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Equity Valuation: Coca-Cola Company

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September, 2024

Department of Finance

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Resumo

A Empresa Coca-Cola, líder na indústria das bebidas não alcoólicas, tem crescido com o propósito de refrescar pessoas e marcar o mundo pela diferença. Atualmente, esta empresa encontra-se cotada na bolsa de valores de Nova Iorque sob o símbolo KO.

O principal objetivo desta avaliação de empresa é determinar o valor justo das ações da Coca-Cola no último dia de 2023. Com base na comparação entre o valor justo e o preço das ações do mercado registado nessa data, foi feita uma recomendação de investimento aos investidores da empresa.

Entre as metodologias mais utilizadas na avaliação de empresas, foram escolhidas as abordagens dos Fluxos de Caixa Descontados, na ótica da empresa, e a Avaliação Relativa, que tem como base múltiplos financeiros.

Em ambas as abordagens, o valor justo das ações é superior ao preço a que estas estavam a ser transacionadas em mercado no dia 29 de dezembro de 2023 ($58.93). Este cenário sugere que nessa data as ações estavam subvalorizadas, refletindo-se numa oportunidade de valorização das ações. Assim, nessa data, os investidores deveriam ter comprado ações da Coca-Cola.

Abstract

The Coca-Cola Company, a leader in the non-alcoholic beverage industry, has been dedicated to refreshing people and making a difference in the world. Currently, the company is traded on the New York Stock Exchange under the symbol KO.

The primary goal of this equity valuation is to determine the fair price of Coca-Cola shares on the last day of 2023. Based on the comparison between the fair value and the market share price recorded on that date, an investment decision was made for the company's shareholders.

Among the various methodologies used in company valuation, the Discounted Cash Flow Valuation, from the company's perspective, and Relative Valuation, based on financial multiples, were the selected approaches to value the company.

The estimated fair value of shares in both valuation methods is higher than the market price at which they were traded on December 29, 2023 ($58.93). This scenario suggests that on that date the shares were undervalued, reflecting an opportunity for share appreciation. Therefore, on that date, investors should have bought Coca-Cola shares.

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Glossary

APT – Arbitrage Pricing Theory

APV – Adjusted Present Value

BIG - Bottling Investment Group

CAPEX - Capital Expenditures

CAPM – Capital Asset Pricing Model

CF - Cash Flow

COGS – Cost of Goods Sold

D&A – Depreciation and Amortization

DCF - Discounted Cash Flows

DDM – Dividend Discount Model

EBIT – Earnings Before Interests and Taxes

EBITDA – Earnings Before Interest, Taxes, Depreciation and Amortization

EPS – Earnings Per Share

EQV – Equity Value

EU- European Union

EV – Enterprise Value

FCFE – Free Cash Flow to Equity

FCFF – Free Cash Flow to the Firm

GDP – Gross Domestic Product

GV – Global Ventures

IMF – International Monetary Fund

NOA – Non-operating Assets

NYSE – New York Stock Exchange

OOC – Other Operating Charges

ROA – Return on Assets

ROE – Return on Equity

ROIC – Return on Invested Capital

S&P 500 - Standard & Poor's 500

SG&A – Selling, General and Administrative Expenses

TCCC - The Coca-Cola Company

TGR- Terminal Growth Rate

TV - Terminal Value

USA – United States of America

WACC – Weighted Average Cost of Capital

WC – Working Capital

Introduction

The company valuation is a crucial topic in corporate finance, as it guides investors' decisions by determining the fair value of an asset.

The primary objective of this thesis is to determine whether, by the end of 2023, the Coca-Cola Company shares were being traded above or below their fair value, using a valuation model for this purpose.

The Coca-Cola Company (TCCC henceforth) was founded in 1892 in Georgia, United States. This company is a world-renowned beverage firm that has developed a large portfolio of drinks, which includes 200 brands in categories such as Sparkling, Hydration, Coffee & Tea and Juices & Dairy.

According to TCCC (n.d.), the company has a global social and sustainable impact. This firm has a workforce of 700,000 employees, contributing to the creation of new economic opportunities. The company's positive social impact goes beyond employment, as TCCC supports human rights defense, diversity and inclusion causes. At a sustainability level, the positive impact is achieved through a focus on water stewardship, sustainable agriculture, and sustainable packaging.

This thesis is structured into four sections. Following the introduction, different valuation models are discussed as possible tools for a company's valuation in the literature review section. The second section provides a macroeconomic and industry overview, as both environments have a strong influence on the company's performance. In the third section, an analysis of TCCC is carried out to understand what key factors affect its performance, and consequently its value. In the final section, assumptions for the elaboration of forecasts are presented, which allow the company's valuation using the Discounted Cash Flow and Relative Valuation approaches. Additionally, in this section a sensitivity analysis is performed, and the final results are discussed.

1.   Literature Review

In this section, the concept of valuation is initially presented, emphasizing its importance in the context of equity valuation. Subsequently, various valuation models are discussed as potential tools for valuing a company.

1.1.   Introduction to Valuation

"Every asset, financial as well as real, has a value." (Damodaran, 2012, p.1). According to Damodaran (2012), in addition to understanding the value of assets, it is important to comprehend the sources of value to invest in and manage assets successfully. At this level, Fernández (2002) complements this argument by adding that it is crucial to recognize the company's drivers of economic creation and destruction. Luehrman (1997) adds that the company's valuation estimation is essential, as it directly influences the allocation of resources.

Fernández (2002) emphasizes that concepts of value and price are frequently confused in a company's sale. In this context, the price results from the divergent perspectives of the seller and buyer: while the seller focuses on the minimum value at which it should accept the operation, the buyer is concerned about the maximum value they are willing to pay. Usually, the final price is somewhere between the two values.

According to Damodaran (2012), valuation is valuable in areas such as corporate finance, mergers and acquisitions, and portfolio management. Fernández (2002) complements by identifying the purposes for which valuation can be used - purchase/sale of operations, valuation of listed companies, public offerings, inheritances and wills, compensation schemes based on value creation, identification of value drivers, strategic decisions on the company´s continued existence and strategic planning. Since the main goal of this project is to do an equity valuation of TCCC, the most relevant purpose in this context is the valuation of listed companies used to compare the value obtained with the share´s price on the stock market.

Luehrman (1997) defines valuation as a function of three key elements: cash, timing and risk. This perspective suggests that each valuation has different characteristics, leading to different analytical challenges.

Fernández (2002) and Damodaran (2012) categorize the main valuation approaches differently. The first author identifies six main valuation methods: balance sheet, income statement, mixed (goodwill), cash flow discounting, value creation, and options. In contrast, the second author simplifies the valuation into three approaches: discounted cash flow (DCF), relative valuation, and contingent claim valuation. Damodaran (2012) adds that different valuations can lead to divergent results. This section focuses on the last three approaches presented.

1.2. Discounted Cash Flow

The DCF methodology is frequently used to determine a company's value. This method involves estimating cash flows for a defined forecast period, which typically ranges between five to ten years, and discounting them at a suitable rate in each period (Fernández, 2002; Steiger, 2008). Thus, DCF can be presented through the following equation (1):

$$V = \frac{CF_1}{1+k} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + \cdots + \frac{CF_n + TV_n}{(1+k)^n} \tag{1}$$

where:

- V = Present value of the cash flows
- CF_i = Cash flow generated by the company in period i
- k = Appropriate discount rate for the cash flows′ risk
- n = Last year of the forecast period
- TV_n = Terminal value of the company in the year n

The definition of some elements in equation (1), as the discount rate and terminal value, are considered by many authors the most important tasks in DCF analysis since minor changes in these components will have major effects on the final value (Fernández, 2002).

Fernández (2002) highlights the importance of considering the cash flows risk to define the discount rate. Damodaran (2012) adds that risky assets typically have higher rates.

Damodaran (2012) and Koller et. al (2020) define the terminal value as a continuing- value formula used to value the cash flows beyond the year of the cash flows′ closure, which can be defined as the last year of stable growth rate. This year "…depends on the company and how it is changing over time." (Koller et. al, 2020, p. 186).

Also, according to Damodaran (2012), the most widely method to estimate the terminal value is the stable growth model, which assumes that the firm cash flows will grow at a constant growth rate. Therefore, the terminal value can be estimated using a perpetual growth model, as represented in the equation (2):

$$TV_n = \frac{CF_{n+1}}{k - TGR} \tag{2}$$

where:

- CF_{t+1} = First cash flow of the perpetuity cash flow
- TGR = Terminal growth rate

Steiger (2008) defends that is necessary to ensure that TGR is not too high, as it would not be sustainable in the long-term. According to the author, the value of TGR should be between 0% and 5%. Damodaran (2012) adds that the stable growth rate cannot be higher than the economic growth rate.

Damodaran (2012) presents four approaches for the DCF model: Free Cash Flow to the Firm (FCFF), Free Cash Flow to Equity (FCFE), Dividend Discount Model (DDM) and Adjusted Present Value (APV). It is expected that the results obtained through the mentioned methods will be similar, as they analyze the same reality under equal assumptions (Fernández, 2002).

1.2.1. Free Cash Flow to the Firm

FCFF represents the cash flows available for investors of the company, including common stockholders, bondholders, and preferred stockholders (Pinto, 2010; Damodaran, 2012). According to Damodaran (2012), there are two ways of calculating this popular approach in DCF analysis. The easiest one is presented in equation (3):

$$FCFF = EBIT * (1 - t) + Depreciations - CAPEX - \Delta WC \tag{3}$$

where:

- $EBIT$ = Earnings before interest and taxes
- t = Corporate tax rate
- $CAPEX$ = Capital expenditures
- ΔWC = Changes in working capital

Damodaran (2012) states that FCFF is commonly used to estimate the Enterprise Value (EV) by discounting the FCFF and terminal value at the weighted average cost of capital (WACC):

$$EV = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{TV_n}{(1 + WACC)^n} \tag{4}$$

where:

- n = Number of forecasted periods
- t = Year between 1 and n
- $FCFF_t$ = Free cash flow to the firm in period t
- $WACC$ = Weighted average cost of capital
- TV_n = Terminal value in period n

Regarding to the terminal value, in the FCFF context, the CF_{t+1} and k inputs identified in equation (2) will be replaced, respectively, by the $FCFF_{n+1}$ and the WACC:

$$TV_n = \frac{FCFF_{n+1}}{(WACC - TGR)} \tag{5}$$

Non-operating assets (NOA) must be added, and non-equity claims must be subtracted from EV since the EV in FCFF reflects the total firm value, and the main objective is to value just the portion held by the shareholders (Koller et al., 2020):

$$EQV = EV + NOA - (Non - equity\ claims) \tag{6}$$

The first EV adjustment is the addition of NOA, which can be defined as "…assets that have value but whose cash flow are not included in accounting revenue or operating profit." (Koller et al., 2020, p. 189). Consequently, the definition of NOA includes the excess cash, tradable securities, and customer-financing business units.

The second EV adjustment is made at the non-equity claims level, which includes "…debt and other non-equity claims, such as unfunded retirement liabilities, capitalized operating leases, and outstanding employee options…" (Koller et al., 2020, pp.189-190).

According to Steiger (2008), the fair value per share can be calculated by dividing the EQV of the company by the total number of outstanding shares.

1.2.1.1. Weighted Average Cost of Capital

As previously mentioned, the WACC is the most suitable discount rate in FCFF method to estimate the firm's value. According to Booth (2002), this component can be described as the effective after-tax cost of capital to the firm. Therefore, the WACC can be obtained through the following equation:

$$WACC = \frac{E}{E+D} * r_E + \frac{D}{E+D} * r_D * (1-t) \tag{7}$$

where:

- E = Equity
- D = Debt
- r_E = Cost of equity
- r_D = Cost of debt
- t = Corporate tax rate

The WACC is considered an important input in DCF model since small variations in this element will cause large changes in the firm value (Steiger, 2008).

Despite being the most used discount rate in DCF valuations, WACC is appropriate only for the simplest and most static capital structure. It is easy to misestimate, especially in complex company's capital structure. In these cases, the WACC has to be adjusted by period and project (Luehrman, 1997).

1.2.1.2.   Cost of Equity

The cost of equity is a relevant component in the WACC, as represented in equation (7). This central element can be describe as "… the rate of return investors require on an equity investment in a firm." (Damodaran, 2012, p. 248).

Despite the difficulty in measuring the cost of equity, Koller et al. (2020) argue that it can be estimated in two stages. The first stage is the market return estimation. This step is helpful since the market return will provide a critical benchmark useful to judge the estimations of the cost of equity for individual companies. The second step is the adjustment of the risk. This adjustment can be done through three well-recognized models: Capital Asset Pricing Model (CAPM), Fama-French Three-Factor Model, and the Arbitrage Pricing Theory (APT). These models differ in the factors used to estimate the effect of compensated risk.

At the second stage, the most widely used model is the CAPM (Larrabee & Voss, 2012). As mentioned by Fama and French (2004), this model was developed by William Sharpe and John Lintner between 1964 and 1965, and later, in 1959, Harry Markowitz built the CAPM on the model of portfolio choice.

According to Pinto (2010), the CAPM is in equilibrium if the following assumptions are fulfilled: i) investors are risk averse, ii) investors base their investment decisions on the mean and variance returns of their portfolio, and iii) investors evaluate the risk of an asset by considering how it would affect the portfolio´s systematic risk.

According to Borgersen and Kivedal (2018), the CAPM can be express as follows:

$$r_{CAPM} = r_f + \beta * [r_M - r_f] \qquad (8)$$

where:

- r_{CAPM} = Expected return
- r_f = Risk-free rate
- β = Systematic risk
- r_M = Market´s expected return
- $[r_M - r_f]$ = Market Risk premium for the systematic risk

The CAPM components, identified in equation (8), are explained in more detail in the following pages.

1.2.1.2.1.   Risk- free Rate

Damodaran (2012) defends that for an investment to be considered risk-free, the returns must be equal to the expected return over a certain period. This author also argues that for an asset to be deemed risk-free it has to meet two requirements: no reinvestment and default risk. Concerning the latter requisite, an example of securities with a very low risk are American government securities.

According to Borgersen and Kivedal (2018), the best proxy to the risk-free rate is the long-term government bonds. In this context, Damodaran (2012) emphasizes the importance of the currency consistency between the government bonds and the cash flows under analysis.

1.2.1.2.2. Beta

Beta quantifies the market risk, also known as systematic risk. In other words, this CAPM input measures how the company return changes in relation to the returns on the market portfolio of risky assets (Pinto, 2010; Damodaran, 2012).

The beta can be estimated, "…by dividing the covariance of each asset with the market portfolio by the variance of the market portfolio." (Damodaran, 2012, p. 17), through the following equation:

$$\beta_i = \frac{COV_{i,m}}{\sigma^2{}_m} \tag{9}$$

where:

- $COV_{i,m}$ = Covariance between the asset and the market
- $\sigma^2{}_m$ = Variance of the market

According to Larrabee and Voss (2012), typically, betas of publicly traded companies are known. In contrast, this input should be estimated for unlisted companies.

The beta of a non-public company can be estimated indirectly based on the public peer´s beta. The first step is unlevered the benchmark beta, which will contribute to a better understanding of what is the actual risk associated to the business. Afterwards, the asset´s beta should be levered, taking into consideration the capital structure of the individual company.

1.2.1.2.3. Market Risk Premium

The Market Risk Premium, also known as equity risk premium, measures the extra return that an investor needs to invest in a risky market portfolio instead of risk-free assets (Goetzmann & Ibbotson, 2006).

According to Damodaran (2012), the conventional approach used to determine the market risk premium is the historical premium, which estimates the returns on stocks over a long period of time and compares them with the real returns on a default-free asset. Thus, the historical risk premium corresponds to the difference between those returns, on an annual basis.

Regarding this approach, this author also recognizes that countries have different risk levels and investing in a foreign country has an additional risk. Consequently, the return that an investor will require from their investment in a foreign country (outside of the USA) should be higher than the historical equity risk premium since the extra risks have to be compensated. Therefore, a country risk premium should be added to the historical equity risk in order to estimate the equity risk premium.

Alternatively, the market risk premium can be measured by the implied equity premium approach. To apply this methodology "… we start with a valuation model for equities and estimate the expected growth and cash flows, collectively, on equity investments." (Damodaran, 2012, p. 33). Despite not requiring historical data and assuming the correct price of the market, this approach is limited by the reliability of available data.

1.2.1.3. Cost of Debt

Baule (2019) defines cost of debt as the expected return of bondholders. According to Damodaran (2012), this cost is determined by the riskless rate and default risk. As these variables increase, the cost of debt will also increase.

Usually, the cost of debt is referred to as after-tax cost of debt since the interest normally is tax deductible. Generally, the after-tax cost is lower than the pre-tax cost, which means that the payment of interests is benefic for the company´s cost of debt (Damodaran, 2012).

Koller et al. (2005) claim that for an investment-grade firm the best proxy for the cost of debt is the yield to maturity (YTM) of the company on its long-term debt. Additionally, the YTM calculation will be different between companies. While in publicly traded debt companies the YTM can be estimated directly by the bond´s price, in illiquid debt firms the YTM can be computed based on the company´s debt rating.

In contrast, according to Damodaran (2012), when the company does not have rating available, the cost of debt should be estimated on the company´s recent borrowing history or in the synthetic rating, which is created on financial ratios.

1.2.2. Free Cash Flow to Equity

The cash flow accessible to common stockholders is denominated as FCFE (Pinto, 2010; Damodaran, 2012). Damodaran (2012) states that the FCFE can be calculated using the following formula:

$$FCFE = Net\ Income + Depreciations\ and\ Amortizations - CAPEX - $$
$$\Delta WC + New\ Debt\ Issued - Debt\ Repayments \qquad (10)$$

Alternatively, the FCFE can be estimated through some adjustments to the FCFF represented in the equation (Damodaran, 2012):

$$FCFE = FCFF - Interest\ expenses * (1 - t) + \Delta Debt \qquad (11)$$

In contrast to the FCFF, in FCFE the EQV can be estimated directly by discounting the cash flows and the terminal value at the required rate of return for equity (Pinto, 2010). Thus:

$$EQV = \sum_{t=1}^{n} \frac{FCFE_t}{(1 + r_E)^t} + \frac{TV_n}{(1 + r_E)^n} \qquad (12)$$

where:

- $FCFE_t$ = Free cash flow to equity in period t
- r_E = Required rate of return for equity
- TV_n = Terminal value at the period n

Regarding to the terminal value, in the FCFE context, the CF_{t+1} and k inputs identified in equation (2) will be substituted, respectively, by $FCFE_{n+1}$ and r_E :

$$TV_n = \frac{FCFE_{n+1}}{(r_E - TGR)} \qquad (13)$$

Similarly to the FCFF approach, in the FCFE approach the fair price per share of the company can be found by dividing the EQV by the number of outstanding shares.

1.2.3. Dividend Discount Model

In the DDM approach, which corresponds to the simplest case of FCFE, "… the only cash flow you receive from a firm when you buy publicly traded stock is the dividend." (Damodaran, 2012, p. 451).

According to Damodaran (2012), the general model of DDM can be described as the expected dividends per share discounted at the cost of equity since it is based on the present value rule.

Some versions of the DDM model, such as the Gordon Growth Model, the Two-Stage DDM, the H Model for valuing growth, and the Three-Stage DDM, have emerged to address the impossibility of estimating dividends indefinitely from the general model. The different versions of the model vary in their calculations. In the first model the value of the stock is determined through three key factors: expected dividends in the next year, cost of equity and stable growth rate. In the last model, the stock value is influenced by payout ratios and growth rates.

According to Farrell (1985), at the valuation moment, the choice of the DDM version model should take into account the characteristics of the company being valued. Stable companies use the simplest version of the model, while fast-growing or cyclical firms require a more complex model.

1.2.4. Adjusted Present Value

A company's value can also be determined using the APV approach, which explicitly separates the unlevered value of operations from any value created by financing (Luehrman, 1997; Koller et al., 2020). Consequently, according to Damodaran (2012), the company´s value can be estimated in three steps:

$$APV = V_U + PV\ Tax\ Shields - PV\ Expected\ Costs\ of\ Bankruptcy \qquad (14)$$

The first step is to estimate the value of an unlevered firm, which is a company all equity-financed, by discounting FCFF that grows perpetually at a constant rate, at unlevered cost of equity:

$$V_U = \frac{FCFF_0 * (1 + TGR)}{r_U - TGR} \qquad (15)$$

where:
- V_U = Unlevered firm value
- $FCFF_0$= Current after-tax operation cash flow to the firm
- r_U = Unlevered cost of equity
- TGR = Terminal growth rate

The next two stages add the debt component, considering its benefits and costs for the company, to the unlevered firm value.

The second step involves calculating the expected tax benefits from a given level of debt. The benefits from borrowing are estimated as a function of the company's tax rate (t_c), which is assumed to be constant over time, and discounted to the present time, as represented in the equation:

$$Expected\ Tax\ Benefits = t_c D \tag{16}$$

The third, and last step, is the estimation of the present value of the expected costs of bankruptcy. This element of APV can be obtained through the general expression:

$$PV\ Expected\ Bankruptcy\ Costs = \pi_a * BC \tag{17}$$

where:

- π_a = Probability of default after the additional debt
- BC = Bankruptcy costs

This stage is considered the most difficult in the APV approach since the two inputs, identified in equation (17), can only be estimated indirectly. At this level, Damodaran (2012) states that there are two ways to get the probability of default component. One is based on the bond rating estimation and uses empirical estimation of default probabilities for each rating. The other uses statistical approach to estimate the probability of default, considering the firm′s characteristics.

The APV model follows the Modigliani and Miller (MM) hypothesis, which states that the enterprise value is impacted only by market imperfections, such as taxes and distress costs (Myers, 1974; Koller et al., 2020).

1.3. Relative Valuation

Relative Valuation is an approach that values assets based on the current market price of similar assets, using the company's income statement (Fernández, 2002; Damodaran, 2012).

According to Damodaran (2012), relative valuation has two key stages. The first step involves standardizing prices by converting them into multiples. The second step is the selection of comparable firms with similar risks, growth potential, and cash flows to form a peer group.

Regarding to the first stage, Fernández (2001) splits the most used multiples in three groups:

Table 1.1:

Three groups of multiples

Multiples groups	Multiples
Equity Value Multiples	Price to Earnings Ratio (P/E) Price to Sales (P/S) Price to Book Value (P/BV)
Enterprise Value Multiples	Enterprise Value to EBITDA (EV/EBITDA) Enterprise Value to Sales (EV/Sales) Enterprise Value to Free Cash Flow (EV/FCF)
Growth-referenced Multiples	Price/Earnings to Growth (PEG) Enterprise Value to EBITDA Growth (EV/EG)

Source: Fernández, 2001

Koller et al. (2020) and Damodaran (2012) highlight that EV/EBITDA and P/E are the most commonly used multiples among analysts in relative valuation. However, EV/EBITDA has become the preferred multiple as fewer firms have negative EBITDA compared to negative earnings per share, and it enables easier comparison with firms that have similar financial leverage. Additionally, P/E can be more easily distorted by factors such as capital structure and non-operating gains and losses.

In the second stage, Koller et al. (2020) suggest taking the average of multiples inside a group of 8 to 15 peers.

Damodaran (2012) notes that relative valuation has become popular due to its advantages over DCF. This approach requires fewer assumptions, is easier to understand, and reflects the market's effective value by measuring relative rather than intrinsic value.

According to Damodaran (2012), the final values of DCF and relative valuation differ due to their different perspectives on market inefficiency. Both assume market mistakes. However, while DCF assumes they are corrected overtime, relative valuation suggests that the mistakes on individual stocks are corrected on average.

Koller et al. (2020) state that the DCF method is more effective than relative valuation. Nevertheless, when relative valuation is used carefully "… it not only serves as a useful check of your DCF forecasts, but also provides critical insights into what drives value in a given industry." (Koller et al., 2020, p.389).

1.4. Contingent Claim Valuation

Koller et al. (2020) state that managers in valuation contexts are confronted with decisions that involve uncertainty (difficulty in predicting the company's future) and flexibility (alternative plans to respond to events). Typically, managers use a contingent claim approach when they aim to maintain the flexibility component in response to events.

According to Damodaran (2012), a contingent claim pays off based on specific events: if the underlying asset's value exceeds the call option price or falls below the put option price. Option-pricing models, such as Black-Scholes and Binomial models, are used to value assets with option characteristics.

"The contingent claims approach is useful in business valuation for cases in which someone does not have a 100 percent claim on the cash flows of an asset." (Larrabee & Voss, 2012, p.262). Damodaran (2012) highlights limitations of option-pricing models. The first constraint is associated with the difficulty in justifying long-term assumptions about constant variance and dividend yields. The second obstacle is related to the fact that underlying assets cannot be obtained from financial markets. Therefore, in valuation this input must be estimated.

Luehrman (1997) states that applying option-pricing models in corporate scenarios is challenging because this tool is expensive and less intuitive compared to others.

2.   Market Overview

In the market overview section, an analysis of the company's external environment is carried out since external factors directly influence a company's performance.

First, the analysis is conducted at a more general level, focusing on the macroeconomic outlook, and then at a more specific level, within the TCCC industry. At this level, it is crucial to analyze not only the historical values, which can partially justify the company's past results, but also the future, as the company's valuation involves predictions that will certainly be influenced by market forecasts.

2.1.   Macroeconomic Outlook

In an equity valuation context, it is important to analyze economic indicators such as Gross Domestic Product (GDP) and Inflation.

The first economic indicator, GDP, measures the total market value of all final goods and services produced in an economy in a given year. This economic measure can be classified as nominal or real, depending on whether the output is adjusted for inflation (Callen, n.d.).

The evolution of GDP in the world and the United States of America (USA) between 2018 and 2028F is represented by the Figure 2.1.
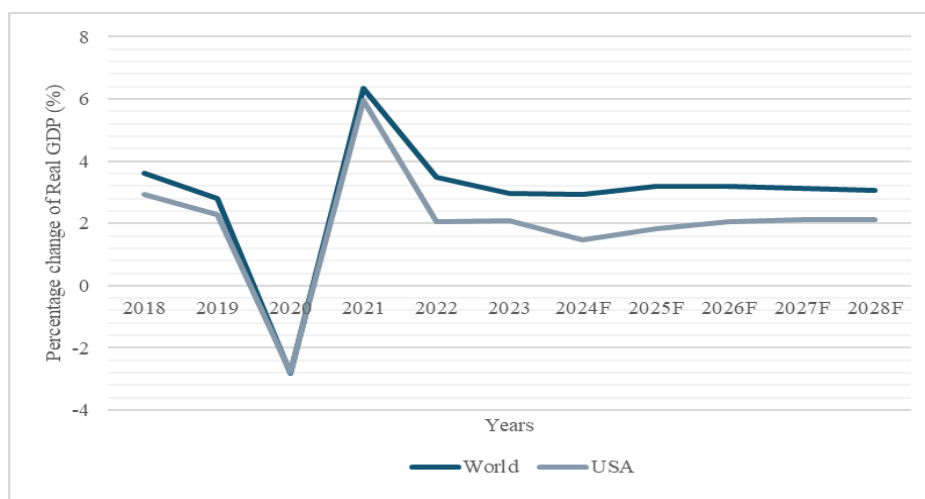
Figure 2.1. *Real GDP growth*. IMF Outlook database, October 2023.

The graph above shows that the USA follows the global trend in terms of GDP levels.

The significant decrease in the annual percentage of GDP in 2020, as depicted in Figure 2.1, can be attributed to the worldwide pandemic caused by COVID-19, which affected both the health and economic sectors (Sánchez, 2021). In contrast to 2020, 2021 stands out as the year with the highest GDP growth, indicating an economic recovery. The USA and the world experienced an increase in the annual percentage of GDP of 5.9% and 6.3%, respectively.

According to Kilfoyle (2023), the wars - Ukraine vs. Russia and Palestine vs. Israel - that have occurred in recent years have had a negative impact on GDP growth, contributing to a lower increase in GDP. For instance, the GDP growth rate between 2021 and 2022 decreased by 3.89 percentage points in the USA and 2.86 percentage points worldwide. In 2023, the GDP of the USA increased by 2.1% and the world by 3%, which corresponds to a smaller increase and a decrease in GDP growth rate, respectively.

According to the International Monetary Fund (IMF) forecasts, GDP is expected to grow steadily between 2024 and 2028.

The second economic indicator, inflation, refers to the sustained increase in the general price level of goods and services in an economy over a period of time, and is associated with a decrease in purchasing power (Oner, n.d.).

The evolution of the inflation rate in the world and the USA between 2018 and 2028F is represented in Figure 2.2.
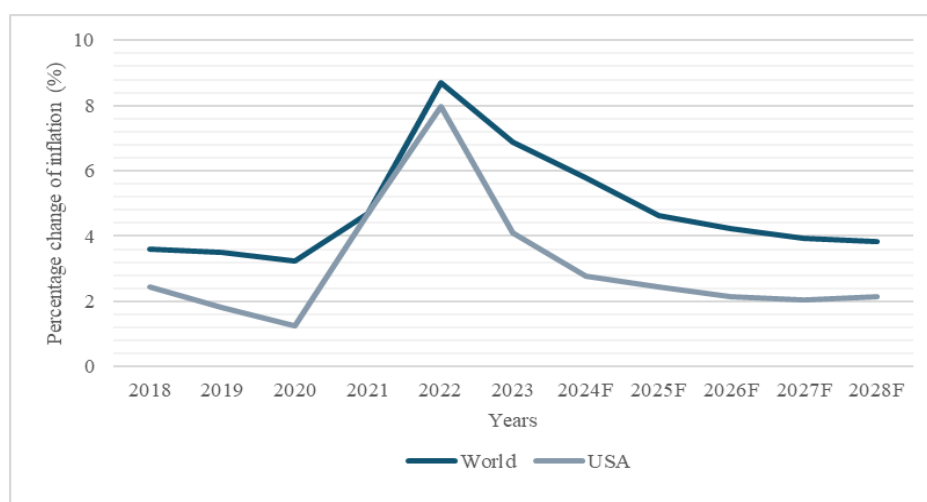
Figure 2.2. *Inflation rate growth*. IMF Outlook Database, October 2023.

The USA also follows the world trend in terms of inflation rate.

In the figure above between 2020 and 2022 there is a significant increase in the variation of inflation rate. While in the first part of this period, the justification for the increase in the percentage of inflation is COVID-19, for the second part, the higher inflation rate is related to Russia's war against Ukraine. In fact, the general increase of 8.7% in the price of goods and services worldwide in 2022 was caused by the suspension of Russian energy supplies to several countries, as a form of retaliation for the sanctions imposed by those countries. The energy crisis directly impacted the price of fuel and energy, as well as indirectly affecting the price of all goods that require oil, coal, or gas for production and distribution to the market (Barata, 2023). According to Lusa and Sic Notícias (2023), the European Union (EU) was considered the most affected economy by this situation when compared to the USA and China.

There was also an increase in prices in Russia, which was partly justified by the lack of production and sale of products from major brands in the country (Mar, 2023). Therefore, in order to have access to products from international brands such as Coca-Cola, Russians have to import goods, becoming dependent on the original prices of exporting countries.

In order to slow down the high inflation rate, central banks, such as the Federal Reserve of the USA and the European Central Bank, have increased interest rates. The restrictive monetary policy implemented by the banks had the expected results, as the inflation rate had lower growth in the year following 2022, increasing only by 4.1% in the USA and 6.9% worldwide in 2023.

According to the figure above, in the medium term, the inflation rate is expected to remain stable. Furthermore, predictions suggest that the 2028 inflation rate will be the lowest in the last 8 years, with predicted values of 2.1% in USA and 3.8% in the World.

2.2. Industry Outlook

In this section, the industry in which TCCC operates is presented. Among other topics, it describes the segments that constitute this industry and the challenges that the industry has faced in recent years.

This section provides a better understanding of the industry environment in which the company operates, growth prospects, industry rivalry, and risk factors, that can impact the company's performance.

2.2.1. Non-Alcoholic Beverage Industry

Although TCCC is part of the alcoholic beverage industry because it allows alcohol licensed parties to use their brand in alcoholic beverages, the core business of TCCC operations is in the non-alcoholic beverage industry. Therefore, this will be the industry under analysis.

Figure 2.3 represents the worldwide non-alcoholic beverage market revenue. According to this graph, despite the revenue falling between 2019 and 2020, the income has been increasing over the years. In fact, in 2023, the revenue reached the highest value of the last 6 years, $1.45 trillion.
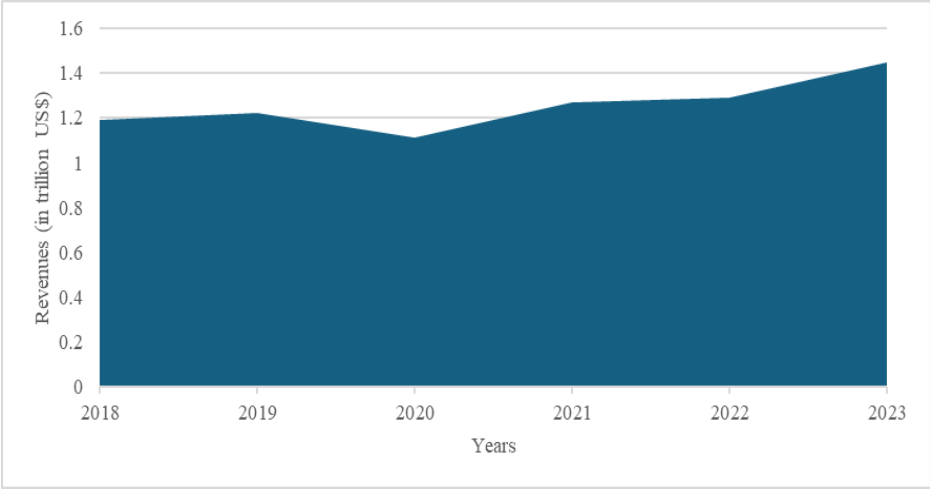
Figure 2.3. *Worldwide non-alcoholic beverage market revenue*. Statista, March 2024.

The non-alcoholic beverage industry includes all beverages without alcohol. According to Statista Market Insights (2024), this market can be split into four different segments: Soft Drinks (which includes the subsegments of Carbonated Soft Drinks, Non-Carbonated Soft Drinks and Energy & Sports Drinks), Bottled Water, Juices and Ready-to-Drink (RTD) Coffee & Tea.

Figure 2.4 characterizes the evolution of revenue in previously mentioned segments. This figure reveals that the revenues from all segments increased between 2018 and 2023. In the last year, the revenues of Soft Drinks, Bottled Water, Juices, and RTD Coffee & Tea segments were $32.97 billion, $19.03 billion, $3.44 billion, and $26.79 billion, respectively. The graph also shows that the biggest pillar of this industry is the Soft Drink segment.
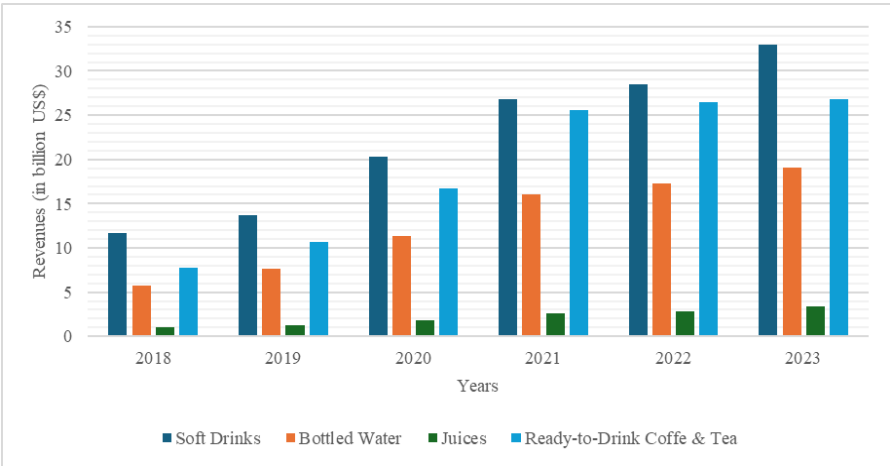
Figure 2.4. *Revenue of the beverage industry by segments*. Statista, March 2024.

Figure 2.5 identifies how each subsegment of the Soft Drink contributed to the overall revenue. According to the graph below, despite all subsegments contributing to the increase, the one that had the most influence was Carbonated Soft Drinks, which is also the largest segment of the TCCC. Its revenue increased from $4.69 billion in 2018 to $13.02 billion in 2023.
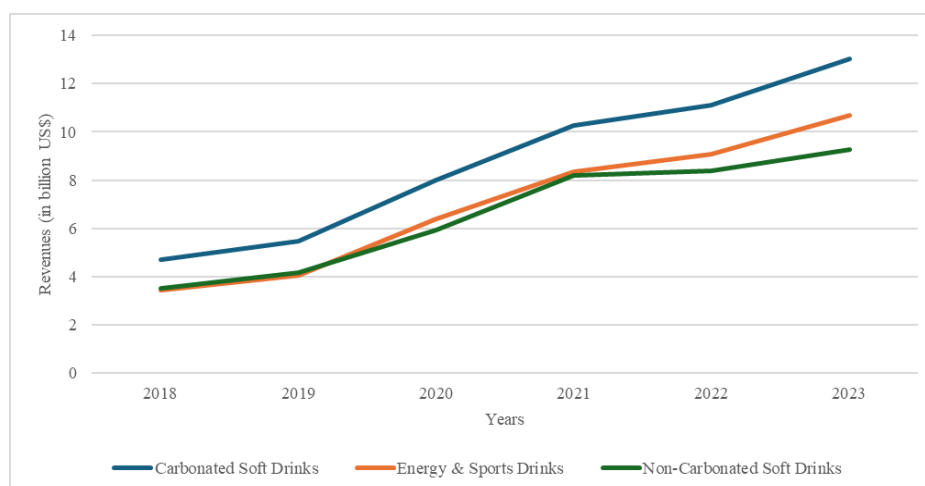
Figure 2.5. *Revenue of the Soft Drink segment*. Statista, March 2024.

2.2.2. Carbonated Soft Drinks

Carbonated Soft Drinks were previously classified as the main segment of TCCC. Figure 2.6 shows that this company is also the biggest player in this beverage subsegment. Over the years, TCCC has maintained the largest market share of Carbonated Soft Drinks. In fact, the percentage of its market share increased from 45.30% in 2018 to 46.30% in 2022.
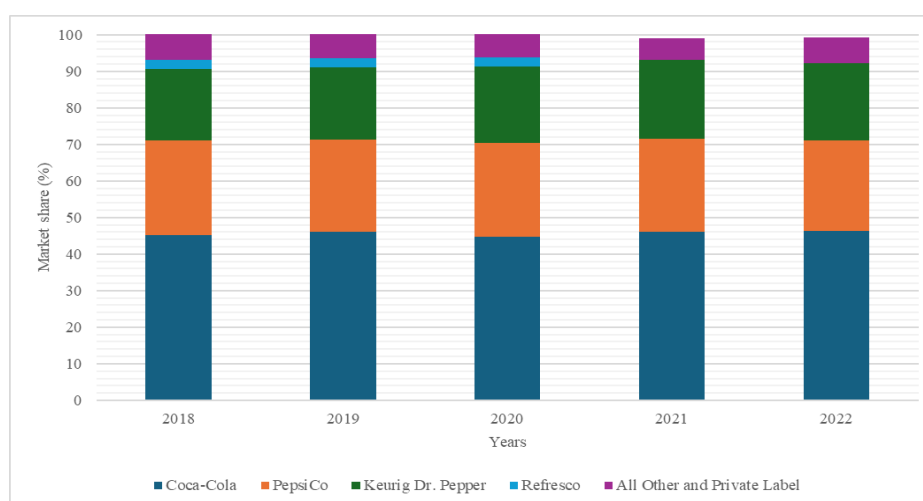
Figure 2.6. *Market Share of leading Carbonated Soft Drinks*. Statista, May 2023.

Figure 2.6. also reveals that PepsiCo and Keurig Dr. Pepper are the second and third companies with the largest significant market share, respectively. Despite being the second most important player, Pepsi has not strengthened its market position over the years. It reduced its market share by 4.4 percentage points between 2018 and 2022. On the other hand, Keurig Dr. Pepper increased its market share from 19.70% in 2018 to 21.30% in 2022.

2.2.3.   Market Drivers

All industries have market drivers, which are factors or conditions that have a significant impact on the industry's performance. According to Non-Alcoholic Drinks (2023), two of the market drivers of the non-alcoholic beverage industry are consumer spending trends and sugar consumption.

Multinational companies, such as TCCC, can decide to expand if they see opportunities for growth in emerging countries, such as the BRIC countries - Brazil, Russia, India, and China - where consumption levels are increasing. Although these countries have a very positive trajectory, they are also highly vulnerable to external shocks. Therefore, the companies that decide to expand internationally may achieve very good results, but they may also incur losses due to the associated risks (Non-Alcoholic Drinks, 2023).

The rise in sugar consumption in recent years has resulted in an increase in obesity rates, leading to a rise in health problems, such as diabetes. In the coming years it is expected that there will be a reduction in sugar consumption and, consequently, a decrease in the demand for goods with high sugar levels due to growing concerns of health regulators, as well as greater health awareness among consumers (Non-Alcoholic Drinks, 2023). Therefore, companies like TCCC are challenged to meet consumers' preferences.

3.   Company Overview

In the first part of this section, TCCC's history is briefly revealed, and its profile is presented. Following that, an analysis of its operational structure is conducted to provide a deeper understanding of the company's business. Lastly, the company's financial indicators are examined in detail.

The insights provided by this section enable investors and stakeholders to make better informed decisions regarding the company´s intrinsic value and future growth potential.

3.1.   Profile and History

The Coca-Cola syrup was created by Dr. John Stith Pemberton, a local pharmacist, in 1886 in Atlanta, Georgia. The first glass of the new product was sold at Jacobs' Pharmacy as a soda fountain drink, combining carbonated water with syrup (TCCC, n.d.).

According to IG Bank (n.d.), the initial public offering of TCCC was in 1919, on the New York Stock Exchange (NYSE) under the symbol KO. At that time, the share price of the company was $40. Over the years this company has become one of the largest publicly traded companies in the USA, becoming part of the Standard & Poor's 500 (S&P 500) in 1957.

Many things have changed since TCCC was first taken public. In fact, the company has evolved from selling only Pemberton's original product to offering a large portfolio of drinks, which includes 200 brands and 4,300 different beverages, with both local and global appeal. Today, this company has a presence in more than 200 countries and territories (TCCC, n.d.).

During the last few years, the company has been innovating its portfolio to address emerging challenges, primarily related to changing consumer habits (Non-Alcoholic Drinks, 2023).

The increased concern for healthier habits among the population has led to the introduction of low-sugar beverages with nutritional benefits by Coca-Cola. In fact, according to TCCC (n.d.), in 2022 the company reduced at least 30% of sugar in its leading brands. The company has also been focusing on a more sustainable business, prioritizing water replenishment, reducing its carbon footprint and minimizing packaging waste.

In addition to TCCC's evident sustainable impact on the world, it is also important to highlight its social impact. The social impact is reflected essentially by the creation of new socioeconomic opportunities, employing people in areas where the company operates, and the use of its voice, which has a significant impact since TCCC has an important position in the international market, to support diversity, equity and inclusion causes (TCCC, n.d.).

3.2. Operational Structure

The operational structure of TCCC can be characterized by business segments and types of operations.

According TCCC (2023), net operating revenue can be separated into six business segments, organized by geographic areas - Europe, Middle East & Africa; North America; Latin America; Asia Pacific- and non-geographic regions - Global Ventures (GV) and Bottling Investment Group (BIG).

The GV segment was established by TCCC to accommodate the acquisition of brands deemed to have the potential for global expansion, such as Costa Coffee, Innocent juices and smoothies, Monster beverages, and Dogadan Tea. The first two mentioned brands represent almost 90% of the total GV revenues (TCCC, n.d.).

TCCC also created the BIG segment, which is responsible for managing the bottling operations investment. This role involves seeking partners with local bottlers to operate, package, and distribute its beverages. Currently, BIG has a presence in Southeast and Southwest Asia as well as in parts of Africa (TCCC, n.d.).

According to Figure 3.1, which represents the evolution of the revenue distribution share of TCCC, the North America Segment had the highest contribution to TCCC's total revenue in 2022 and 2023, accounting for approximately 36.50% and 36.60%, respectively. The BIG and Europe, Middle East & Africa segments are the second and third largest operational segments in both years. However, while the BIG decreases from 18.30% to 17.20%, the Europe, Middle East & Africa segment increases from 16.00% to 16.20%.
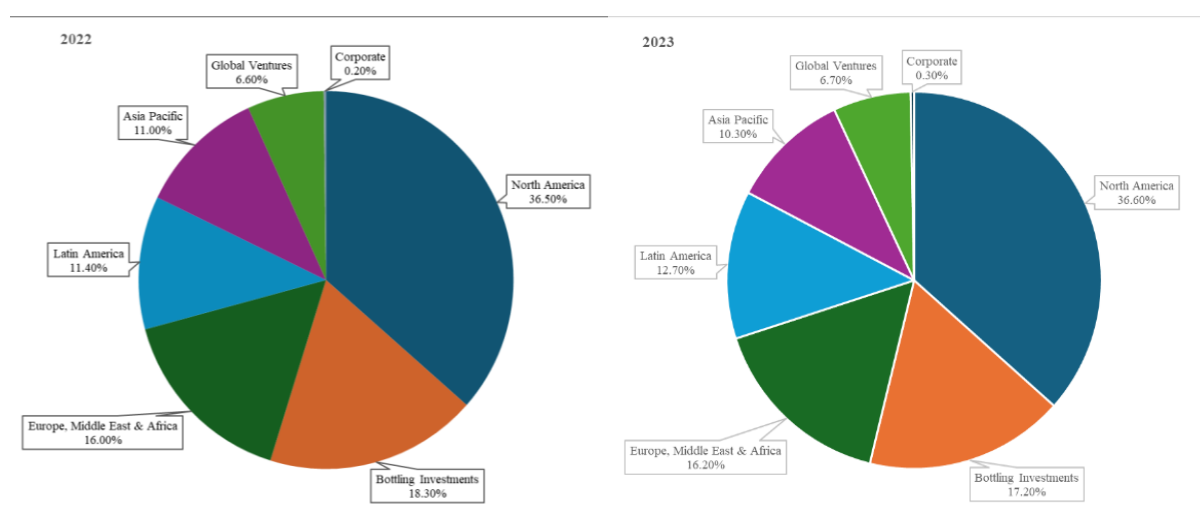
Figure 3.1. *Net operating revenues by business segment.* TCCC, December 2023.

According to TCCC (2023), the net operating revenues of the company can also be split by type of operation: concentrated and finished product operations. However, while concentrated products are generally incorporated in the geographic and GV segments, the finished products are included in the BIG segment.

TCCC achieves results through the first operation by selling concentrates and syrups to authorized bottling partners who, depending on the product, mix them with still or sparkling water or sweeteners. After that, these partners package, sell and distribute the finished products. In fact, the bottling partners, which play an important role in this company, numbered almost 200 in 2022 (TCCC, 2023). It is also important to highlight that in the same year the five largest partners - Coca-Cola FEMSA, Coca-Cola Europacific Partners plc (CCEP), Coca-Cola HBC AG (Coca-Cola Hellenic), Arca Continental and Swire Beverages - represent 42% of the total partners' unit case volume (TCCC, 2023).

This company can also generate revenue through the second operation by selling finished beverages directly or indirectly to retailers.

Figure 3.2, which represents the progress of net operating revenues by type of operation between 2022 and 2023, shows that concentrate operations are the category that contributes more to TCCC's revenue. This category consolidates its position, increasing the revenue from 56% in 2022 to 58% in 2023. Consequently, the finished product operations decrease their percentage from 44% to 42%.
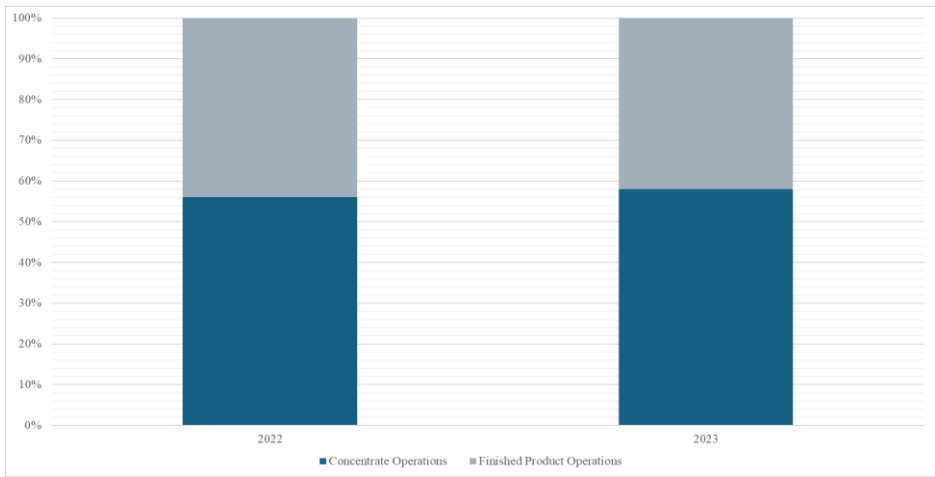
Figure 3.2. *Net operating revenues by type of operation*. TCCC, December 2023

3.3. Financial Analysis

In the financial analysis section, an analysis of commonly used company financial indicators of activity, profitability, liquidity, and solvency is carried out. These analyses provide insight into the company's financial health, which are helpful to predict TCCC's fair value more accurately.

3.3.1. Activity and Profitability

Sales, cost of revenues, Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) Margin, Return on Assets (ROA), Return on Equity (ROE), and Return on Invested Capital (ROIC) are some of the most recognized profitability indicators that will be analyzed in this report.

Figure 3.3 represents the evolution of revenues, cost of sales and EBITDA Margin of TCCC between 2019 and 2023.
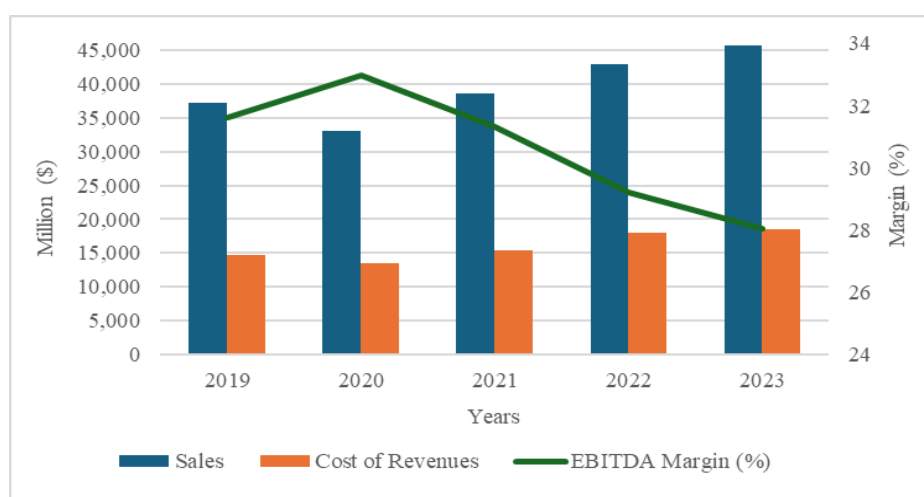
Figure 3.3. *Sales, Cost of Revenues and EBITDA Margin (2019-2023).* Bloomberg.

According to Figure 3.3, both sales and cost of revenues experienced a general reduction between 2019 and 2020, which is justified by the COVID-19 pandemic. However, the decrease in sales ($4,252 million) is higher than the decline in the cost of revenues ($1,186 million). In the following years - between 2020 and 2023 - both indicators show an increasing trend. While revenues increased by 38.59%, reaching a value higher than pre-pandemic levels, costs rose by 37.87% due to the inflation pressure mentioned in Chapter 2.

The EBITDA margin's performance follows a contrary trend to the two other mentioned activity indicators. In recent years, the EBITDA margin has declined due to rising costs despite an increase in the total number of sales. In 2023, this indicator was 28.05%.

Figure 3.4 characterizes the evolution of ROA, ROE and ROIC of the company in the last 5 years (2019-2023).
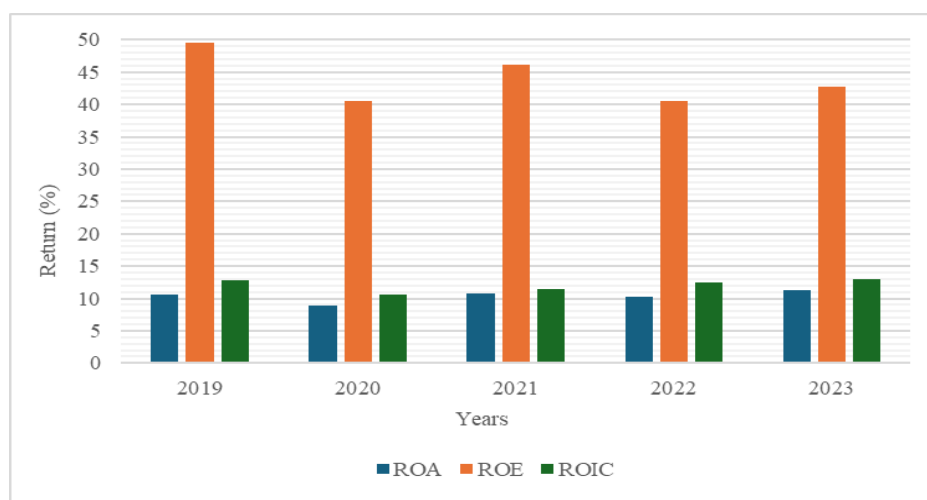
Figure 3.4. *ROA, ROE, ROIC (2019-2023).* Bloomberg.

Figure 3.4 shows that compared to 2019, in 2023 TCCC had the ability to generate more earnings both through invested capital and assets. Despite ROA and ROIC having similar values, ROIC continuously had higher values in the last years. The indicators increased from 10.52% to 11.25% and from 12.76% to 12.96%, respectively.

Despite the decrease in ROE between 2019 and 2023, from 49.61% to 42.82%, this indicator remains the one with the biggest return. The decrease is justified by a higher growth in shareholders' equity (30.25%) compared to net income (20.11%).

3.3.2. Liquidity

The analysis of liquidity indicators, which refers to the TCCC's ability to liquidate its financial obligations in the short- term, reveals the financial health and stability condition of a company. The most common indicators used to assess liquidity are current, quick and cash ratios, whose evolution is described in Figure 3.5.

The main difference between the ratios is the category that each one considers for the payment of short-term obligations. Consequently, despite sharing the current liabilities in the denominator, these three ratios consider different categories in their numerator.

The most embracing ratio is the current ratio, as it considers the current assets category. Despite being quite similar to the previous one, the quick ratio is more restrictive because it only takes into account quick assets, which result from the difference between current assets and inventory.

The most limiting ratio is the cash ratio since it only takes into consideration cash and cash equivalents.
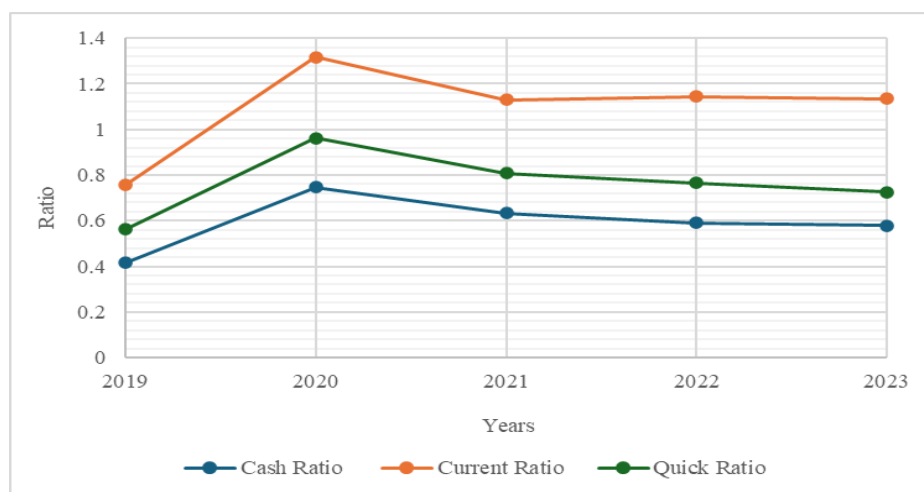
Figure 3.5. *Cash, Current and Quick Ratio (2019-2023)*. Bloomberg.

According to Figure 3.5, in general, when compared to the 2020 values, the values of the three ratios are lower in 2023.

The current ratio, which can be characterized as the ratio with the highest value, has remained relatively stable and not much above 1 over the years. In turn, the quick ratio stays below 1 over the years, further highlighting TCCC' s fragility in the payment of short-term obligations. The difference in the two ratio values results from the inventory weight in liquidity, which increases between 2019 and 2023.

The ratio with the lowest value is the cash ratio, which is not surprising since it is not plausible for a company to have a large amount of cash. Therefore, a low ratio means that TCCC's cash is being distributed among shareholders or reinvested.

3.3.3. Solvency

Similarly to the liquidity indicators, solvency measures also allow us to reach conclusions about the financial health of TCCC. However, the main difference between these indicators is the time considered to meet the company's financial obligations. While liquidity indicators offer a short-term outlook, solvency focuses on the long-term perspective.
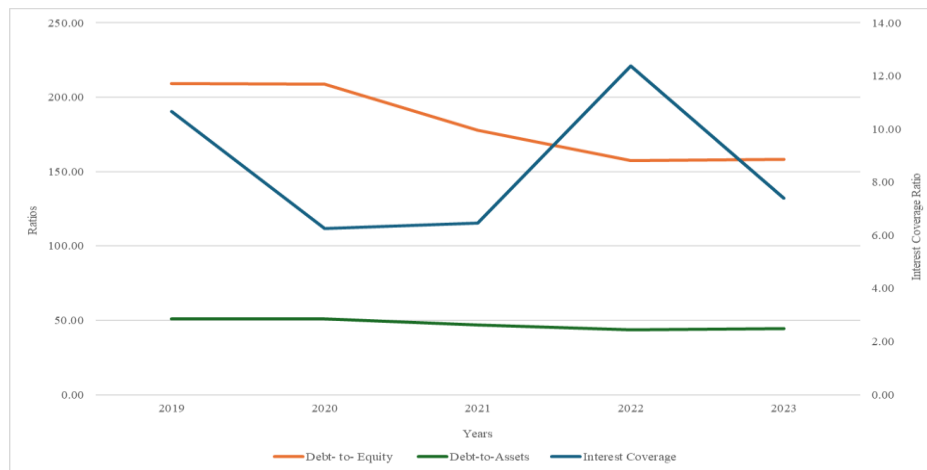
Figure 3.6. *Debt-to-Equity, Debt-to-Assets, and Interest Coverage Ratio (2019-2023).*
Bloomberg.

Figure 3.6 identifies and shows the evolution of the most common solvency ratios in the last few years, which are the debt-to-equity ratio, debt-to-assets ratio and interest coverage ratio.

The debt-to-equity ratio, as indicated by the name, is the ratio between total debt and equity. This ratio reveals the degree of TCCC's operational financing, whether through debt or equity. Similarly, the debt-to-assets ratio is the ratio between total debt and assets. This measure exposes the portion of TCCC's assets that are financed by debt.

Both of TCCC's ratios are very high, indicating that the company has a huge amount of debt. However, the debt-to-equity values are higher than the debt-to-assets values, indicating that in TCCC's capital structure, equity plays a significant role in financing the company´s assets. In fact, according to Figure 3.6, between 2020 and 2023, the ratios assume distinct values, ranging between 157.22 and 209.29, and 43.77 and 51.12, respectively.

The interest coverage ratio corresponds to the ratio between operating income and interest expenses. It measures how many times TCCC can cover its current interest payments with its earnings. According to Figure 3.6, the ratio showed a declining trend between 2019 and 2021, decreasing from 10.65 to 6.26. Since TCCC lowered its capacity to pay its interest expenses using operating returns, the firm increased its default risk. Although the value almost doubled in 2022, the last year's ratio was 7.41, substantially smaller compared to the previous year.

3.4. Shareholder Structure

At the end of 2023, more specifically on December 29, according to TCCC (2023), the company had 4,339 million outstanding shares, valued at $58.93 per share. Also, at the end of this year, every shareholder received an annual dividend per share of $1.76.

Figure 3.7 reveals the ownership structure of TCCC. According to the image, institutional investors are the major shareholders type of this company, holding approximately 61.80% of the shares. Since they own more than 50% of shares, together they can have a strong influence on board decisions.

The general public and public companies are the second and third types of shareholders with the most shares. They hold about 28.30% and 9.30% of shares, respectively. The ownership structure also includes individual insiders, state or government, and private companies, which hold 0.7%, 0.04% and 0.004%, respectively.
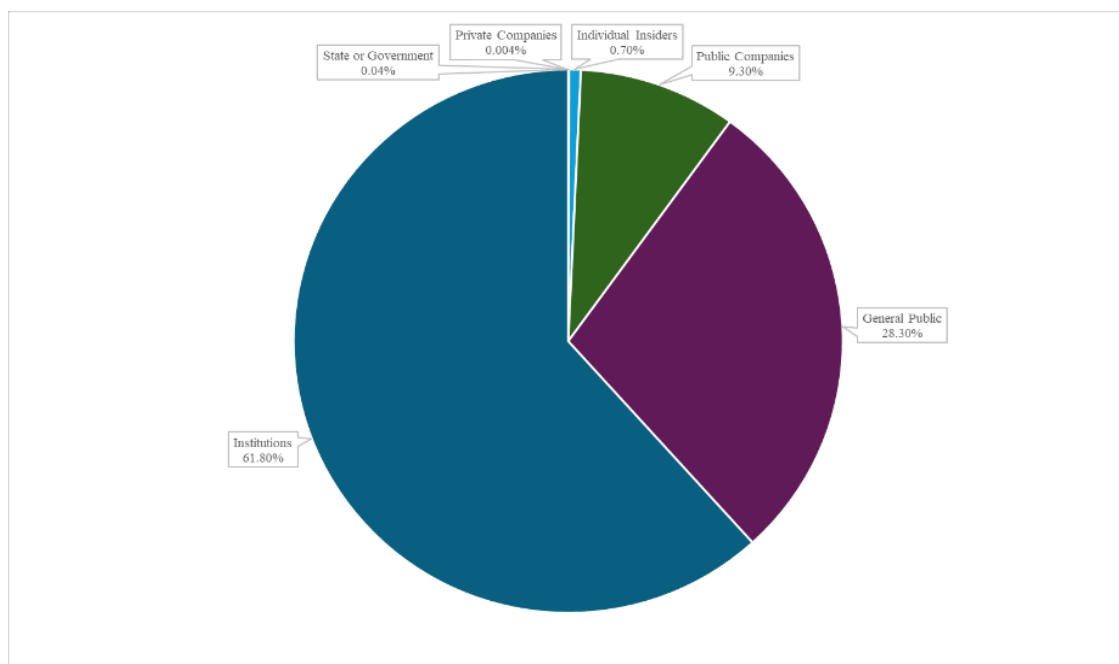
Figure 3.7. *TCCC ownership*. Yahoo Finance, March 2024.

Table 3.1 identifies the principal shareowners of TCCC, who are institutional investors, as they each held more than 5% of outstanding shares in 2023. The largest shareholder of this company is Berkshire Hathaway Inc, which owned 9.25% of outstanding shares, corresponding to 400,000,000 shares. In second and third place were The Vanguard Group and BlackRock, with 8.51% and 7.19% of outstanding shares, corresponding to 368,192,362 and 310,955,318 shares, respectively.

Table 3.1:

Principal shareholders

Principal Shareowners	Number of Shares	% of Outstanding Shares
Berkshire Hathaway Inc	400,000,000	9.25%
The Vanguard Group	368,192,362	8.51%
BlackRock, Inc	310,955,318	7.19%

Source: Yahoo Finance

3.5. Stock Performance

Figure 3.8 compares the TCCC' share closing value with the S&P500, which is a USA Index.
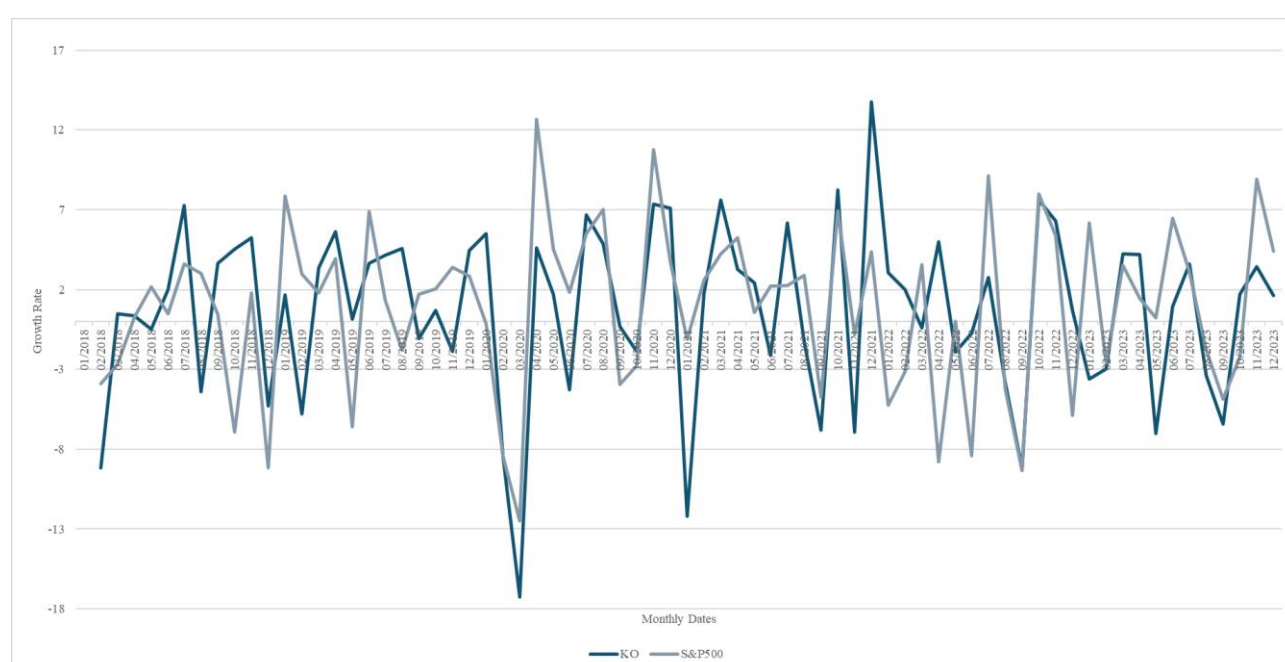
Figure 3.8.. *Stock performance comparison between KO and S&P500 (2018-2023).* Yahoo Finance.

According to the figure above, between 12/2018 and 12/2023, TCCC and S&P500 increased their share closing values. TCCC increased by 24.46% rising from 47.35 to 58.93, while S&P500 increased by 90.27% rising from $2506.85 to $4769.83.

The closing share value of TCCC decreased by 7.36% between 12/2022 and 12/2023, dropping from $63.61 to $58.93. Additionally, in the last year, the share value fluctuated between $51.55 (minimum) and $64.99 (maximum), recorded on 10/2023 and 04/2023, respectively.

3.5.1. Stock Split

The company's stock performance is influenced by stock splits. According to Royal (2024), a stock split occurs when a company decides to issue additional shares to shareholders.

Typically, the company's board decides to do a stock split when they intend to decrease the trading price to a range more acceptable to investors, increasing the share's liquidity. Despite the inverse relationship between the stock split and the share's price, the company's value in the market remains the same.

The last stock split of TCCC was in 2012, the first since 1996 according to TCCC (n.d.). According to Benzinga (2012), the approval of a two-for-one stock split by the TCCC board increased the number of shares from 5.6 billion to 11.2 billion. This decision was taken due to the share price being in the $70-$80 range at that time. By granting an additional share of common stock for each share held by every shareholder of record on the record date, TCCC brought stock prices back to $40. In fact, the share price dropped from $78.79 to $39.30.

3.5.2. Stock Buyback

The stock performance of a company is also influenced by stock buybacks. Mitra et al. (2024) states that a buyback, also known as a share repurchase, occurs when a company's board decides to use its excess cash to repurchase its stock from the public market. The main purpose of a stock buyback is to return money to shareholders. According to NASDAQ (n.d.), unlike a stock split, a buyback reduces the number of outstanding shares and increases earnings per share (EPS), which will influence the company's market value.

The most recent buyback of TCCC was in 2019 when the KO board decided to do a new share repurchase for 150 million of the company's common stock (TCCC, n.d.). According to Derrick (2019), this buyback was positively received by investors since on the day of the announcement the stock trading increased by 1.22% in the afternoon.

In the 2000s, TCCC also had stock buybacks in 2006 and 2012, repurchasing 300 million and 500 million shares of common stock, respectively (TCCC, n.d.).

4. Valuation

In this section, TCCC is evaluated through two distinct approaches to determine the fair value of the shares at the end of 2023.

Firstly, since TCCC has a stable financial capital structure, the company is valued using FCFF. For this purpose, cash flows are forecasted for the following five years (2024F-2028F) and discounted at the WACC. The terminal value, which corresponds to the period after 2028, is also considered since this model assumes perpetual cash flows. Following the FCFF valuation, a sensitivity analysis of the share's value is carried out by changing two crucial variables of the approach: WACC and g.

Finally, to complement and verify the FCFF method results, TCCC is valued using Relative Valuation (multiples). In this context, a group of comparable companies is defined, and multiples are computed for each one.

4.1. Valuation Assumptions

The valuation process requires defining assumptions, which are very important as they have a significant impact on the final share price. In this section, all the assumptions are presented, and the rationale behind each one is explained in detail.

4.1.1. Revenues

TCCC is organized into geographic and non-geographic segments, as mentioned in operational structure section (3.2). Consequently, to predict the total revenue between 2024 and 2028, forecasts will be made for TCCC's segments for each year.

This company displays a similar trend to that of the non-alcoholic beverage industry as both increased their revenue between 2018 and 2023, as shown in Figure 2.3. Therefore, it is assumed that in the next 5 years, the geographic segments of TCCC will continue to follow the industry trend in the geographies where this company operates to predict the revenues of those segments. Regarding the non-geographic segments, it is assumed that they follow the historical trend for forecasts.

Table 4.1:

TCCC's revenue projections.

Segments (Million USD)	2024F	2025F	2026F	2027F	2028F
Europe, Middle East & Africa					
Revenue	9,637	11,196	12,658	13,915	14,861
% of total revenue	18.42%	19.44%	20.18%	20.67%	20.95%
Latin America					
Revenue	8,020	10,567	13,309	15,989	18,280
% of total revenue	15.33%	18.35%	21.22%	23.75%	25.77%
North America					
Revenue	17,681	18,468	19,113	19,596	19,904
% of total revenue	33.80%	32.07%	30.47%	29.11%	28.06%
Asia Pacific					
Revenue	5,528	5,592	5,647	5,692	5,727
% of total revenue	10.57%	9.71%	9.00%	8.45%	8.07%
Global Ventures					
Revenue	3,276	3,457	3,597	3,692	3,736
% of total revenue	6.26%	6.00%	5.73%	5.48%	5.27%
Bottling Investments					
Revenue	8,024	8,139	8,204	8,216	8,175
% of total revenue	15.34%	14.13%	13.08%	12.20%	11.52%
Corporate					
Revenue	151	177	203	228	251
% of total revenue	0.29%	0.31%	0.32%	0.34%	0.35%
Total Revenue	**52,318**	**57,596**	**62,730**	**67,328**	**70,935**

Source: Own Estimates.

Geographic Segments

Over the past 5 years, the North America segment has been strengthening its position as the largest segment of TCCC, with its revenue' weight in relation to the company´s total revenues increasing from 31.97% to 36.66% (Annex A). According to Table 4.1, although the absolute value of the segment´s revenue will increase in the coming years, it is expected that the growth will be increasingly smaller. Consequently, the segment's weight will reduce to 28.06% between 2024 and 2028. This scenario is justified essentially by the shifting in the spending power from North America to emerging markets, such as Asia, Eastern Europe, the Middle East, Africa and Latin America, which have greater capacity for growth (Non-Alcoholic Drinks, 2023).

The behavior shifts previously described also had a significant impact on the revenue trajectory of the Europe, Middle East and Africa segment. The increased focus on Africa and the Middle East regions explains the projected growth from 18.42% to 20.95% in the segment's revenues over the next five years.

Latin America is a region characterized by a young population increasingly concerned about their health. In addition to seeking drinks with fewer calories, this younger generation are investing more in physical exercise, leading to a rise in sports drinks (Mordor Intelligence, n.d.). Considering that TCCC is present in this region and offers products that align with these needs, it is natural that this segment has increased its importance in the company's total revenue in the past and will continue to do so in the future. In fact, between 2019 and 2023 the segment's weight increased from 11.05% to 12.74%, as shown in Annex A, and it is expected that in the next five years, the percentage will reach 25.77%, becoming the second largest segment of TCCC after 2026.

In recent years, various national and international brands have been competing for consumers' attention in the non-alcoholic beverages market in the Asia Pacific region (Mordor Intelligence, n.d.). The highly competitive sector in this zone has led to a smaller market share for Coca-Cola, which justifies the decrease of about 2.4 to 2.5 percentage points in its historical (Annex A) and future revenue weight.

Non-geographic segments

The population has been changing its habits over the years. Although coffee consumption is increasing, leading to the emergence of new competitors in the market, the COVID-19 pandemic led to an increase in the consumption of this beverage in the domestic environment (Samuels, 2023). Considering that the main contributor to the GV segment is Costa Coffee, as mentioned before, these two factors will impact the GV segment, limiting its growth rate. This segment recorded an average growth of 6.93% between 2019 and 2023, reducing its weight from 6.87% to 6.70%, respectively (Annex A). Considering the segment´s revenue increases by the historical average in 2024, and that its revenue growth reduces by 1.43% each year, in 2028 the segment's weight will be 5.27%.

In recent years, Coca-Cola has been restructuring its strategy in the BIG segment. The company has been refranchising to specialized partners, focusing on its core business (TCCC, n.d.). The adopted strategy leads, as expected, to a reduction in the weight of total revenue from this segment, which registered an average growth of 2.08% between 2019 and 2023 (Annex A). If the historical average corresponds to the BIG growth rate of 2024, and their revenue growth rate decreases every year by 0.65%, the weight of the segment in 2028 will be 11.52%.

At the revenue level, TCCC has an additional segment not previously mentioned in the operational structure section (3.2), the corporate segment. According to TCCC (2023), this segment can be described as a center and platform services organization. Therefore, it is natural that this segment increases as the company grows. The corporate segment increased its revenues exponentially between 2019 and 2023, on average 19.59% (Annex A). Assuming that in 2024 this segment grows at the historical average and each year the growth rate decreases by 2.40%, the weight of this revenue segment in 2028 will be 0.35%.

4.1.2. Operating Expenses

TCCC's costs can be divided into three different categories: Cost of Goods Sold (COGS), Selling, General and Administrative Expenses (SG&A) and Other Operating Charges (OOC).

Table 4.2:

TCCC's operating expenses projections.

Costs (Million USD)	2024F	2025F	2026F	2027F	2028F
COGS					
Total cost	19,738	20,860	21,859	22,710	23,391
% of revenue	37.73%	36.22%	34.85%	33.73%	32.98%
SG&A					
Total cost	14,661	15,351	16,036	16,715	17,384
% of revenue	28.02%	26.65%	25.56%	24.83%	24.51%
OOC					
Total cost	2,876	4,069	5,515	7,149	8,844
% of revenue	5.50%	7.06%	8.79%	10.62%	12.47%
Total Expenses	**37,275**	**40,279**	**43,410**	**46,575**	**49,619**

Source: Own Estimates.

The COGS category represents all the costs associated with the core business activity, such as the production and distribution of beverages. In the last five years, COGS have not only increased in absolute value but also in weight in the total revenue of the company. In fact, in 2023, COGS represented about 40.48% of the revenues (Annex B). If the costs in 2024 increase at the historical growth rate (6.58%), and assuming that the rate decreases every year by 0.89%, COGS will represent 32.98% of the company's revenue in 2028.

The SG&A category, which includes selling and distribution expenses, advertising expenses, stock-based compensation expense and other operating expenses, has also increased absolute costs over the last five years (TCCC, 2023). However, in contrast to COGS, the weight of SG&A in revenues has been decreasing (Annex B). Assuming that in 2024 these costs grow at 4.93% and in the following years the rate reduces by 0.23%, in 2028 these costs will represent only 24.51% of revenue, the lowest value in the last 10 years.

OOC refers to costs associated with strategic initiatives, operational restructuring costs, and impairment charges (TCCC, 2023). Of the three cost categories presented, OOC is the one that has grown the most in recent years, averaging about 47.40% (Annex B). It is expected that costs will continue to increase in the coming years, with an annual reduction of 5.93% in the growth rate, leading to an inevitable increase in the weight on revenues. According to Table 4.2, in 2028, OOC will represent around 12.47% of the revenues.

4.1.3. Capital Expenditures and Depreciations & Amortizations

CAPEX category refers to TCCC expenses in long-term assets, such as properties, plants and equipment, with the goal of maintaining, improving and expanding its operations (TCCC, 2023).

To predict CAPEX for the next 5 years, the expense growth rate of 2019/2020 was disregarded since its value is outside the standard registered by the company in the recent years due to the COVID-19 pandemic. Accordingly, from 2021 to 2023, the average growth rate of CAPEX was 16.50%, increasing the weight in revenues from 3.54% to 4.05% (Annex C).

Table 4.3:

Projection of TCCC's CAPEX.

CAPEX (Million USD)	2024F	2025F	2026F	2027F	2028F
CAPEX	**2,158**	**2,468**	**2,770**	**3,050**	**3,295**
YOY	16.50%	14.37%	12.25%	10.12%	8.00%
% of Revenue	4.12%	4.28%	4.42%	4.53%	4.64%

Source: Own Estimates.

According to Table 4.3, considering that the historical growth rate for the first year of forecasts is 16.50%, and that this value decreases by 2.12% each year, it is expected that the CAPEX absolute value will increase between 2024 and 2028, leading to a natural increase in the revenues weight from 4.12% to 4.64%.

Depreciation and Amortization (D&A) expenses, which are computed by the straight-line method over the estimated useful lives of TCCC assets, can be described as the accounting costs of the capital investments (TCCC, 2023). Taking into consideration the previous definition, the D&A predictions will be based on the historical weight of this category on CAPEX. Similarly to what happened in CAPEX estimations, the ratio between D&A and CAPEX of 2019 and 2020 will be excluded from the analysis (Annex D).

Admitting that D&A/CAPEX in 2024 corresponds to the historical average recorded at about 84.01% and decreases by 6.25 percentage points annually, setting a weight of 59% in 2028, it is expected that the D&A category will evolve as follows:

Table 4.4:

Projection of TCCC's D&A.

D&A (Million USD)	2024F	2025F	2026F	2027F	2028F
% of CAPEX	84.01%	77.76%	71.51%	65.25%	59.00%
D&A	**1,813**	**1,919**	**1,981**	**1,991**	**1,944**

Source: Own Estimates.

4.1.4. Corporate Tax Rate

In the FCFF context, the corporate tax rate assumes an important role since it directly impacts the amount of cash flow available.

The corporate tax of TCCC is established based on the company's income and tax laws in the various territories in which the company operates. In particular, the company benefits from having a significant part of its operations outside of the United States, which normally have a lower rate than the statutory U.S. federal tax rate of 21.0% (TCCC, 2023).

Table 4.5:

TCCC's tax Rate.

Categories (Million USD)	2019	2020	2021	2022	2023
Income Tax	1,801	1,981	2,621	2,115	2,249
EBT	10,786	9,749	12,425	11,686	12,952
Tax Rate	16.70%	20.32%	21.09%	18.10%	17.36%
Average					**18.71%**

Source: Own Estimates.

According to Table 4.5, during the analysis period, TCCC tax rate assumes values between 16.70% and 21.09%, with an average of 18.71%. This average will be used for the forecast period (2024-2028) and will remain unchanged year by year.

4.1.5. Changes in Net Working Capital

Net Working Capital measures the operational liquidity of a company through its assets and liabilities related to core business operations.

In practice, this category can be calculated by subtracting liabilities from assets, connected to operational activities. Consequently, cash and cash equivalents, short-term investments, and marketable securities are excluded from assets in net working capital calculations since these components represent financial decisions rather than operational activities. For similar reasons, the current maturities of long-term debt were also disregarded from liabilities in the estimations.

The historical growth rate of assets and liabilities was used to predict the future values of these categories. However, the growth rate of 2020/2019 was ignored because its value is outside of the company' standards due to the COVID-19 pandemic. According to Annex E, after 2020, the variation of net working capital increased, becoming positive in 2023, which means that current assets are growing more than liabilities. In fact, the average growth rate of these categories between 2021 and 2023 were 16.29% and 13.21%, respectively.

Table 4.6:

Forecast of net working capital variation.

Categories (Million USD)	2024F	2025F	2026F	2027F	2028F
Current Assets	**15,198**	**17,397**	**19,597**	**21,718**	**23,672**
% of revenues	29.05%	30.20%	31.24%	32.26%	33.37%
Current Liabilities	**19,306**	**21,315**	**22,936**	**24,037**	**24,518**
% of revenues	36.90%	37.01%	36.56%	35.70%	34.56%
Net Working Capital	**-4,108**	**-3,918**	**-3,339**	**-2,320**	**-846**
Variation of Net Working Capital	**-123**	**190**	**579**	**1,020**	**1,474**

Source: Own Estimates.

According to Table 4.6, if current assets and liabilities increase at their average growth rate in the first year of predictions, and the growth rate decreases by 1.82% and 2.80% each year, respectively, net working capital will become less negative in each forecast year. Consequently, the net working capital variation will also increase.

4.2. Discounted Cash Flow Valuation

The explained assumptions in section 4.1. provided the prediction of FCFF items. In this section, other components of the FCFF valuation are calculated, such as WACC and terminal growth rate, to estimate the company's enterprise and equity value. After that, the fair price of the shares at the end of 2023 is estimated, which is the main goal of this equity valuation.

4.2.1. Free Cash Flow to the Firm

In the previous section, the categories of EBITDA, corporate tax, D&A and variation of the net working capital were predicted for the period between 2024 and 2028. Therefore, according to equation (3), all data is gathered to calculate FCFF in this period:

Table 4.7:

FCFF forecasts of TCCC.

Categories (Million USD)	2024F	2025F	2026F	2027F	2028F
EBIT	15,042	17,317	19,319	20,753	21,316
Tax Rate	18.71%	18.71%	18.71%	18.71%	18.71%
NOPLAT	12,227	14,076	15,704	16,869	17,326
D&A	1,813	1,919	1,981	1,991	1,944
Operating Cash Flow	14,040	15,995	17,685	18,860	19,270
CAPEX	2,158	2,468	2,770	3,050	3,295
Variation of Net Working Capital	-123	190	579	1,020	1,474
FCFF	**12,005**	**13,337**	**14,335**	**14,790**	**14,502**

Source: Own Estimates.

4.2.2. Cost of Equity

In this equity valuation, as mentioned in the literature review section, the cost of equity will be computed based on the CAPM Model [equation (8)], which has the risk-free rate, levered beta and market risk premium as inputs:

Table 4.8:

TCCC's cost of equity.

Risk-Free Rate	Levered Beta	Market Risk Premium	Cost of Equity
4.18%	0.5878	4.60%	**6.88%**

Source: Own Estimates.

The best proxy for the risk-free rate, as mentioned before, is long-term government bonds. Taking into consideration that the proxy and the cash flows under analysis must be consistent, and that TCCC's cash flows are presented in Million USD, 10-year U.S. Government bonds will be used to estimate this rate. The value that will be considered is 4.18% (Bloomberg, n.d.).

As TCCC is a publicly traded company, its levered beta is known. According to Zacks (2024) the levered beta of TCCC was 0.5878. This is the value that will be considered for the analysis.

Damodaran (2024) created a table that systematizes the bond ratings with default spreads for different countries. According to this author, at the beginning of January 2024, the market risk premium for the United States was 4.60%.

4.2.3. Cost of Debt

The cost of debt can be determined by adding the default risk to the risk-free rate, as mentioned in the literature review section (1.2.1.3).

Since the risk-free rate is already defined, at this level it will only be necessary to calculate the default risk. Damodaran (2024) also constructed another table that relates the interest coverage ratio to a "synthetic" rating and a default spread. According to Annex E, considering that TCCC is classified as a larger firm (market capitalization > $5 billion) and its interest coverage ratio was 7.41 in 2024, TCCC has a default risk of 0.70%.

Table 4.9:

TCCC's cost of debt.

Risk-Free Rate	Default Risk	Cost of Debt
4.18%	0.70%	**4.88%**

Source: Own Estimates.

4.2.4. Weighted Average Cost of Capital

According to equation (7), presented in the literature review section, all the WACC inputs apart from the weight of debt and equity have already been calculated. In order to compute these two components, it is necessary to estimate the market value of equity and debt.

The market value of equity, also known as market capitalization, corresponds to the company's value in the market. Thus, its value can be obtained by multiplying the share price of $58.93 (Yahoo Finance, n.d.) and current shares outstanding of 4,339 million (TCCC, 2023) at the end of 2023.

Table 4.10:

TCCC's market value of equity.

Current Share Price (USD)	Shares Outstanding (Million)	Market Value of Equity (Million USD)
58.93	4,339	**255,697**

Source: Own Estimates.

The market value of debt, which corresponds to the total debt of the company, can be estimated using its book value, by summing up items on TCCC's 2023 balance sheet, such as current maturities of long-term debt, loans and notes payable and long-term debt (Table 4.11).

Table 4.11:

TCCC's market value of debt.

Categories	Million USD
Current maturities of long-term debt	1,960
Loans and notes payable	4,557
Long-term debt	35,547
Book Value of Debt	**42,064**

Source: Own Estimates.

After calculating all the required inputs, the most suitable discount rate in FCFF method was calculated, as shown in Table 4.12:

Table 4.12:

TCCC's WACC.

Categories	
Weight of Equity	85.87%
Weight of Debt	14.13%
Cost of Equity	6.88%
Cost of Debt	4.88%
Tax Rate	18.71%
WACC	**6.47%**

Source: Own Estimates.

4.2.5. Terminal Growth Rate

The TGR corresponds to the growth rate at which TCCC is expected to grow in perpetuity after the last forecasted cash flow period (2028).

Considering that the company's growth is strongly impacted by its segments' performance, it is reasonable to use the Real GDP Growth of the geographic regions where the company operates to estimate the long-term cash flow growth rate. Taking also into account that some areas have a higher influence on TCCC cash flows than others, in this context, it is important to attend to its weights. Therefore, as shown in Table 4.13, the TGR estimation results from the sum of the weights between Real GDP and the revenue weight of each segment in 2028:

Table 4.13:

TGR of TCCC.

Segments	Revenues Weight (2028)	Real GDP Growth (2028)	TGR (%)
Europe, Middle East & Africa	20.95%	2.97%	0.62%
Latin America	25.77%	4.30%	1.11%
North America	28.06%	2.10%	0.59%
Asia Pacific	8.07%	4.00%	0.32%
TGR			**2.64%**

Source: IMF and Own Estimates.

One of the most recognized names in literature states that "While the stable growth rate cannot exceed the growth rate of the economy in which a firm operates, it can be lower." (Damodaran, 2012, p. 430). In the TCCC scenario, it is more reasonable to compare TCCC's TGR with the world value instead of the value of a specific economy since TCCC operates in regions all around the world. In fact, Table 4.13 results show that TCCC's TGR of 2.64% is lower than the TGR of the world, which is 3.1%, which is in accordance with the author's statement.

4.2.6. Enterprise Value

After determining the FCFF forecasts between 2024 and 2028 (section 4.2.1), the WACC (section 4.2.4) and TGR (section 4.2.5), it is viable to proceed with the EV estimation.

In order to estimate this key value, the present value for each FCFF year was calculated using WACC as the discount rate. It was also computed the perpetual value, utilizing equation (5), and its present value. Ultimately, and according to equation (4), the EV value was calculated by summing up all the present values (FCFF and Terminal Value), yielding a value of 341,072 million USD, as indicated in Table 4.14:

Table 4.14:

EV of TCCC.

Categories (Million USD)	2024F	2025F	2026F	2027F	2028F	PERPETUITY
FCFF	12,005	13,337	14,335	14,790	14,502	14,885
Terminal Value						388,654
Present Value	11,276	11,765	11,877	11,508	10,599	284,048
EV	**341,072**					

Source: Own Estimates.

4.2.7. Equity Value

To fulfill the main goal of this thesis, which is to find the fair value of shares at the end of 2023, it is necessary to calculate the EQV. According to equation (6), the EQV results from the addition of NOA and the subtraction of non-equity claims from the EV value.

Various items from TCCC's 2023 balance sheet were considered for NOA calculations: cash and cash equivalents, short-term investments, and marketable securities, totaling 13,663 million USD. Non-equity claims are assumed to have a value corresponding to the debt's book value of 42,064 million USD. According to Table 4.15, the TCCC EQV is 312,671 million USD:

Table 4.15:

Share price of TCCC.

Categories	Million USD
EV	341,072
NOA	13,663
Non-Equity Claims	42,064
EQV	312,671
Shares Outstanding	4,339
Fair Price (USD)	**72.06**

Source: Own Estimates.

Table 4.15 shows that the fair price of shares can be obtained through EQV and Shares Outstanding. In fact, the respective division between these two categories leads to a fair price of $72.06 at the end of 2023, which represents an implied upside of 22.28% compared to the market price of $58.93 on the same date.

4.2.8. Sensitivity Analysis

The assumptions presented in this section strongly impact the fair price of a company's shares. In this sense, a sensitivity analysis is carried out to understand the impact of changes in variables on the fair price of the shares.

The WACC and TGR were the variables chosen for the sensitivity analysis, as they significantly impact the final result. Table 4.16 and Table 4.17 represent, respectively, the absolute and relative impact on the share price each time one of the two variables changes by $\pm$ 0.25% (TGR varies from 2.14% to 3.14% and WACC between 5.97% and 6.97%):

Table 4.16:

Sensitivity analysis (price in USD).

			WACC		
	5.97%	6.22%	6.47%	6.72%	6.97%
TGR 2.14%	73.48	68.57	64.22	60.35	56.88
2.39%	78.31	72.77	67.90	63.60	59.76
2.64%	83.87	77.55	72.06	67.24	62.98
2.89%	90.33	83.06	76.80	71.36	66.59
3.14%	97.93	89.46	82.26	76.06	70.68

Source: Own Estimates.

Table 4.17:

Sensitivity analysis (price changes in %).

			WACC		
	5.97%	6.22%	6.47%	6.72%	6.97%
TGR 2.14%	1.97%	-4.85%	10.88%	16.25%	21.07%
2.39%	8.67%	0.98%	-5.77%	11.75%	17.07%
2.64%	16.39%	7.62%	0.00	-6.69%	12.60%
2.89%	25.35%	15.26%	6.58%	-0.97%	-7.59%
3.14%	35.90%	24.14%	14.15%	5.55%	-1.92%

Source: Own Estimates.

Tables 4.16 and 4.17 illustrate that a small change in one of the two variables leads to a significant variation in the share price. While an increase in WACC (ceteris paribus) leads to a decrease in TCCC's share price, an increase in TGR (ceteris paribus) results in an increase in the company's share price.

In the scenarios presented above, the company's share price assumes a minimum value of $56.88, representing a price increase of 21.07% compared to the base price, when the WACC is 6.97% and TGR is 2.14%. The maximum value of $97.93, corresponding to a price increase of 35.90% compared to $72.06, would be reached if the WACC were 5.97% and the TGR were 3.14%.

Ultimately, the two tables show that in the FCFF model, the share price is more sensitive to changes in WACC, since this variable directly impacts FCFF, than TGR, which only has an impact on the terminal value.

4.3. Relative Valuation

The relative valuation, which is performed as a complementary valuation to the DCF method, estimates the TCCC's share price by comparing its value with similar companies using multiples.

The initial phase of relative valuation involves choosing comparable companies to create a peer group. In this stage, similar companies to TCCC, within the U.S. beverage industry, were provided by Bloomberg database.

The second step of this valuation is the selection of multiples. According to Fernández (2001), among the multiples identified in Table 1.1, the P/E ratio and EV/EBITDA multiples are the principal ones used in the valuation of the beverage industry.

Table 4.18:

Relative valuation of TCCC.

Comparable Companies	Ratios	
	P/E	**EV/EBITDA**
COCA-COLA CONSOLIDATED INC	19.4x	11.3x
NATIONAL BEVERAGE CORP	27.8x	17.6x
VITA COCO CO INC/THE	40.7x	28.3x
MONSTER BEVERAGE CORP	39.1x	28.8x
KEURIG DR PEPPER INC	24.3x	16.5x
CELSIUS HOLDINGS INC	113.6x	69.6x
PRIMO WATER CORP	20.6x	8.1x
FARMER BROS CO	0.0x	14.1x
PEPSICO INC	28.3x	18.2x
CONSTELLATION BRANDS INC-A	28.3x	19.8x
BROWN-FORMAN CORP-CLASS B	33.9x	24.3x
MOLSON COORS BEVERAGE CO - B	52.3x	13.4x
BOSTON BEER COMPANY INC-A	51.2x	18.1x
DUCKHORN PORTFOLIO INC/THE	15.4x	9.4x
COCA-COLA CO/THE	23.9x	18.0x
Average	35.3x	21.2x
Median	**28.3x**	**17.8x**
Deviation	**14.5x**	**8.5x**
Median + Deviation	42.8x	26.3x
Median - Deviation	13.8x	9.3x

Source: Bloomberg Terminal, Yahoo Finance and Own Estimates.

In order to increase the reliability of the data in this method, outliers of the comparable companies for each multiple are excluded based on a defined deviation. Consequently, companies whose multiples' values were not within the defined range $[Median - Deviation; Median + Deviation]$ for each multiple were excluded. In practice, the 4 companies identified in red were excluded from the P/E ratio, as well as the 5 companies in red from the EV/EBITDA multiple, leading to a peer group multiple of 28.0x and 17.6x, respectively.

Table 4.19:

TCCC relative valuation results.

TCCC (Million USD)	Ratios	
	P/E	EV/EBITDA
Peer Group Multiple	28.0x	17.6x
EBITDA		15,607
Net Income	10,714	
EV		274,215
EQV	300,153	232,151
Shares Outstanding	4,339	4,339
Implied Share Price	**69.18**	**53.50**
Implied Upside/Downside (%)	17.39%	-9.21%

Source: Own Estimates.

The implied share price estimation is based on the division between EQV and the number of shares outstanding. However, these two multiples diverge in the EQV calculations due to their classification. According to Table 1.1, while P/E is classified as an Equity Valuation Multiple, EV/EBITDA is an Enterprise Value Multiple. Thus, in the EV calculation for the P/E multiple, it is only necessary to multiply the peer group multiple by the net income of TCCC in 2023. For the same category estimations using the EV/EBITDA multiple, it is required to add to multiplication of the peer group multiple and the EBITDA the item of NOA ($13,663), and deduct the debt value ($42,064).

According to Table 4.19, the implied share price using a P/E multiple is $69.18, and using EV/EBITDA is $53.50. This represents an implied upside/downside of 17.39% and -9.21%, respectively, compared to the market price of $58.93 on December 29 of 2023.

4.4. Valuation Results

The results previously obtained can be systematized in Table 4.20:

Table 4.20:

Summary of valuation results.

Valuation Method	Share Price (USD)
FCFF	**72.06**
P/E	69.18
EV/EBITDA	53.50
Valuation Multiples Average	**61.34**
Market Value	**58.93**

Source: Own Estimates.

A DCF approach using the FCFF method leads to a share price value of $72.06, which corresponds to an upside of 22.28% compared to the market price registered on 29/12/2023. The upside percentage suggests that TCCC's share price at the end of last year was undervalued, so the suggestion would be to buy the company's shares.

Taking into consideration the average of multiples price, using the relative valuation method, the company's fair value on the last day of 2023 is $61.34, which is an upside of 4% compared to the market price on that date. Therefore, similarly to the FCFF method, the recommendation is to buy TCCC shares.

However, the investment conclusion varies slightly between the two multiples. The relative valuation based on the P/E multiple confirms the undervalued suggestion, as the share price was $69.18, which is 17.39% above the market share price at that time. However, the relative valuation based on EV/EBITDA is contrary to the P/E ratio. The share price according to this approach is $53.50, suggesting a slight overvaluation, and therefore, a recommendation to sell the shares. These different results can be justified by the non-inclusion of financial costs, such as interest and taxes, in the EV/EBITDA multiple.

Ultimately, to help investors make a conscious and informed decision, it is important to refer to the principal limitations of relative valuation, highlighting that FCFF is the most reliable method.

The first limitation of a relative valuation approach is the difficulty in finding truly comparable firms. According to the literature review section (1.3), a comparable firm is a company that has the same risk, growth potential and cash flows as the company under analysis. Given this, it is very easy to choose an inappropriate set of peers, leading to a distortion of the final company's share value.

The second limitation is market sentiment. Relative valuation is based on other companies' performance and financial multiples, which are susceptible to external factors such as investors sentiments. For instance, a pessimistic market perspective will cause a decrease in the multiples' value, and consequently the company's fair value estimation.

The last limitation is related to the different accounting practices. The different accounting methods among companies can affect their valuation multiples, leading to misleading comparison values, and consequently distortions in the company's fair price.

Conclusion

The primary goal of this thesis was to determine whether on December 29, 2023, TCCC's shares were being traded above or below their fair value, which was obtained through a valuation method, providing an investment decision to TCCC shareholders.

Initially, the most used valuation methodologies – DCF method, relative valuation and contingent claim valuation - were presented as possible approaches to company valuations. The DCF methodology, using the FCFF approach, was considered the most suitable method since TCCC's capital structure has been revealed steadily over the years. The relative valuation had also been chosen as a complementary method to FCFF.

The FCFF method requires the creation of assumptions in order to make forecasts for the different company categories. At this level, the elaboration of assumptions proved to be particularly challenging since they have to be defined according to macroeconomic future perspectives and reflect the challenges faced by the industry, and consequently TCCC, such as consumer spending trends and sugar consumption reduction. After forecasts, the EV via FCFF was calculated by discounting the cash flow for the following five years and the terminal value at a WACC.

In relation to relative valuation, a peer group of comparable companies to TCCC was established, and multiples were computed for the different firms. The selected multiples were P/E and EV/EBITDA, as they are the most commonly used in the beverage industry. After excluding outliers from the estimations, a final average was calculated and used to determine Coca-Cola's EQV.

Once the final values obtained in DCF-FCFF and relative valuation, $72.06 and $61.34, respectively, were both above the market share price recorded on the last day of 2023 ($58.93), the recommendation on that date was to buy TCCC shares.

It is important to keep in mind that the final results and conclusions do not only depend on the models and their limitations, but also on the assumptions made. Therefore, it would be beneficial to carry out another valuation using another valuation approach.

Finally, we suggest carrying out a new equity valuation as new information regarding the company and the market is released.

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Annexes

Historical net operating revenues (2019- 2023).

Segments (Million USD)	2019	2020	2021	2022	2023
Europe, Middle East & Africa					
Revenue	7,058	6,057	7,193	7,523	8,078
% of total revenue	18.94%	18.35%	18.61%	17.49%	17.66%
Latin America					
Revenue	4,118	3,499	4,143	4,910	5,830
% of total revenue	11.05%	10.60%	10.72%	11.42%	12.74%
North America					
Revenue	11,915	11,477	13,190	15,674	16,774
% of total revenue	31.97%	34.76%	34.12%	36.45%	36.66%
Asia Pacific					
Revenue	5,327	4,722	5,291	5,445	5,455
% of total revenue	14.29%	14.30%	13.69%	12.66%	11.92%
Global Ventures					
Revenue	2,562	1,991	2,805	2,843	3,064
% of total revenue	6.87%	6.03%	7.26%	6.61%	6.70%
Bottling Investments					
Revenue	7,440	6,265	7,203	7,891	7,860
% of total revenue	19.96%	18.98%	18.63%	18.35%	17.18%
Corporate					
Revenue	94	46	85	94	126
% of total revenue	0.25%	0.14%	0.22%	0.22%	0.28%
Total Revenue	37,266	33,014	38,655	43,004	45,754

Source: Adapted from TCCC's Form 10-K

Historical operating expenses (2019- 2023).

Costs (Million USD)	2019	2020	2021	2022	2023
COGS					
Total cost	14,619	13,433	15,357	18,000	18,520
% of revenue	39.23%	40.69%	39.73%	41.86%	40.48%
SG&A					
Total cost	12,103	9,731	12,144	12,880	13,972
% of revenue	32.48%	29.48%	31.42%	29.95%	30.54%
OOC					
Total cost	458	853	846	1,215	1,951
% of revenue	1.23%	2.58%	2.19%	2.83%	4.26%
Total Expenses	27,180	24,017	28,347	32,095	34,443

Source: Adapted from TCCC's Form 10-K

Annex C:

Historical CAPEX (2019- 2023).

CAPEX (Million USD)	2019	2020	2021	2022	2023
CAPEX	2,054	1,177	1,367	1,484	1,852
% of Revenue	5.51%	3.57%	3.54%	3.45%	4.05%

Source: Adapted from TCCC's Form 10-K

Annex D*:*

*Historical D&A (2019- 202*3).

D&A (Million USD)	2019	2020	2021	2022	2023
% of CAPEX	66.46%	130.50%	106.22%	84.91%	60.91%
D&A	1,365	1,536	1,452	1,260	1,128
% of Revenue	3.66%	4.65%	3.76%	2.93%	2.47%

Source: Adapted from TCCC's Form 10-K

Annex E:

Historical net working capital variation (2029-2023).

Categories (Million USD)	2019	2020	2021	2022	2023
Trade accounts receivable	3,971	3,144	3,512	3,487	3,410
Inventories	3,379	3,266	3,414	4,233	4,424
Prepaid expenses and other current assets	1,886	1,916	2,994	3,240	5,235
Current Assets	**9,236**	**8,326**	**9,920**	**10,960**	**13,069**
Current Assets / Revenues	24.78%	25.22%	25.66%	25.49%	28.56%
Accounts payable and accrued expenses	11,312	11,145	14,619	15,749	15,485
Accrued income taxes	414	788	686	1203	1569
Current Liabilities	**11,726**	**11,933**	**15,305**	**16,952**	**17,054**
Current Liabilities / Revenues	31.47%	36.15%	39.59%	39.42%	37.27%
Net Working Capital	**-2,490**	**-3,607**	**-5,385**	**-5,992**	**-3,985**
Variation of Net Working Capital	**-1,304**	**-1,117**	**-1,778**	**-607**	**2,007**

Source: Adapted from TCCC's Form 10-K

Annex F:

Credit risk rating.

For larger firms (market cap > $5 billion)			
If interest coverage ratio is			
>	≤ *to*	*Rating is*	*Spread is*
-100000	0.199999	D2/D	20.00%
0.2	0.649999	C2/C	17.00%
0.65	0.799999	Ca2/CC	11.78%
0.8	1.249999	Caa/CCC	8.51%
1.25	1.499999	B3/B-	5.24%
1.5	1.749999	B2/B	3.61%
1.75	1.999999	B1/B+	3.14%
2	2.2499999	Ba2/BB	2.21%
2.25	2.49999	Ba1/BB+	1.74%
2.5	2.999999	Baa2/BBB	1.47%
3	4.249999	A3/A-	1.21%
4.25	5.499999	A2/A	1.07%
5.5	6.499999	A1/A+	0.92%
6.5	**8.499999**	**Aa2/AA**	**0.70%**
8.50	100000	Aaa/AAA	0.59%

Source: Aswath Damodaran's database.