744	140,134	145,739	151,569
Tickets	93,739	97,638	101,544	105,606	109,830
Prize money	33,592	34,979	36,378	37,833	39,346
Player transfers	128,500	133,807	139,159	144,726	150,515
Revenue Deductions	(32,796)	(34,152)	(36,560)	(38,022)	(39,543)
Operating expenses	(604,081)	(629,062)	(657,067)	(683,350)	(710,684)
Personnel	(289,639)	(301,601)	(313,665)	(326,212)	(339,260)
Third party services	(46,069)	(47,971)	(49,890)	(51,886)	(53,961)
General and Administrative	(39,400)	(41,027)	(42,668)	(44,375)	(46,150)
Costs with sales and acquisitions of athletes	(44,481)	(46,319)	(48,171)	(50,098)	(52,102)
Depreciation and amortization	(68,461)	(71,291)	(76,316)	(79,368)	(82,543)
Football	(94,939)	(98,888)	(102,843)	(106,957)	(111,235)
Prorated administrative expenses	(21,093)	(21,965)	(23,513)	(24,453)	(25,431)
EBIT	24,384	25,386	43,509	45,249	47,059

Table 17 – Corinthians' base case projected income statements 2023 – 2027

To obtain the annual free cash flow, Equation 2 was used. Firstly, Depreciation and Amortization values projected for each year were added back to the EBIT.

Change in Net Working Capital is obtained using the same rationale of Botafogo's Discounted Cash Flow by calculating the difference between the net working capital for the given year and the year before. Also, the same rationale for future projections were used.

	2019	2020	2021	2022	2023	2024	2025	2026	2027
Current assets	166,521	320,168	462,927	369,396	355,930	370,645	396,770	412,641	429,146
Cash and equivalents	3,600	9,046	4,365	12,092					
Accounts receivable	136,636	277,302	429,159	316,639					
Other accounts receivable	26,285	33,820	29,403	40,665					
Current Liabilities	379,869	557,803	514,473	498,328	527,231	549,006	570,966	593,805	617,557
Loans and financing	59,712	75,832	79,130	78,217					
Suppliers	114,714	217,047	256,092	254,345					
Image exploration payable	48,452	121,442	47,152	66,733					
Social charges and obligations	147,745	138,218	120,520	91,415					
Tax obligations	9,246	5,264	11,579	7,618					
Working Capital	(213,348)	(237,635)	(51,546)	(128,932)	(171,301)	(178,361)	(174,196)	(181,164)	(188,410)
Increase in Working Capital		(24,287)	186,089	(77,386)	(42,369)	(7,060)	4,165	(6,968)	(7,247)

Table 18 – Corinthians' Working Capital projection

CAPEX projections were as well calculated utilizing the same rationale of Botafogo's calculation. It was considered to be Investing Activities described in the Cash Flow Statements.

	2019	2020	2021	2022	2023	2024	2025	2026	2027
Intangible assets	199,899	244,840	217,211	222,176	214,077	222,927	238,640	248,186	258,113
Property, plant and equipment	577,312	572,900	567,322	574,498	574,498	574,498	574,498	574,498	574,498
Payments for PP&E	(9,387)	(3,267)	(2,116)	(16,997)	(16,997)	(16,997)	(16,997)	(16,997)	(16,997)
Payments for intangible assets	(98,090)	(92,574)	(56,070)	(79,111)	(79,111)	(79,111)	(79,111)	(79,111)	(79,111)
Cash flow from investing activities	(107,477)	(95,841)	(58,186)	(96,108)	(96,108)	(96,108)	(96,108)	(96,108)	(96,108)

Table 19 – Corinthians' Capital Expenditures projection

After applying the DCF equation (Equation 5) to those projected FCFs, Corinthians' value by the Discounted Cash Flow valuation method is 772 million Reais. This result is displayed in Table 19:

	2023	2024	2025	2026	2027	Terminal Value
EBIT	24,384	25,386	43,509	45,249	47,059	-
(+) Depreciation and amortization	68,461	71,291	76,316	79,368	82,543	-
(-) Increase in Working Capital	(42,369)	(7,060)	4,165	(6,968)	(7,247)	-
(-) CAPEX	96,108	96,108	96,108	96,108	96,108	-
Free Cash Flow to the firm	39,106	7,628	19,552	35,478	40,741	1,196,030
Discounted Cash Flow	34,855	6,060	13,844	22,390	22,916	672,755

Club value
R\$ 772,820,446

Table 20 – Corinthians' base case projected club value

3.2.1.4.2. High Performance

In the high-performance scenario, changes mentioned on Table 14 were applied to the base case to project the new value. The results are displayed in Table 20.

Income Statement	2023	2024	2025	2026	2027
Net operating revenue	657,465	700,429	785,282	825,015	858,016
Broadcasting	296,033	308,259	342,154	355,840	370,074
Advertising and sponsorship	129,400	134,744	161,154	167,600	174,304
Tickets	104,250	110,062	114,465	119,043	123,805
Prize money	33,592	36,728	40,107	41,711	43,379
Player transfers	128,500	147,188	168,383	183,874	191,229
Revenue Deductions	(34,310)	(36,552)	(40,980)	(43,053)	(44,776)
Operating expenses	(620,985)	(667,806)	(721,614)	(769,647)	(800,433)
Personnel	(289,639)	(316,681)	(345,816)	(377,631)	(392,736)
Third party services	(48,194)	(50,185)	(52,192)	(54,280)	(56,451)
General and Administrative	(39,400)	(41,027)	(42,668)	(44,375)	(46,150)
Costs with sales and acquisitions of athletes	(44,481)	(48,635)	(53,109)	(55,233)	(57,443)
Depreciation and amortization	(71,620)	(76,300)	(85,543)	(89,871)	(93,466)
Football	(105,584)	(111,471)	(115,930)	(120,567)	(125,389)
Prorated administrative expenses	(22,066)	(23,508)	(26,356)	(27,689)	(28,797)
EBIT	36,480	32,623	63,669	55,369	57,583

Table 21 – Corinthians' high-performance projected income statements 2023 – 2027

When applying the optimistic premises, Corinthians revenue increases on average R\$71 million per year while expenses increase by R\$59 million per year. This means an impact of positive 1pp on its average EBIT margin.

After calculating the Free Cash flows in this scenario and applying the DCF method, Corinthians value raises 30% to 1 billion Reais.

	2023	2024	2025	2026	2027	Terminal Value
EBIT	36,480	32,623	63,669	55,369	57,583	-
(+) Depreciation and amortization	71,620	76,300	85,543	89,871	93,466	-
(-) Increase in Working Capital	(25,945)	2,558	26,096	(336)	(5,062)	-
(-) CAPEX	100,064	104,217	108,578	108,578	108,578	-
Free Cash Flow to the firm	33,981	2,148	14,538	36,998	47,534	1,621,212
Discounted Cash Flow	30,287	1,706	10,293	23,349	26,738	911,916

Club Value
R\$ 1,004,290,157

Table 22 – Corinthians' high-performance projected club value

3.2.1.4.3. Low Performance

In the low-performance scenario, the changes mentioned on Table 15 were applied to the model in order to predict the new club value. The results are displayed in Table 22.

Income Statement	2023	2024	2025	2026	2027
Net operating revenue	593,229	590,029	637,876	614,369	638,944
Broadcasting	245,478	241,984	270,749	281,579	292,842
Advertising and sponsorship	129,400	134,744	140,134	145,739	151,569
Tickets	87,218	68,921	71,678	74,545	77,527
Prize money	33,592	27,983	23,282	24,213	25,182
Player transfers	128,500	147,188	165,321	120,354	125,168
Revenue Deductions	(30,958)	(30,791)	(33,288)	(32,061)	(33,343)
Operating expenses	(589,872)	(553,316)	(548,506)	(563,461)	(585,999)
Personnel	(289,639)	(271,441)	(254,069)	(264,232)	(274,801)
Third party services	(43,486)	(45,282)	(47,093)	(48,977)	(50,936)
General and Administrative	(39,400)	(41,027)	(42,668)	(44,375)	(46,150)
Costs with sales and acquisitions of athletes	(44,481)	(41,687)	(41,186)	(42,834)	(44,547)
Depreciation and amortization	(64,622)	(64,274)	(69,486)	(66,925)	(69,602)
Football	(88,334)	(69,803)	(72,595)	(75,499)	(78,519)
Prorated administrative expenses	(19,910)	(19,803)	(21,408)	(20,620)	(21,444)
EBIT	3,357	36,713	89,370	50,909	52,945

Table 23 – Corinthians' low-performance projected income statements 2023 – 2027

As shown above, the changes reduced club net revenues by R\$79 million a year on average. On the other hand, the expenses were reduced on average by R\$89 million per year. This means the average EBIT margin rose 2.2 percentual points in the pessimistic scenario.

This fact alone would be great, as Corinthians would have a healthier operation. The problem is that this does not translate to the club's valuation as the perpetuity growth rate drops from nine to seven percent a year. When all these factors are combined, the estimated pessimist valuation for Corinthians is 571 million Reais.

	2023	2024	2025	2026	2027	Terminal Value
EBIT	3,357	36,713	89,370	50,909	52,945	-
(+) Depreciation and amortization	64,622	64,274	69,486	66,925	69,602	-
(-) Increase in Working Capital	(62,325)	(23,587)	5,138	(36,152)	(9,834)	-
(-) CAPEX	96,108	96,108	96,108	96,108	96,108	-
Free Cash Flow to the firm	34,196	28,466	57,610	57,877	36,273	746,983
Discounted Cash Flow	30,479	22,614	40,791	36,526	20,403	420,171
						Club value
						R\$ 570,983,805

Table 24 – Corinthians' low-performance projected club value

3.2.2. Multivariate model - Markham's Method

As it was done with Botafogo, the second method used to estimate Corinthians' value was the multivariate model developed by Tom Markham.

Four of the values needed to apply the model came directly from the club's 2022 financial report. The total revenue was R\$779.10 million, the club's net assets accounted for - R\$113.78 million, the net profit was R\$15.37 million and the wage ratio was 40%.

To estimate the percentage of the stadium capacity filled every game, we considered the club's average crowd in 2022 and its maximum capacity. The average number of fans was 37,823 and the values for this estimation can be consulted in Table 11. As for Neo Química Arena maximum capacity, as reported by the news outlet Goal, is set at 49,205. This means Corinthians average stadium attendance is 77% of its total capacity.

After gathering all this information and applying Markham's equation, we estimate the value for Corinthians to be 1.3 billion Reais.

4. Case Study – Results and Analysis

4.1. Botafogo

Botafogo's Discounted Cash Flow valuation resulted in a club value of R\$1.2 billion, while the multivariate model by Markham ended in a minus R\$558 million valuation. It is noticeable that those numbers are extremely different from each other, and this happened for some reasons.

As mentioned in the Theoretical Background chapter, the FCFF method, also called Unlevered Free Cash Flow, was used to project Botafogo's annual free cash flow. Although this is a widely used method to evaluate companies, it does not consider interest expenses and net debt issuance. As the calculation starts from the EBIT and only adjusts depreciation, amortization, working capital and capital expenditures, it leaves interest factors out of the math.

With this approach, it is possible to reach a company's Enterprise Value (EV). In basic terms, EV means the money an acquirer would need to buy a company considering they have to pay its equity shareholders and whoever lent money to the company. So, the EV considers a company's equity and debt values.

Equation 8 – Enterprise Value

$$EV = Equity\ Value + Net\ Debt$$

In the case of Botafogo, debts and interest payments are very relevant in their financial reports. In 2021, they had R\$830 million in accumulated losses while having R\$863 million in debts and only R\$2.5 million in cash or cash equivalents. It results in a Net Debt of approximately R\$860 million.

Another method that can be used to evaluate the purchase value of a company with significant amounts of debt is the Discounted Cash Flow using Levered Free Cash Flow. It uses the Free Cash Flow to Equity formula (Equation 3) that measures how much cash is available to the equity shareholders of a company after it has met its financial obligations, also called the Equity Value of a company.

If this method were used to do the valuation of Botafogo, its value would significantly decrease from the R\$1.2 billion found using the Unlevered Free Cash Flow. That would happen because the annual free cash flow would suffer reductions after accounting for the club's financial obligations.

A more straightforward way to reach an approximation of Botafogo's equity value is by subtracting its Net Debt from its Enterprise Value. The value reached with this calculation is 390 million Reais.

When applying Markham's method to calculate a club's purchase value, one key element in the formula is the factor Revenue + Net Assets. The rest of the formula is multiplied by this sum, so it has a crucial and cascading effect on the result. Any combination of Revenue + Net Assets below zero results in a negative multiplying factor, generating a negative club value.

The peculiarity of Botafogo's situation is that its Net Assets are terribly negative, reaching -R\$791 million in 2021, the year before it was acquired. Besides that, their revenue in that same year was only R\$111 million, resulting in a sum of -R\$680 million that was multiplied by the rest of the equation.

In this case, the profitability factor of the equation does the opposite of what Markham intended when creating this method. A factor above 1, which indicates a profitable club, would help to decrease the club value, and a factor under 1 would help increase it. Therefore, it is possible to say that Markham did not account for the possibility of a club having a sum of Revenue + Net Assets lower than zero, as his equation loses its logic when that occurs.

In March 2022, the deal for the acquisition of 90% of SAF Botafogo was sealed between the club and the buyer Eagle Holdings, represented by its owner John Textor. The main requirement demanded by the club in the contract was the mandatory R\$400 million investment from the new owner during the following three years. (Globo, 2022)

As mentioned in the Introduction, the concept of a club-company and this type of deal is new in Brazil. Associative clubs can now sell their football operation to be transformed into a company. So, it does not involve paying a purchase value to the previous shareholders but rather committing to an investment that will help the football club grow and settle some debts.

Because of that, it is prudent to consider this 400 million Reais investment as the purchase value for 90% of Botafogo's football operations, resulting in a valuation of R\$444 million.

Both Discounted Cash Flow method and Markham's multivariate model resulted in valuations considerably far from this value. On the other hand, when calculating the Equity value of Botafogo, that figure was only 51 million Reais apart from John Textor's valuation of Botafogo.

In this particular case of a club with healthy EBIT margins but with a worrisome background, including negative Net Assets and almost an 8x Net Debt/Revenue ratio, both methods used in this work failed to reach an appropriate value. However, a very reasonable figure was reached when estimating Botafogo's equity value from the Discounted Cash Flow method.

4.2. Corinthians

Using the DCF method, Corinthians valuation ranged from 571 million Reais up to one billion Reais. Added to that, as briefly mentioned in the previous chapter, the projection of the different scenarios had a curious effect on the EBIT margins. The results are displayed in Figure 1.

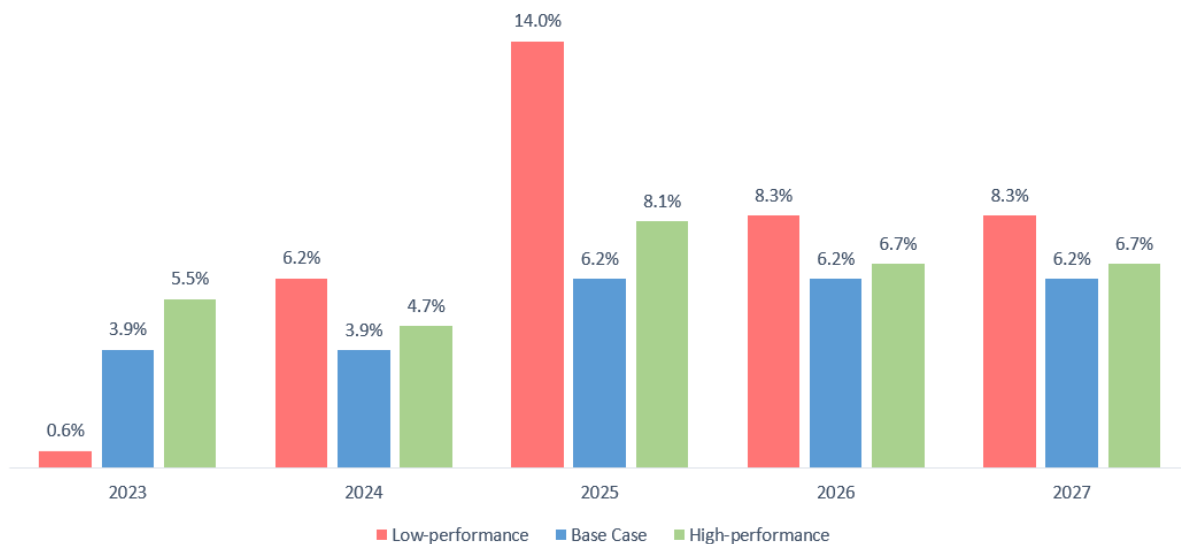


Figure 1 – Corinthians' EBIT margin comparison

Even though revenues grow over the different projected scenarios, the EBIT margin does not behave in the same way. This result can be explained by the intrinsic way football clubs operate because they are not regular business.

As it was presented in the Theoretical Background chapter, a football club's primary goal is not to generate higher profits like regular companies. Instead, it is to have the best possible performance while maintaining financial health. Therefore, when Corinthians achieves higher revenues, it does not translate to their EBIT margin, as expenses also have a substantial growth. This happens because it is expected that they will sign better and more expensive players while paying them higher salaries.

On the other hand, on the low performance scenario, the EBIT margin explodes reaching a peak of 14.0% in 2025. This happens because as the club cannot generate high revenues given their performance, they have to cut costs in order to keep a healthy operation.

Comparing Corinthians' low performance scenario with Botafogo's numbers, a club that has not had great sporting performance over the past years, it is possible to observe that they also have high EBIT margins. This shows a tendency that when clubs are performing well, they operate with smaller EBIT margins to boost their sporting performance but are able to deliver high absolute values. On the other hand, when a club has a bad performance, they tend to be more cautious and care more about their EBIT margin to remain healthy as they cannot generate a high absolute EBIT.

When comparing the range of possible values for Corinthians with the prices other Brazilian clubs have been sold for, it becomes clear how the DCF may not be a good method to value this particular side. In the base case, the club was valued at R\$772 million, 228 million less than what Vasco da Gama was valued when their SAF was bought.

When examining both clubs' financial reports, it becomes clear how Corinthians is able to generate greater revenues. During the last decade, they produced approximately 3.6 billion while Vasco da Gama around 1.7 billion. This makes for a difference of almost 200 million Reais every year between the clubs.

Looking beyond financial values and into sports accomplishments, Vasco da Gama has not been able to sustain the same level as Corinthians. Since the beginning of the century, Vasco da Gama has won two major titles, one *Campeonato Brasileiro* and one *Copa do Brasil*. Additionally, as presented in the first chapter, they have also been relegated four times during this period.

On the other hand, Corinthians has won four *Campeonatos Brasileiros*, two *Copas do Brasil*, one *Copa Libertadores*, one FIFA Club World Cup and have been relegated only once. Another key factor in this analysis is the number of fans each team has. As stated by Markham (2013), supporters are one of the most vital assets for any club.

According to Grafietti et al. (2022), Corinthians has the second largest number of fans in Brazil, at 29.4 million. Vasco has the fifth largest supporting crowd, but their total is only 6.7 million fans. Not only does Corinthians have a larger number of supporters, but they are also capable of bringing more of them to their games every week. For Azevedo (2020), in the twenty-first century, Corinthians has an average per game of 25,000 fans in both *Campeonato*

Brasileiro top flight and *Copa do Brasil* games, while Vasco has an average of only 11,000 in both competitions.

When all these factors are put together, it is almost impossible to accept that Vasco da Gama should be worth more than Corinthians. This does not mean that their valuation at one billion Reais was wrong, as even though the club endured tough times, they are one of Brazil's biggest sides and have the capability to generate significant revenues and profits for their investors. Rather than that, it means – as stated before – that the DCF was not a good method to value Corinthians as it did not reflect the club's full potential.

Markham's multivariate model produced a better estimative for Corinthians value at 1.3 billion Reais. When compared to the sales price of Vasco, Botafogo and Cruzeiro, their recent sporting accomplishments and the potential to generate revenue through their supporting fans, we believe that this model produced an appropriate estimation for Corinthians value.

Once again, as it happened with Botafogo, one method was able to generate a coherent estimative for the club's value while the other was not. However, this time, opposite to what happened before, Markham's approach had the best result compared to the DCF method.

5. Conclusions

This work sought to analyze two different valuation methods to determine if John Textor made a fair deal for Botafogo and estimate how much Corinthians, one of the biggest clubs in the country, should be worth in an eventual purchase of the team.

We believe both objectives set for the work were achieved. Through the Equity Value, the valuation for Botafogo was only 51 million Reais shy of what Textor paid to acquire the club. And when projecting Corinthians theoretical sale value with Tom Markham's multivariate model, we reached a 1.3 billion valuation that is coherent with the prices paid for the already existing SAFs.

Even though the values mentioned above were satisfactory, some contradictory results were also found. Firstly, when the Markham model was applied to Botafogo, it produced a negative value to the club – which is far from reality and the price paid for the club. This shows a flaw in the method developed by Tom Markham, as he failed to consider the possibility of clubs with a Revenue + Net Assets combination below zero, which results in a negative valuation.

Markham probably did not consider this possibility because his method was developed to English Premier League clubs. Most of these teams have exorbitant revenues and highly valuable assets, so this would not be an issue. Anyhow, it demonstrates a limitation to expanding the approach to clubs around the world.

The second contradictory result was Corinthians' valuation through the DCF. This approach demonstrated how sensitive the club's performance is to its valuation since the final value ranged around 500 million Reais in the different projected scenarios. Not only that, the values did not reflect the full potential of the club, as discussed in the previous chapter.

Given all that was presented, we believe this work also contributes to the discussion of football clubs valuation. It produced realistic values for two Brazilian clubs, exposed flaws in a very widespread method – Markham's one – and demonstrated the sensitivity of the DCF for football clubs.

Ultimately, we agree with Griefetti (2020) when he states that a sole method should never be used to value a club, as some things may function well while others could just be senseless attempts.

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