



Ambev – Equity Report

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Abstract Page

This report aims to estimate the fair value for Ambev stock listed in the New York Stock Exchange (NYSE); a discounted cash flow (DCF) model was the main tool used to analyze this share. This method of valuing the firm was chosen due to Ambev being a huge steady firm who generates relatively stable and predictable cash flows.

Although the company has its stock listed in the Brazilian stock market, I chose to evaluate the America Depositary Receipt (ADR) to maintain the whole financial statements, revenue forecast and balance sheet in United States Dollar, as for the investor perspective it makes much more sense since this way much of the forex volatility noise and the Brazilian Real inflation impacts can be minimized and have less impact in the predictability of the cash flows.

Based on my assumptions for the forecast of the cash flows, I propose a recommendation to buy the share, meaning I consider the stock to be undervalued compared to my model.

Resumo

Este relatório tem como objetivo estimar o valor justo das ações da Ambev cotadas na Bolsa de Valores de Nova Iorque (NYSE). Para a análise desta ação, foi utilizado principalmente um modelo de fluxo de caixa descontado (DCF). A escolha deste método de avaliação deve-se ao facto da Ambev ser uma grande e estável empresa, que gera fluxos de caixa relativamente previsíveis e consistentes. Embora a empresa tenha as suas ações cotadas no mercado de valores brasileiro, optei por avaliar o ADR para manter todas as demonstrações financeiras, previsões de receitas e balanço patrimonial denominados em dólares norte-americanos. Do ponto de vista do investidor, esta abordagem faz muito mais sentido, pois ajuda a minimizar o impacto da volatilidade cambial e da inflação do real brasileiro, melhorando assim a previsibilidade dos fluxos de caixa. Com base nas minhas premissas para a projeção dos fluxos de caixa, proponho uma recomendação de compra, significando que considero a ação subvalorizada em comparação com o valor obtido no meu modelo.

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1. Introduction

It is right to assume that the whole point of equity valuation is to reach the final value of the desired instrument to be studied based on personal assumptions, which is the most important element of this study.

Although most valuation methods consist of many inputs and calculations it is crucial that the assumptions are meticulously thought out as it is the pillar of what will be forecasted, Aswath Damodaran who is considered by many as the most important person in valuation studies once said: “The real challenge people face is predicting the future. They often assume this difficulty arises from not knowing how to value assets”. This means that not only prediction assumptions are essential in valuation models, but it is also the most difficult part and that is why it must be emphasized the cruciality of it in this report.

Therefore, this document aims to conduct an equity valuation of Ambev, a leader Brazilian beverage company, stock listed in New York Stock Exchange, by applying the Discounted Cash Flow (DCF) methodology, evaluating as many investments implications as possible.

This analysis will be based on public financial statements released on Ambev historical performance with the available information until December of 2024.

Also, detailed corporate governance and ESG aspects were not considered in this document, therefore it will be structured heavily in the studies of the financial performance, cash flow forecast capabilities and future assumptions on its business operations.

Following this introduction, chapter 2 contains a literature review on the principles of absolute valuation and discounted cash flow methodology, as well as other contents that are important to be discussed in Ambev’s specifics. Chapter 3 describes Ambev overview as a company, analyzing its strategies and potential business, the sector of beverage in Brazil and other places that the firm has operations in, the macroeconomic impact on the revenue forecast and the competitive scenario this firm is facing. Chapter 4 details the valuation method applied in the firm financials, the discounted cash flow model details and assumptions used to get to the fair value of the share. Chapter 5 discuss differences used in this model and another Ambev’s equity valuation report made by Refinitiv Eikon to understand the main strengths and weaknesses of each. Lastly, chapter 6 discusses the potential pitfalls and limitations of this valuation, followed by chapter 7 which concludes the investment recommendation.

2. Literature Review

2.1 Concept of Equity Valuation

The field of equity valuation is extremely important in finance as it uses tools and models with the aim of determining the intrinsic value of a stock based on specifics of the desired firm to be studied. Which means that based on assumptions, data and computations it is possible to analyze one company business. The information generated by its results is very valuable to professionals, analysts and investors that use this data to make decisions that will affect the market.

When talking about equity valuation one could think that with so many companies with different business and strategies could never be studied the same way, in other words, no model is perfect for every kind of company, and this is why there exists many different models to try to adjust for these specifics.

The two most important approaches in this science are discounted cash flow (DCF) and relative valuation models, the first estimate the firm's value based on assumptions and calculations on the expected future cash flows of the company, while the second approach is based on comparing the financial multiples of the company, like price-to-earnings ratio (P/E), with its peers in the market to assess its value.

Other variations that could be said are the dividend discount model (DDM), which is used to assess the value of a firm by calculating the present value of future expected dividends being suited for companies that pay regular and predictable dividends, and adjusted present value (APV), that is suited for valuation models when the firm being studied has a very complex capital structure.

Based on Ambev business model, I decided that the discounted cash flow model is the best suited model for its specifics and therefore is the one used for this project, deeper explained in Chapter 2.6.

2.2 Discounted Cash Flow

2.2.1 Forecasting Free Cash Flows

As mentioned before, the discounted cash flow is the most suited for Ambev business model, this model is a tool to estimate the value of the share according to how much money the operations can generate in the future.

To apply this model, it is necessary to forecast the income statement of the firm reasonably, that is why it is so important that the assumptions made are reasonable and can represent the reality as much as possible because it will impact severely the final price of the share, and the recommendations made to the investors.

After the whole income statement is calculated, finally we will compute the EBIT for each of the forecasted years which will be the value we will use to start computing the free cash flow, after all what is wanted in the model is to forecast how much money the firm can generate, then the following formula is applied:

$$FCF = EBIT \times (1 - \text{Tax Rate}) + \text{Depreciation \& Amortization} - \text{Changes in Working Capital} - \text{Capital Expenditures}$$

Equation 1 - FCF

To breakdown in simple terms, the model will apply a tax rate to the firm's true operating profit, which will depend on each country corporate tax, add this value to the depreciation and amortization which are non-cash expenses that reduce only accounting profits but not actual cash, and take out the cash used by the firm to invest either in equipment, projects or factories (CAPEX) and inventory, receivables, etc. (changes in working capital).

After that calculate the free cash flow of each year in the future, you must apply the present value formula to adjust the result to bring these flows to the present by discounting them using the calculated discount rate (WACC) and summing them all, as the formula below suggests.

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

Equation 2 – Sum of PVs FCFs

After that it is necessary to add this result to the present value of terminal value, which estimates the company value in perpetuity adopting a long-term growth rate, so you have the enterprise value of the company studied, complete formula follows below:

$$V_0^F = \sum_{t=1}^T \frac{FCFF_t}{(1+WAAC)^t} + \frac{TV_F}{(1+WAAC)^T} = \sum_{t=1}^T \frac{FCFF_t}{(1+WAAC)^t} + \frac{FCFF_T(1+g)}{(1+WAAC)^T - WAAC - g}$$

Equation 3 - Enterprise Value

By subtracting the net debt of the firm from the enterprise value, one can find the equity value of the company, this is the value which divided by the number of shares results in the implied share price of the security being studied.

2.2.2 Currency

Especially when dealing with foreign companies, like the case of this report, it is crucial that the currency adopted is logical throughout the entire calculation and analysis, that is why every single financial data is represented in united states dollar.

The adoption of the model in a stronger currency (when compared to Brazilian reais) offer a bigger stability in the forecasting of the cash flows, not only we are automatically adjusting for inflation and currency depreciation overtime, we are also comparing to equity return and benchmark to US market with a spread to compensate the risk exposure to emerging markets, which will be better explained in chapter 4.6.2 how the country risk premium will compensate this risk.

Dealing with US dollars is also the reason why the discount rate and other variables were computed in accordance with that. The spot rates used to translate the historical data was calculated in accordance with Refinitiv Eikon. By using US dollars for all figures we prevent mismatches, make it easier to compare with peer companies and clearly include Brazil's FX and inflation risks through CRP.

2.2.3 Discount rate

The discount rate used in the DCF model is the weighted average cost of capital, this is the average rate a company is expected to finance the operations via equity and debt. The reason why it is called weighted average is exactly to adjust per the rate based on each firm's capital structure.

$$WACC = \left(\frac{E}{V} \times Ke \right) + \left(\frac{D}{V} \times Kd \times (1 - Tc) \right)$$

Equation 4 – Weighted Average Cost of Capital (WACC)

The rate is divided between cost of equity (Ke), which is the return required by investors to invest in equity, and cost of debt (Kd), which is the interest rate the company pays for its debt, each of these two factors are weighted in the formula based on the capital structure of the company, which means that if the company finance itself with more equity than debt the cost of equity will have a bigger impact in the discount rate, and vice-versa if debt is bigger than equity. Also, in the cost of debt the tax shield is applied to adjust interest payments as they are tax-deductible (1 – Tc).

The understanding of beta is also extremely important for the understanding of the calculation of the cost of equity and cost of debt, which will be the composition of the weighted average cost of capital being an extremely important factor in the calculation of the discount factor.

The beta represents the statistical measure of the volatility of the share compared to the corresponding market (benchmark), in other words, it is the representative number of how a stock behaves when market moves, a beta bigger than 1 means that the stock is more volatile

than the market, and if is smaller than 1 means that the security is less volatile when compared to the benchmark.

$$\beta_u = \frac{\beta_l}{1 + (D/E)(1 - T_c)}$$

Equation 5 – Unlevered Beta

$$\beta_l = \beta_u [1 + (D/E)(1 - T_c)]$$

Equation 6 - Levered Beta

The beta can be either levered or unlevered, the unlevered beta aims to isolate the pure business risk, showing how the company operations move when compared to the market, with no regards to its capital structure. In the other hand, the levered beta combines the risk of the business with the financial risk of the capital structure of the company, being the risk that the investor faces. To capture the beta, one could simply calculate the average beta of the peers of the study company un-lever this beta so that it can be re-levered based on the studied company capital structure to match the risk that investors would face according to the capital structure.

However, for this report I will calculate the beta out of a regression of the last 5 years daily stock return as I do not believe the company has enough similar peers in the market to provide a faithful value of beta, and as it is one crucial number in the whole DCF computation I decided to use the regression as I believe it provides a more close to reality value.

The regression has to be computing using the stock return of the desired period as dependent variable and the benchmark market return of the same period as independent variable, in this case since the ADR is the security being analyzed and the valuation is in US dollars I will use the S&P500 returns as independent variable, even though the company is Brazilian.

2.2.3.1 Cost of Equity

As said in the previous paragraph, the cost of equity is the equity return required by investors, and is calculated using the Capital Asset Pricing Model (CAPM), where it adds the risk-free rate (Rf), in this study is the US 10-year treasury yield, to the equity market premium adjusted to the firm's beta, as per formula below:

$K_e = R_f + \beta \times (R_m - R_f)$
--

Equation 7 – Cost of Equity

However, since Ambev is a Brazilian company, a country risk premium (CRP) was applied to adjust to Brazil risk exposure and therefore the formula used was:

$$K_e = R_f + \beta \times (R_m - R_f) + CRP$$

Equation 8 - Cost of Equity + CRP

2.2.3.2 Country Risk Premium (CRP)

The country risk premium is one variable added to the CAPM model used to calculate the cost of equity of the firm, it is a way to compensate the risk exposure the company faces when it has operations in emerging markets, which is the case of this report as Ambev operates mostly in emerging markets and is exposed to the risks these countries/regions carry. Therefore, the country's risk premium is added to represent the excess return investors demand for their investments to compensate for these countries' risks.

In his paper *Country Risk: Determinants, Measures and Implications – The 2023 Edition*, Damodaran (2023) identifies three principal approaches for estimating the country risk premium to be used in valuation models: Using the CRP of the country is incorporated in; Measure the weighted-average CRP per country that the firm has operations in according to the revenue share that each country carries; and lastly adjusting the CRP using lambdas to compare the firm's exposure to country risk adjusting per the average of the market. These approaches will be discussed in Ambev's specifies in chapter 4.6.2.

2.2.3.3 Cost of Debt

In the other hand, the cost of debt reflects the interest rate that the firm uses to pay its debt. It does not add a country risk premium as indirectly it is already included since the interest rate the company pays reflects the exposure to Brazil already.

Ambev is expected to pay higher yields as most of its operations are in Brazil, being exposed to bigger risks when compared to developed countries.

2.2.4 Terminal Value

The terminal value is the most important part in the valuation when using a discounted cash flow model as it is responsible for most of the enterprise value. While free cash flow projections try to capture how a company will perform in the next years, the terminal value tells the value of the firm beyond that and aims to reflect what the business is worth in perpetuity. As Damodaran (2002) emphasizes, it is very important to carefully consider the assumptions concerning the terminal value, as they can greatly influence the valuation result.

In the case of Ambev, which has a steady track record and consistent cash flows as said previously, this part of the model most likely will represent a large share of the total value, following the idea that a mature business will not simply end after a five-to-ten-year forecast.

Nevertheless, it is crucial to be cautious deciding the inputs that go in the terminal value computation, because if the growth rate used is way off (either optimistic or pessimistic), the entire valuation would then become unrealistic just because of one input.

For this exact reason many analysts go for a modest growth rate that reflects scenarios such as long-term inflation or slow economic expansion. For this report, a conservative rate was assumed to reflect Ambev's mature position and the limited room for growth in its sector or markets, this way the model consists of a closer to reality and reasonable structure.

2.2.5 Sensitivity Analysis

There are some complementary tools to the DCF approach that allow us to stress-test the model and see how the results vary depending on different scenarios or inputs.

In this document three of them will be computed: Sensitivity Analysis; Scenario Analysis; and Monte Carlo Simulation. They offer different models and add value to the computations as it can tell us how different the results would be with some variations in inputs.

The sensitivity analysis shows the difference between the results when we adjust one variable, in this case, the discount rate and growth rate will be the inputs to be changed and understand how different the values for enterprise value, and consequently, implied share price would be.

The scenario analysis consists in setting two different scenarios, bull and bear, and selecting a bundle of inputs with reasonable values, aiming to see how the valuation would result in the worst and best scenario. This allows us not only to understand these differences but also to compare them with our base scenario.

Lastly, the Monte Carlo simulation provides us with a probability distribution of the enterprise value and share price by rerunning the model ten thousand times, using random values. The three approaches will be detailed according to Ambev in chapter 4.

2.3 Relative Valuation

Another approach very used to value a firm is the relative valuation, this consists of comparing one company against its peers by calculating and interpreting market-implied ratios. Moreover, the firms used as benchmarks must be similar to the company being studied.

To effectively use multiples to value a firm, it is crucial that the peer group is similar enough in terms of size, industry, geography, growth rate, profitability and capital structure. The reason behind this is to ensure that the market multiples applied to the firm studied reflect how investors feel about the same set of economic and financial characteristics of their peers, making them comparable.

To better explain the most popular multiples we could divide them in two categories: Equity multiples and Enterprise-Value multiples. The first look at what you pay per share compared to what each share earns or owns, like price to earnings ratio and price to book value, respectively one look at how many dollars you pay today for \$1 of profit and the other look at how many dollars you pay for \$1 of the firm's assets value on its books, meaning it says what shareholders pay for profits and assets. The equations below better represent each of these ratios:

$$\frac{P}{E} \text{ Ratio} = \frac{\text{Price per share}}{\text{Earnings per share}} \quad P/B \text{ Ratio} = \frac{\text{Price per share}}{\text{Book Value of Equity per share}}$$

Equation 9 - P/E Ratio and P/B Ratio

Meanwhile, enterprise-value multiples tell debt and equity investors pay for a firm-wide metric, such as EBIT, EBITDA, revenue, etc. These ratios incorporate the debt and cash the company have and tell investors how much they are paying when including the capital structure in the calculation, not just the share price. The most popular enterprise-value multiples are EV/EBIT, EV/EBITDA and EV/Sales.

The approach of using multiples to value a company is very common in the market and used by many analysts as it consists of simple, fast and easy calculations, also is easy to communicate to stakeholders using them. However, this approach has limitations, such as: need for adequate and comparable peers; is sensitive to short-term noise; and to effectively adjust for currency and country risk it becomes almost as complex as a DCF model.

In the perspective of valuing Ambev, I do not believe that the multiples valuation is a effective approach, mainly because of the lack of comparable peer-group and for the poor country risk premium adjustment in multiples. There are many multinational, large and mature companies in the beverage sector, however they do not operate in emerging markets as heavily as Ambev does and not even have the same product portfolios. Consequently, multiples would not be able to correctly compare Ambev with other US or European beverage companies while correct adjusting accurately the country risk exposure that Ambev faces for all regions it operates.

2.4 Strengths and Limitations

It is very important to mention that no model in valuation is perfect, every model and strengths and weaknesses, which means that understanding them is essential to understand which risks are included and how to minimize them or adjust what is needed to find the most accurate results.

The DCF model is good as it can reach the value of a company using intrinsic values, on the ability to make cash in the future, at the same time it is very flexible model, in other words, it

is a model that can work in many types of companies adjusting for each study assumptions, therefore being able to be used in a broad amount of cases. Also, as the model requires many values and drivers that are reached based on deep studies of the business and operations, while adjusting for personal expectations and assumptions.

In the other hand, this model is very sensitive to assumptions, meaning that even small changes in factors such as discount or growth rate can lead to a very big change in the final result of the model, not to mention that is extremely challenging to predictive with certainty long ranges in the future, some models go up to 10 years in the future and estimating accurate values in such a long time can be very difficult, still the foundation of the model. Another point to consider is that depending on the industry the firm studied is in can be so specific to work in that can make the results of the model unreliable, such as biotech or technology sectors.

2.5 DCF in Emerging Markets

When using discounted cash flow methods to value a company with most of its operations in an emerging market, it is very important to consider many factors that can strongly influence the result.

Ambev is a Brazilian company and most of its business is located in Brazil which is a country that faces political instability, economic volatility and higher investments risk that must be considered and included in the computation of the fair value of the security because investors will require a higher return for their investment to compensate the bigger risk as opposed to an investment in a developed country. (Damodaran, 2003).

As mentioned earlier, this study uses financials and projections in U.S. dollars (USD) to reduce the effects of exchange rate fluctuations from the Brazilian real (BRL). However, even with this analysis being in USD, many other adjustments must be made in this analysis to consider the risks of investing in Brazil.

Therefore, a country risk premium (CRP) must be incorporated in the computations to accurately reflect the additional risks that the investor faces. Ignoring these factors would lead to a significant underestimation of the firm's cost of capital. Although the challenges related to Brazil risk are acknowledged in this literature review, the specifics of CRP and how it incorporates the valuation will be furtherly discussed in Chapter 4, where the assumptions and numbers incorporated are fully discussed and presented.

2.6 Applicability and Relevance to Ambev

The reason why discounted cash flow is the best suited model to apply in this valuation is because Ambev is a mature and very established company in its industry, far from being a start-

up with unpredictable revenue and cash flows, meaning this business has growth and margin rates more steady and easier to predict. For this model it is crucial that the future cash flows estimated are reasonable, and this is more feasible to achieve in a mature firm like Ambev.

Furthermore, Ambev is a historically cash-generating company, meaning it has positive cash flows for many years now and gives us more data to work on when analyzing the operations and where the ability to make money.

Lastly, the DCF model implicitly includes many macroeconomically factors that I assume to have a significant impact in the results, for example in the calculation of discount rate the model allows to adjust for the country exposure and considers higher expected returns due to increased economic risks as higher interest rates, inflation and market volatility.

3. Valuation

3.1 Company overview

Ambev is a Brazilian company, formally named as “America’s Beverage Company”, which core business is the production and commercialization of beverages, divided in two main segments: beers and soft drinks.

The company is the succession of the merger of the two most famous beer companies in Brazil until that time: “Brahma” (founded in 1885) and “Antarctica” (founded in 1888). In 1998, the company then decided to operate under the name “Ambev”. This origin is very important to explain part of the success on the beer segment since it owns and produces products under brand names that are part of the Brazilian country for a very long time.

Ambev has an incredibly large number of brands with strong success in Brazilian land, some examples in the beer segment are: Skol, Brahma and Antarctica; while in the soft drinks segment, which consists of soda and non-alcoholic beverage and are: Guaraná Antarctica and Fusion. These examples consist only brands originally and authentically produced by the firm; however, it also sells PepsiCo products due to a strong deal for many years where Ambev is responsible for selling some products of the American company.

By far the region that leads Ambev’s sales is Brazil, however since 1994 Ambev started operating internationally, first in Argentina, Paraguay and Venezuela. In 2004 and 2005 the firm originated its presence in Central America and Canada, plus other countries in South America. This is very important data because for the last 20 years Ambev did not take any decision to go further internationally, which is meaningful enough to be part of financial forecast assumption to be explained further.

Nowadays, the company has operations in 18 countries: Brazil, Canada, Argentina, Bolivia, Chile, Paraguay, Uruguay, Guatemala, El Salvador, Honduras, Nicaragua, Dominican Republic, Cuba, Panama, Barbados, Saint Vincent, Dominica and Antigua.

The company is public listed under the Brazilian stock exchange as ABEV3, and in the New York Stock Exchange, via American depositary receipt, as ABEV.

3.2 Financial Performance

As an overview of the firm’s financials, Ambev’s presents strong operational financial performance, however, lacks growth, which is understandable due to its business and industry, still position itself as a mature firm leader of its segment. The revenue has fluctuated between 13.2 and 16.7 billion USD in the last 10 years, but the growth between 2015 and 2024 was very impacted in the COVID period (2020 to 2021) and the macroeconomic scenario this company has been through, showing strong stability in a very volatile economy.



Figure 1 - Historic revenue

The bad economic scenario in many of the countries where this firm operates, especially Brazil where it represents the largest portion of the revenue, impacts a lot the company financial performance. During economic downturns, the kind of product that this company sells is one of the first to be impacted as customers tend to reduce spending since beers and soft drinks are not essential or very inelastic in the Latin America economy.

Not only that, but Ambev has a considerable share of its revenue originating from other countries of South America that are often under high volatility and risk exposure, such as

Argentina, the figure 2 below helps to understand how the firm’s revenue is distributed between the countries/regions:

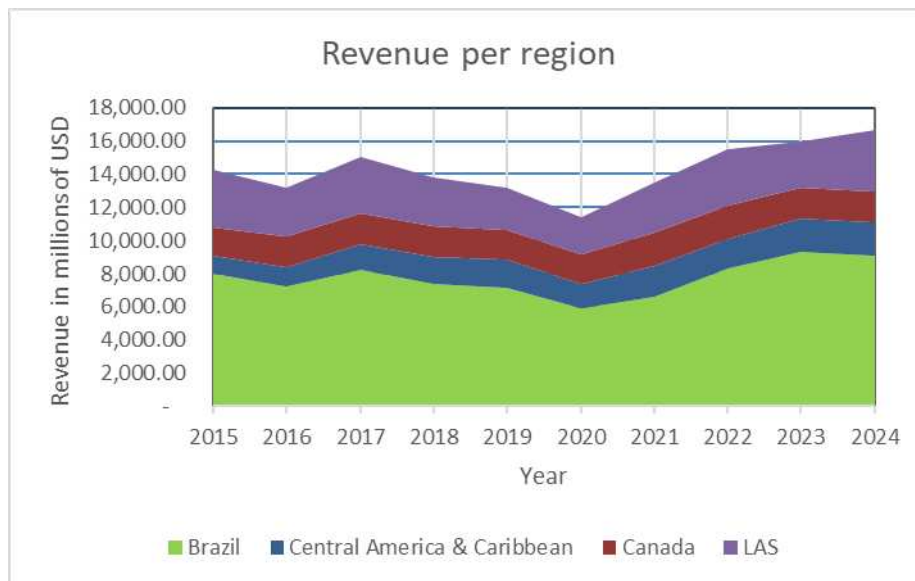


Figure 2 - Historical Revenue per region (Millions of USD)

A couple of key insights important to mention is that Brazil has always been the biggest share of the revenue despite showing some variations in revenue share, while the revenue originated from Central America & Caribbean significantly increased throughout the years. Meanwhile, Canada and South America (LAS) did maintain around the same participation of the revenue during the last 10 years with a bit of volatility, especially in the recent past years explained mostly to the extreme macroeconomic scenario in Argentina.

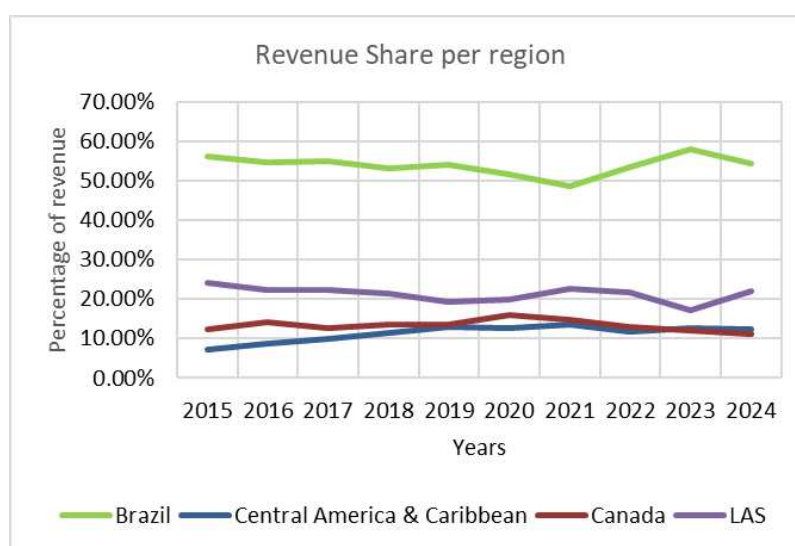


Figure 3 - Revenue share per region

The figure 3 above better represents the portion of revenue that comes from each of these countries/regions. Moreover, to analyze how the company performs according to the volume of beverage sold, one good approach to evaluate how is the sales performance in each region is to calculate the revenue per hectoliter in each region, represented in the figure 4 below:

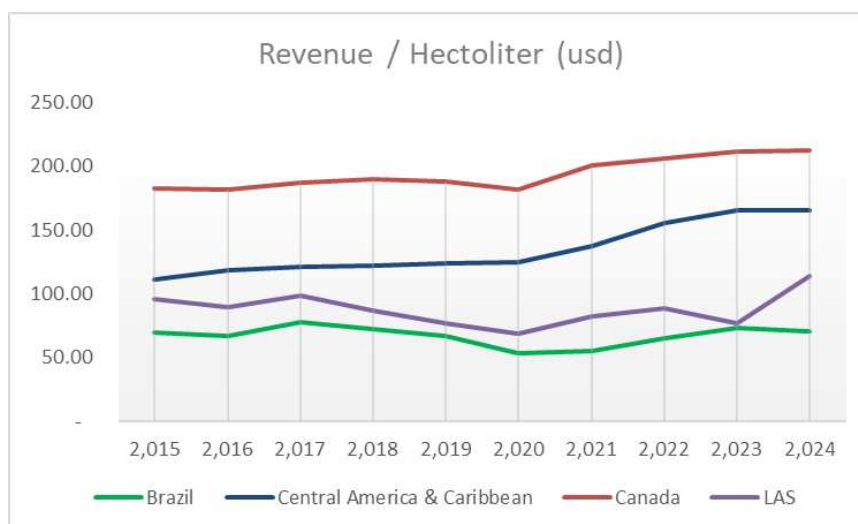


Figure 4 - Revenue per Hectoliter

Brazil is by far the place where the most volume is sold (around 70.54% in 2024), however has the smallest revenue per hectoliter, meaning that Ambev’s is able to sell more products in Brazil but with cheaper prices, same thing in the other countries that it operates in South America (LAS), where it is possible to observe a big impact from 2023 to 2024 due to inflation.

	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022	2,023	2,024
<i>(USD millions)</i>										
Sales performance per region										
Revenue (USD)	14,250	13,170	15,013	13,840	13,204	11,429	13,520	15,469	15,982	16,665
Volume sold in hectoliters ('000 hl)	169,078	159,822	162,829	158,717	163,243	165,798	180,368	185,750	183,659	181,920
Breakdown per region										
Brazil										
Revenue / hectoliter (usd)	70.22	67.38	77.66	72.68	66.87	53.12	55.25	65.57	73.51	70.57
Volume sold in hectoliters ('000 hl)	114,354	106,961	106,360	101,643	106,807	111,285	119,531	126,184	126,420	128,320
Volume sold share	67.63%	66.93%	65.32%	64.04%	65.43%	67.12%	66.27%	67.93%	68.83%	70.54%
Central America & Caribbean										
Revenue / hectoliter (usd)	111.46	118.65	120.89	121.72	123.80	125.13	137.74	155.44	165.37	165.51
Volume sold in hectoliters ('000 hl)	9,109	9,671	12,272	13,160	13,859	11,451	13,402	11,786	12,175	12,409
Volume sold share	5.39%	6.05%	7.54%	8.29%	8.49%	6.91%	7.43%	6.35%	6.63%	6.82%
Canada										
Revenue / hectoliter (usd)	182.68	181.99	186.89	189.80	187.75	182.13	201.00	206.48	211.72	212.93
Volume sold in hectoliters ('000 hl)	9,700	10,254	10,136	9,943	9,586	9,999	9,924	9,645	9,025	8,744
Volume sold share	5.74%	6.42%	6.22%	6.26%	5.87%	6.03%	5.50%	5.19%	4.91%	4.81%
LAS										
Revenue / hectoliter (usd)	95.59	89.56	99.10	87.22	77.18	68.45	81.98	88.41	76.74	113.86
Volume sold in hectoliters ('000 hl)	35,914	32,934	34,062	33,971	32,991	33,062	37,512	38,134	36,040	32,448
Volume sold share	21.24%	20.61%	20.92%	21.40%	20.21%	19.94%	20.80%	20.53%	19.62%	17.84%

Table 1 - Sales Performance per Region

In the other hand, Canada and Central America & Caribbean (CAC) are regions where the company can sell products with a higher price, meaning that even with a much smaller volume

of products sold the company still makes reasonable sales in these regions. This comparison is easier to see by looking at the revenue / hectoliter field in table 1, the higher the most Ambev can generate in this region per 1000 hectoliters sold.

Another important factor to consider in the financial performance of Ambev is to understand how the gross profit margin fluctuated historically, the graph below better represents this volatility throughout the years:

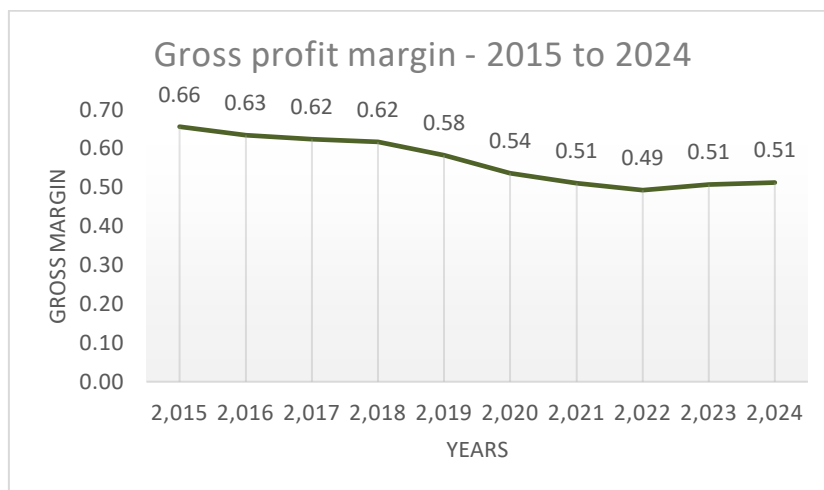


Figure 5 - Gross Margin – History

As we can see, more recently Ambev’s gross profit margin decreased throughout the years of 2015 until 2021, however, considering the past 5 years, the gross profit margin stabilized closer to 0.51 (average of past 5 years) with no significant volatility. Therefore, I assumed it is a down-to-earth value to use to estimate the income statement for the future, better represented in subchapter 4.1.

3.3 Macroeconomic Influence

Two of the most important factors to take into consideration to analyze and evaluate Ambev’s financials are inflation and currency. Since Brazil and majority of the countries where this company has activities are countries with weak currency and very high inflation, this company is significantly impacted by it, and that is the exact reason why all financial data in this report is going to be analyzed and calculated in US dollars instead of Brazilian real. Below there is a graph showing the Brazilian Real to US dollar fluctuation over the same period of financial statements considered:

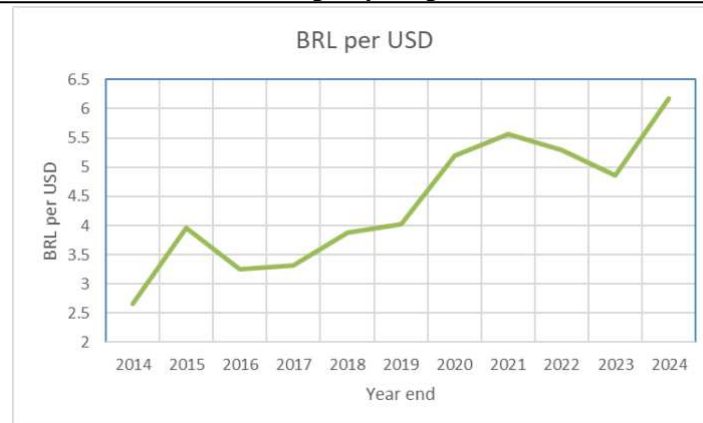


Figure 6 - BRL per USD 10y (Refinitiv data)

Inflation, politic crisis and fiscal concerns are very important macroeconomic factors to take into consideration for this analysis, because the company must create strategies to be able to keep selling its products and maintaining its sales while facing significant economic factors that are out of the firm's control.

Also, the interest rates are a crucial factor to be considered since historically the rates in Brazil have fluctuated a lot, and in a scenario with high interest rates may reduce the consuming expenses, people have less incentive to buy goods within Ambev's segment.

When it comes to Argentina, the sensibility is even higher, as the country faces way more concerning economic crisis, hyperinflation and political crisis. Therefore, the firm's revenues in this country are very difficult to accurately estimate, as the interest and inflation rates are extremes, meaning that for this report the forecasts concerning this region are going to be conservatives.

3.4 Industry overview

The Brazilian beverage sector is composed by 80% of the products as beers and soda, that is why Ambev has such an outstanding performance in this industry, with more than 60% of Brazilian market share. Ambev has brands that are consolidated in the country for decades and has partnership with international companies having ownership of the brand in the Brazilian territory.

Brazil represents one of the biggest markets in the world when it comes to the beverage industry, due to its big population (more than 200 million people), along with a tropical climate that increases demand for alcoholic and non-alcoholic beverages for most of the year.

This market mainly consists of very large and steady firms that can produce on a very large scale to be able to reach the smallest costs, therefore being more competitive. However, recently smaller companies have been able to enter this market by offering premium products at a higher price, presenting more diversification that was not that common in the past.

The new premium products which aim to reach wealthier clients are important to be mentioned as it is one of the opportunities for Ambev to create growth, as Ambev's business usually consists of very famous but cheaper brands and products.

One example of these premium products is craft beers that are getting more and more popular and being commercialized on a bigger scale as time passes. Ambev recently joined this sub-sector with its new brand "Colorado" which has been making a lot of success and was well received in the market by Brazilian customers.

On the other hand, Ambev has not been able to show many improvements or innovation when it comes to non-alcoholic beverages, such as soda, isotonic and tea-based products. The brands that Ambev owns in these products have been very well consolidated in the market for years but haven't really shown any diversification in its final products.

3.5 Competitive Landscape

When it comes to its peers, the biggest competitors are usually international firms or holdings that sell products in the same regions, we can name some of them: Heineken, Molson Coors Brewing Company, Diageo, and Coca-Cola.

Ambev faces significant pressure from these international players to maintain itself leader in the sector, between the firms cited previously, Heineken is the biggest threat as it is expanding aggressively in Brazil and is being able to establish great brands both in the premium and craft beer segments, where it is considered to have higher growth potential.

Meanwhile, when talking about Brazilian firms we can cite Grupo Petrópolis, although smaller than Ambev it is still important to watch as a potential threat for Ambev market dominance. It stays competitive by offering lower prices and having strong customer loyalty in smaller cities and rural areas. At the same time, craft beer brands and more expensive, high-quality drinks are becoming more popular, especially with younger and wealthier people in big cities. If Ambev does not create new products or improve its brand, it could start to lose market share in these areas.

Analyzing its biggest risks, the market share possession by Heineken has been increasing due to its increasingly presence in Brazil by acquiring companies like Kirin Brazil resulted in a fast expansion and should be assessed by Ambev strategic operations in the short term.

3.6 Share price

Analyzing Ambev stock price over the past five years, it is possible to note that the share fluctuated between about \$1.8 and \$3.8 USD, with its peak being around middle of 2021, explained by a more optimistic scenario after COVID with activities going back to normal and business coming back to higher activities.

However, since that time the price slowly decreased until finally reaching its minimum price slightly under \$2.00 between the end of 2024 and beginning of 2025, where we can see it start to recover and assume an upward trend as the graph below, containing the stock weekly closing price since May 2020, suggests.



Figure 7 – Stock price / Souce Refinitiv

The trend line has a downward slope and shows that this security lost ground on average, which lead us to understand that investors’ perspective on it has not been good over the past 5 years, in other words, the market has valued ABEV a bit lower throughout this period.

When comparing the firm’s share return to the market benchmark return for the same period, the graph below shows how these two instruments would perform if they were both indexed at \$100 in the first day of the graph:

ABEV vs SPX – Returns 05/2020 – 05/2025



Figure 8 - Ambev vs SPX returns (index = 100)

The market index (S&P500) performed much better than Ambev in the past 5 years, meaning that if a investor allocated \$100 at the index 5 years ago this investment would now be worth close to \$200, while in ABEV security the same investment would be still close to \$100.

4. Absolute Valuation

4.1 Revenue Forecast

Understanding how the revenue fluctuated or evolved in the past 10 years breaking down per region was a very important consideration in the forecasting of the revenue. In the process of analysis, it was possible to observe that the company sales have significantly changed throughout the years when looking at the numbers in the local currency (Brazilian reais), which does not give a good impression of how it really evolved when adjusting for macroeconomic factors such as inflation and currency depreciation. That is why the best way to value Ambev is to use all US dollars as the currency for all financial statements, forecasts and analysis.

Breaking down the revenue of the past 10 years between the countries/regions Ambev originates its revenues from is possible to see that the company growth rate varies a lot in each of the regions (table 2), as expected as the market in each of these are very different from each other. Moreover, a couple of key points to mention regarding the revenue fluctuation are: Ambev confronted a significant volatility in its sales caused by COVID between 2019 and 2021; and its sales in US Dollars were impacted by one of the biggest Brazilian political crisis that happened between 2015 to 2016 resulting in the impeachment of the president at that time and impacting several markets, investors' confidence, interest rate and currency depreciation.

Besides the revenue being significantly impacted between 2019 and 2021, it has recovered well in the past years and is performing a small but steady growth in sales in the past couple of years. Better represented in the table below:

	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022	2,023	2,024
<i>(USD millions)</i>										
Revenue										
Revenue (USD)	14,250	13,170	15,013	13,840	13,204	11,429	13,520	15,469	15,982	16,665
Revenue growth		-7.58%	14.00%	-7.82%	-4.60%	-13.44%	18.30%	14.42%	3.32%	4.27%
Breakdown per region										
Brazil										
Revenue	8,029.82	7,206.92	8,259.94	7,387.87	7,141.89	5,911.53	6,604.02	8,274.51	9,292.73	9,055.28
Revenue growth rate		-10.25%	14.61%	-10.56%	-3.33%	-17.23%	11.71%	25.29%	12.31%	-2.56%
Revenue share	56.35%	54.72%	55.02%	53.38%	54.09%	51.72%	48.85%	53.49%	58.14%	54.34%
Central America & Caribbean										
Revenue	1,015.32	1,147.46	1,483.48	1,601.85	1,715.77	1,432.89	1,846.01	1,832.12	2,013.37	2,053.75
Revenue growth rate		13.01%	29.28%	7.98%	7.11%	-16.49%	28.83%	-0.75%	9.89%	2.01%
Revenue share	7.12%	8.71%	9.88%	11.57%	12.99%	12.54%	13.65%	11.84%	12.60%	12.32%
Canada										
Revenue	1,772.02	1,866.19	1,894.26	1,887.12	1,799.73	1,821.13	1,994.71	1,991.53	1,910.82	1,861.89
Revenue growth rate		5.31%	1.50%	-0.38%	-4.63%	1.19%	9.53%	-0.16%	-4.05%	-2.56%
Revenue share	12.44%	14.17%	12.62%	13.64%	13.63%	15.93%	14.75%	12.87%	11.96%	11.17%
LAS										
Revenue	3,433.09	2,949.50	3,375.60	2,962.92	2,546.18	2,263.24	3,075.31	3,371.31	2,765.50	3,694.32
Revenue growth rate		-14.09%	14.45%	-12.23%	-14.07%	-11.11%	35.88%	9.62%	-17.97%	33.59%
Revenue share	24.09%	22.40%	22.48%	21.41%	19.28%	19.80%	22.75%	21.79%	17.30%	22.17%

Table 2 - Revenue Forecast (Millions of USD). See Appendix A for full data.

Analyzing the data above is possible to see the revenue fluctuated between \$13.2 to 16.65 billion USD throughout the whole period, with key mentions to Central America & Caribbean sales increase throughout these years and LAS volatility caused by macroeconomic factors in the region. The data for the sales per region was released in the investor relationship annual report by the company itself but does not present the exact revenue share of each country within Central America & Caribbean (CAC) and South America (LAS) besides Brazil and Canada.

This breakdown was important to understand how Ambev can focus strategically to create growth, for example, Brazil is a market where the company is very mature and steady. Meanwhile, Central America & Caribbean looks like a region with growth opportunities as the firm doubled its revenue in this region in the past 10 years.

To effectively achieve a realistic rate for the sales growth rate per year for the future revenues, I computed the average revenue growth of the past 6 years for each region weighing for the 6-year average revenue share, this way I could accurately capture the differences of growth for each of these while adjusting for the portion of revenue they represent, resulting in a weighted average sales growth of 4.19% which is the rate used to forecast the estimates revenues for the future years, better represented in the table below:

Region	g 2019	g 2020	g 2021	g 2022	g 2023	g 2024	6y Avg g	Weight (6y % sales avg)	Weighted g per region
Brazil	-3.33%	-17.23%	11.71%	25.29%	12.31%	-2.56%	4.37%	53.44%	2.33%
CAC	7.11%	-16.49%	28.83%	-0.75%	9.89%	2.01%	5.10%	12.66%	0.65%
Canada	-4.63%	1.19%	9.53%	-0.16%	-4.05%	-2.56%	-0.11%	13.39%	-0.02%
LAS	-14.07%	-11.11%	35.88%	9.62%	-17.97%	33.59%	5.99%	20.52%	1.23%
Total									4.19%

Table 3 - Weighted sales growth per region

As for the cost of revenue, I maintained the average gross profit margin of 0.51, which is the average of past 5 years, accurately representing what Ambev has been performing in recent years as presented previously in figure 5. The output of the forecasted revenues is shown below:

	2,024	2025E	2026E	2027E	2028E	2029E	2030E
<i>(USD millions)</i>							
INCOME STATEMENT - Forecast							
Revenue	16,665	17,364.04	18,092.15	18,850.79	19,641.23	20,464.83	21,322.95
Cost of revenue	(8,126)	8,498.89	8,855.27	9,226.58	9,613.47	10,016.58	10,436.59
Gross profit	8,540	8,865	9,237	9,624	10,028	10,448	10,886

Table 4 - Revenue forecast

At the end of 2030, the estimated amount of revenue is approximately 21.3 billion dollars with a gross profit of 10.9 billion dollars. I assume there is no room for improvement in reducing the cost of revenue as it is already very mature and its operations are already very efficient, the average gross margin of last 5 years did not present significant improvements, as shown in figure 5, suggesting the firm stagnated its gross profit margin at around 0.51.

4.2 Operational performance forecast

After forecasting the gross profit, to accurately estimate EBITDA it was necessary to look deeper in Ambev operational costs, the main portion of these costs are allocated in the selling, general and administrative (SG&A) expenses which have historically corresponded to around 30% of the revenue. However, to accurately capture how this cost would fluctuate for the forecasted years where the sales is expected to increase, it is necessary to set fixed and variable costs, as it would not be realistic to assume that all SG&A expenses would follow the same increase in revenue.

It would be almost impossible to sort every single component of SG&A into fixed or variable categories, therefore my assumption was to set the SG&A of the lowest year in revenue (2020) as an estimate of the fixed costs as in a down year most of what the firm still pay is the fixed portion.

That said, this value adjusted yearly by 2% to mirror the expected inflation in USD (rounded value expected by FED) is what I expect as a fixed floor for the SG&A expenses for the next years of the business. After that, the surplus of the costs after subtracting this fixed floor is what I assume as the variable SG&A costs of the company, the table below represents this breakdown:

SG&A forecast	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E
Gross Profit	6,130.1	6,902.4	7,624.6	8,106.8	8,539.7	8,865	9,237	9,624	10,028	10,448	10,886
Fixed SG&A	2,914.8	2,973	3,033	3,093	3,155	3,218	3,282	3,348	3,415	3,483	3,553
Variable SG&A		1,081.0	1,619.4	1,604.5	1,761.9	1,836	1,913	1,993	2,077	2,164	2,254
SG&A - Total		4,054.0	4,651.9	4,697.7	4,917.0	5,054	5,195	5,341	5,492	5,647	5,807
Other Operating Expense	-524.5	-394.2	-487.9	-406.7	-457.8	(522)	(543)	(566)	(590)	(615)	(640)
EBITDA		3,242.6	3,460.6	3,815.9	4,080.5	4,332.7	4,585.0	4,849.2	5,126.0	5,415.9	5,719.4

Table 5 - SG&A forecast

Therefore, I assume the variable costs will proportionately increase with the growth in sales, meaning that as the company sells more, it will likely pay more in commissions, bonus and other variable costs to support higher sales. So, to calculate these values for the forecasted years I considered the average margin of the variable SG&A per revenue of past 3 years (around 10.57%), this ensures that the fixed costs does not grow proportionately with the revenue as it would be very reasonable.

When it comes to “Other Operating Expense”, Ambev details in its financials that the biggest portion of this account is related to government subdivision and subsidized loans, therefore I assume no effective way to estimate this account detailed, so for this field I maintained the historical average margin to sales ratio of 3% for the next forecast period. The below table breaks down the values discussed in this subchapter so far:

	2,020	2,021	2,022	2,023	2,024	2025E	2026E	2027E	2028E	2029E	2030E
<i>(USD millions)</i>											
INCOME STATEMENT - Forecast											
Revenue	11,429	13,520	15,469	15,982	16,665	17,364.04	18,092.15	18,850.79	19,641.23	20,464.83	21,322.95
Cost of revenue	(5,299)	(6,618)	(7,845)	(7,876)	(8,126)	(8,499)	(8,855)	(9,227)	(9,613)	(10,017)	(10,437)
Gross profit	6,130	6,902	7,625	8,107	8,540	8,865	9,237	9,624	10,028	10,448	10,886
Other Operating Expense/(Income) - Net	525	394	488	407	458	522	543	566	590	615	640
General and administrative	(3,439)	(4,054)	(4,652)	(4,698)	(4,917)	(5,054)	(5,195)	(5,341)	(5,492)	(5,647)	(5,807)
Operating Profit before Non-Recurring Income/Expenses	3,215	3,243	3,461	3,816	4,080	4,333	4,585	4,849	5,126	5,416	5,719

Table 6 - Income Statement Forecast; please see Appendix B for full dataset.

Following the breakdown of the income statement, the non-operating expenses composed by financing expenses, sale of tangible and intangible fixed assets, equity earning/loss and other non-operating income/expenses, its mostly composed by the net financing expenses, while the

other values have been historically irrelevant representing a 10-year average of only about 0.75% of the revenue, therefore no detailed deep analysis was made to estimate these values, using a 5-year average of the ratio to revenue to forecast these values for the next years, as expressed below:

	2,020	2,021	2,022	2,023	2,024	2025E	2026E	2027E	2028E	2029E	2030E
Operating Profit before Non-Recurring Income/Expenses	3,215	3,243	3,461	3,816	4,080	4,333	4,585	4,849	5,126	5,416	5,719
Non operating expenses											
Financing Income/(Expense) - Net - Total	(235)	(307)	(381)	(423)	(155)	(330)	(344)	(359)	(374)	(389)	(406)
Sale of Tangible & Intangible Fixed Assets - Gain/(Loss)	5	12	17	17	23	5	5	5	5	6	6
Equity Earnings/(Loss) - before Taxes including Non-Re	(8)	(21)	(6)	(37)	1	(4)	(5)	(5)	(5)	(5)	(6)
Other Non-Operating Income/(Expense) - Total	(421)	(117)	(178)	52	(37)	(43)	(45)	(48)	(50)	(53)	(56)
Non recurring expenses											
Normalized Non-Recurring	85	(255)	(150)	(412)	(281)	(174)	(181)	(189)	(196)	(205)	(213)
Income before tax	2,642	2,553	2,763	3,014	3,631	3,786	4,015	4,255	4,506	4,769	5,044

Table 7 - Non-operating and non-recurring expenses

As the non-recurring expenses are, by definition, unpredictable both in value and in timing, there is no reasonability in trying to forecast the same way done for the SG&A costs, therefore, to incorporate this in the forecasted years I normalized these expenses in 1% of the revenue of the respective year. Since this has been historically representing around 1% of the revenue, trying to break it into fine details would add more noise than insights.

4.3 Tax Rate

Finally with the estimated values of EBIT, we can proceed to the computation of income tax expenses by applying the Brazilian corporate tax of 34% to the value of EBIT of each year. Historically, Ambev was able to reduce its tax expenses because of tax benefits on shareholders' equity having a effective tax rate way below the 34% corresponding to Brazil's corporate tax, this explains the big difference in tax expenses between the historical values and the forecasted years.

Historical FCF and forecast (in Mio. USD)												
Year	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	3,286	2,642	2,553	2,763	3,014	3,631	3,786	4,015	4,255	4,506	4,769	5,044
Tax expense	-192	-345	-118	127	-15	-865	-1,287	-1,365	-1,447	-1,532	-1,621	-1,715
EBIT after tax	3,094	2,297	2,435	2,890	2,999	2,766	2,499	2,650	2,808	2,974	3,147	3,329

Table 8 - Tax rate

From 2025 until 2030, the EBIT after tax was calculated assuming a corporate tax of 34% (EBIT * (1 - tax)), since company declares and pays its tax in Brazil.

4.4 Non-cash expenses, working capital and CAPEX

In the recent years, Ambev has maintained the increase/decrease in net working capital very low, as an example, in 2023 and 2024 the firm was able to keep this value as 0.37% and 0.18% respectively of the revenue, as this does not represent a significant impact in the free cash flow

the values assumed for the next years represent the average margin to the revenue of the past 6 years (0.23%).

Depreciation, amortization and other non-cash expenses have historically representing values around 9 to 12% of the revenue, trying to estimate these values in fine detail would add more noise than reasonability as the margin was pretty stable in the past 6 years, therefore to compute these values for the future the 6-year average margin was used (9.3%), represented in table 10. Lastly, the computation of CAPEX was based on setting a “maintenance CapEx” as a floor representing the minimum amount of capital expenditure Ambev will have for the next years, this was considered the lowest value of capex in past years (2024) adjusted by 2% per year to represent the expected inflation. Then another value of “growth capex” calculated which consists in the surplus of each year Capex minus the maintenance Capex, to understand how much more is invested in new projects besides the minimum “floor”, the average of the last 6 years corresponds to 1.97% of the revenue. This was then forecast to future years, the below breakdown better represents these estimations:

	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E
Maintenance Capex						885	902	921	939	958	977	996
Growth Capex	402	34	540	383	319	0	342	356	371	387	403	420
Growth Capex rate	3.05%	0.30%	3.99%	2.48%	1.99%	0.00%	1.97%	1.97%	1.97%	1.97%	1.97%	1.97%
Total Capex							1,244	1,277	1,310	1,344	1,380	1,416

Table 9 - Capex forecast

4.5 FCF Forecast

The free cash flow measures the cash a company generates from its operations, telling the true cash profitability the business can make, after paying for maintenance and capital expenditures. The full breakdown of the free cash flows with the values explained in previous subchapters is represented in the table below:

Historical FCF and forecast (in Mio. USD)												
Year	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	3,286	2,642	2,553	2,763	3,014	3,631	3,786	4,015	4,255	4,506	4,769	5,044
Tax	-192	-345	-118	127	-15	-865	-1,287	-1,365	-1,447	-1,532	-1,621	-1,715
EBIT after tax	3,094	2,297	2,435	2,890	2,999	2,766	2,499	2,650	2,808	2,974	3,147	3,329
+ D&A and Non cash expenses	1,619	1,219	1,258	1,637	2,014	2,127	1,551	1,616	1,683	1,754	1,828	1,904
Net working capital	-47	176	557	-521	-59	-31	12	22	-3	-97	-26	-20
- Capital expenditures (CAPEX)	1,287	919	1,425	1,268	1,203	885	1,244	1,277	1,310	1,344	1,380	1,416
Free Cash flow (FCFF)	3,380	2,773	2,825	2,738	3,750	3,978	2,793	2,967	3,185	3,480	3,621	3,838

Table 10 - Free cash flow forecast

The figure below provides a clearer perspective of how the free cash flows fluctuated throughout the entire period analyzed.

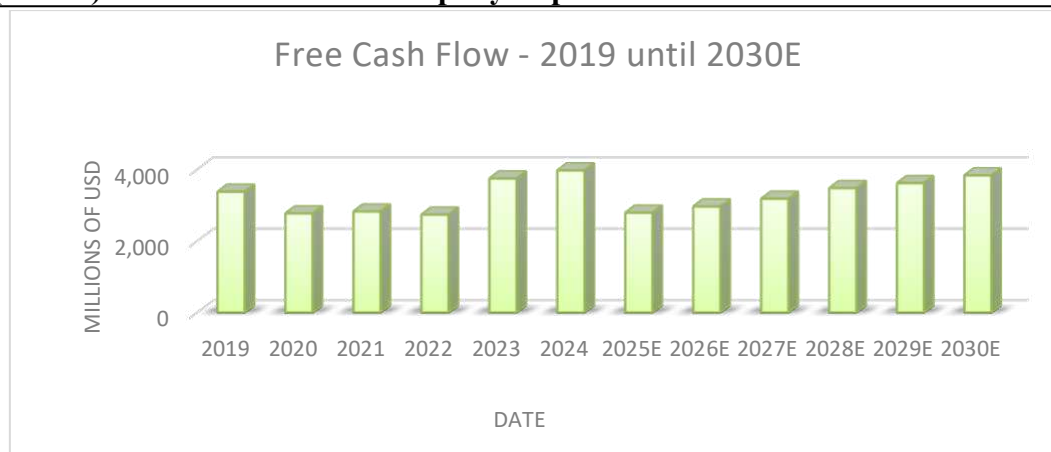


Figure 9 - FCFs fluctuation (in millions of dollars).

The drop in the free cash flow from 2024 to 2025E is explained basically to the fact that the forecast periods will have tax expenses based on the corporate tax rate decreasing the NOPAT and the increase in Capital Expenditures (CAPEX).

4.6 Discount Rate

4.6.1 Beta

One of the most important elements in the calculation of the discount rate, which will be used to compute the enterprise value afterwards, is the beta.

As explained in chapter 2, the beta is the slope of returns that tells us how one security moves compared to how the market moves, in other words, the sensibility of a security to market movements, adjusting for the capital structure of the company (when levered), therefore it will be used to compute the cost of equity and cost of debt which are the values to be weighted and compose the weighted average cost of capital, this is the discount rate.

To calculate the beta in this project, a 5-year regression of daily returns of ABEV as the dependent variable, and S&P as independent variable was computed, the ANOVA table resulted from this regression is below:

ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	0,151290191	0,151290191	326,9811913	1,57461E-66			
Residual	1567	0,725031699	0,000462688					
Total	1568	0,876321889						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,0006	0,000543781	-1,1179422	0,26376304	-0,001674531	0,000458699	-0,001674531	0,000458699
X Variable 1	0,7795	0,043105946	18,08262125	1,57461E-66	0,694917093	0,864019912	0,694917093	0,864019912

Figure 10 - ANOVA 5y ABEV daily returns, full regression output in appendix D.

I chose to perform a regression to calculate the beta instead of using the peer’s beta as I do not believe that Ambev peers have product mix, geographic presence and size similar enough to correspond to a faithful value that could represent reality.

As figure 10 shows, the beta resulted from the regression which will be used to compute the discount rate is 0.7795.

4.6.2 Country Risk Premium

Previously, in chapter 2, three approaches were introduced to calculate the country risk premium, in this subchapter it will be discussed if and how these methods are incorporated for Ambev operations.

Using the lambda methodology is simply not practical and feasible in Ambev’s structure because the company operates in 18 different countries and it would be necessary to calculate the lambda for each country specified based on the average market of each sample. Not only does this insight already prove that it is not feasible to use this method in Ambev’s valuation, but also the company did not disclose the revenue share for each of the countries within the regions of South America and Central America and Caribbean, not being possible to compute these countries with reliable data.

The second methodology consists of weighing the country risk premium of each country/region based in their respective revenue share, the output of the CRP using this methodology is shown below:

Country	Country/Region CRP	Revenue share	Weighted CRP
Brazil	3.34%	54.34%	1.82%
Central America & Caribbean	5.78%	12.32%	0.71%
Canada	0.00%	11.17%	0.00%
Latin America South	10.10%	22.17%	2.24%
Total			4.77%

Table 11 - CRP weighted per region

Brazil and Canada CRP values were taken from Damodaran’s country default spreads and risk premiums data, and the values of Central America & Caribbean (CAC) and South America (LAS) were adjusted to contain only the countries where Ambev’s has operations within this regions, the weight of each country was based on the GDP, so the CRP of Argentina has a bigger weight in the composition of South America’s GDP than Paraguay as Argentina’s GDP correspond to 56.09% of the sum of the countries in this region while Paraguay corresponds to 3.76%.

After that, to compute the CRP to use for Ambev’s valuation, it was weighted again the corresponding CRP of each region based on their revenue share, and the result for the final CRP to be used is 4.77%. However, I do not believe this method to be reliable due to its sensibility, the actual revenue that Ambev generates in each country within this region is not available and having Argentina with a considerable heavy weight dragging the CRP up might not be reliable.

The last methodology is using the CRP of the country of incorporation of the firm; it is the simplest method in terms of calculation as it is based in only one country. However, this might not be ideal for companies that do not get substantial revenues from the country of incorporation. However, not only Ambev has most of its revenues in Brazil, also the data available for Brazil’s portion of revenue is way more detailed by the company’s investor relations than other regions. Therefore, this was the methodology chosen for this valuation, being the value of Brazil country risk premium equal to 3.34% retrieved from Damodaran’s country default spreads and risk premiums data, where he bases the CRP on the adjusted default spread resulting from the corresponding country rating risk multiplying it by a factor of 1.35, values shown below:

Country	Moody's rating	Rating-based Default Spread	Country Risk Premium
Brazil	Ba1	2.48%	3.34%

Table 12 - CRP Incorporated country

The value of Brazil’s default spread based in the Moody’s rating Ba1 is equal to 2.48%, meaning that when multiplied by a factor of 1.35 the country risk premium used in this discounted cash flow valuation is 3.34%.

4.6.3 Cost of Debt

Computing the cost of debt of Ambev was very challenging for two main reasons: the company has no active bonds in the market and the Brazilian risk exposure needs to be considered and embedded in the inputs.

Since the firm does not have any fixed income instruments active in the market there are no yields available to use to calculate the cost of debt of the company. To work around that, I decided to calculate the cost of debt based on the computation of a synthetic rating (Damodaran, 2010). This method is based in giving a synthetic rating for the company based on the corresponding default spread to its interest coverage ratio (EBIT / interest expense), values shown below:

Interest Coverage Ratio calculation	
EBIT	3,631
Interest expense	138
Interest Coverage Ratio	26.2606

Table 13- Interest Coverage Ratio

As table above presents the interest coverage ratio associated with Ambev book values is 26.26x, this value would correspond to a rating of a synthetic ratio of AAA based on Damodaran interest coverage ratio and ratings studies for high market capitalization firms. However, this rating now must be adjusted to consider the Brazilian rating exposure.

As the company has most of its operations in Brazil, and the financial statements are in USD, the best rating that this company can have been the same rating of external debt of Brazil which, the most recent available, is Ba1 set by Moody’s date as October 1, 2024. Therefore, the value corresponding to this rating is the Brazilian adjusted default spread of 2.48% according to Damodaran as of January 2025.

Adding this value to the risk-free of 4.35%, which is the United States 10-year government bond rate, we reach the pre-tax cost of debt of 6.83%. The after-tax cost of debt is calculated after applying Brazilian corporate tax of 34% to the computation (6.83%*(1-0.34)), resulting in 4.51%.

Nevertheless, when analyzing Ambev capital structure one very important point is that Ambev has more cash than total debt resulting in a negative value of net debt of around -4,271 million USD. This means that the company is 100% financed in equity, and therefore the cost of debt will not have any weight in the composition of the discount rate to be used in Ambev’s valuation.

4.6.4 Cost of Equity and WACC

Since the company is 100% financed in equity, it means that all its weighted average cost of capital will be based on the cost of equity, which highlights the importance of the inputs and assumptions in the computation of the variable.

This calculation is based on the CAPM pricing model where it uses the same values of risk free and beta presented in the previous subchapter. Two additional factors are going to be needed to compute the formula, which are the Country Risk Premium (CRP), calculated in the subchapter 4.6.2, and Equity Risk Premium (ERP).

$$K_e = R_f + (\beta \text{ levered} * ERP) + CRP$$

Equation 10 - Cost of Equity

The equity risk premium represents the extra expected return investors are looking to receive for their investments in equity, which means the excess return on the market minus the risk free. This value usually corresponds from 5 to 6%, this is what investors usually look for in developed equity markets, therefore I assumed a value of 5% for the equity risk premium.

However, I must adjust the cost of equity to consider the Brazilian exposure, this is why I consider the addition of the country risk premium to the CAPM model extremely important for the calculation of Ambev’s cost of equity. Below is the breakdown of the inputs:

Cost of Equity calculation	
Risk free rate (US 10 Year Treasury Bond Note Yield)	4.35%
Beta (levered - calculated from regression)	0.7795
Equity risk Premium	5.00%
Country risk premium	3.34%
Cost of equity	11.5873%

Table 14 – Cost of Equity

As said before, since the company is 100% equity financed it means that the WACC will not have any impact on the cost of debt, therefore being equal to the cost of equity.

$$WACC = \frac{E}{E + D} * R_E + \frac{D}{E + D} * R_D * (1 - T)$$

Equation 11 – Weighted Average Cost of Capital

The equation above better represents how the cost of debt will have no impact on the calculation as the debt weight (D/(E+D)) is 0. The WACC resulted of this computation is equal to 11.5873%, however it does not consider the excess cash the company has, and this needs to be considered.

It is necessary to adjust the WACC to incorporate the excess cash because a company with excess cash is less risky than an identical firm with no cash so to incorporate that the following formula is used where we weigh the cash based on the equity of the company to the risk free:

$$WACC_{adj} = \left(1 - \frac{Cash}{E}\right) R_E + \left(\frac{Cash}{E}\right) R_f$$

Equation 12 - WACC adjusted to the excess cash

The weight of cash to equity corresponds to approximately 14.68%, this value is the weight to be factored to the risk free (of 4.35%) and the other 85.32% is the weight to be multiplied to the cost of equity (of 11.5873%), resulting in the adjusted WACC of **10.53%**.

4.7 Discounted Cash Flow

To result in the enterprise value and implied share price of Ambev we use the discounted cash flow method on the forecasted free cash flows estimated in chapter 4.

Based on this, we will discount the forecasted free cash flows (2025 to 2030) using our WACC of 10.53% to bring them to the value of December 31st, 2025, and sum all of them to reach one part of the enterprise value. We are aiming to retrieve the enterprise value and implied share price as of 12/31/2025, which is the 1-year target price, will be used to compare today's share price throughout this report.

The other part is composed of the terminal value, this is the value of the company in perpetuity based on the discount rate (WACC) and the long-term growth rate. Therefore, it represents the largest portion of the enterprise value of the company as it is expressing a longer period when compared to the sum of the present value of the free cash flows.

I decided to calculate the model with a 2% long-term growth rate as it represents a balance between realism and conservatism for a USD-based DCF. Because all free cash flows are calculated in USD, it would not make sense to assume that Ambev can keep growing for perpetuity faster than the very currency in which those cash flows are measured. The Federal Open Market Committee targeted inflation as 2% exactly to anchor expectations and conserve the dollar's currency strength and stability. Therefore, by selecting 2% as a, I ensure that the terminal value does not expand in a faster pace that the currency itself would not be able to sustain.

As said previously, Ambev's operations are largely concentrated in Brazil, meaning I need to respect the long-term growth in Brazil's economy as a cap for what the company could earn through reinvestment, the value of 2% is realist as according to the IMF Brazil's real GDP growth is projected at 2% in 2025.

Therefore, by setting the long-term growth rate at 2%, I am aligning Ambev's perpetual expansion with speed at which Brazil could realistically sustain. The value of 2% in growth rate represents a base scenario, in the next subchapters (4.8 and 4.9) I will explore how the valuation changes using different scenarios.

Finally, the enterprise value is the sum of the present value of the terminal value and the present value of the forecasted free cash flows, below is the breakdown of these values:

Year	2025E	2026E	2027E	2028E	2029E	2030E
FCFF	2,793	2,967	3,185	3,480	3,621	3,838
PV Factor = 1/((1+WACC)^t)		0.9048	0.8186	0.7407	0.6701	0.6063
PV FCFF		2,684.18	2,607.15	2,577.60	2,426.71	2,326.90
Sum of PV of FCFFs	\$ 12,622.54					
PV Terminal Value	\$ 27,840.92					
				Enterprise Value	\$ 40,463.47	
				Net Debt	\$ -4,270.93	
				Equity Value	\$ 44,734.40	

Figure 11- Discounted cash flow breakdown

Based on these assumptions, Ambev’s enterprise value as of end December 2025 is 40,463 million USD, to reach its equity value it is necessary to subtract the value of debt and add the value of cash, resulting in an equity value of 44,734 million USD. To compute the implied share price, we just need to divide the equity value by the number of shares outstanding, as shown below:

Equity Value	44734.40
Shares outstanding (millions)	15727.85
Implied Share Price (USD)	2.84

Table 15 - Implied Share Price

Therefore, the 1-year implied share price of ABEV (ADR) is 2.84 based on the assumptions described above, in the next subchapters different scenarios will be suggested to see how the enterprise value and implied share price behaves using other assumptions.

4.8 Sensitivity Analysis

The sensitivity analysis is an important tool in the DCF valuation as it provides different simulations of how the output could be based on different values of discount and growth rate. This is done by rerunning the computations using different values of WACC and growth rate while maintaining the other inputs the same.

To perform this analysis, I considered different values of discount rate ranging between 9.50% and 14.40%, while for the growth rate values between 1% and 3%. Not only can we test what the output would be in many of the possible values of growth and discount rates, but we can also have a better view of the worst and base case scenarios and how the base scenario (the values for WACC and growth studied in this report) sits next to similar values. Table below shows a summary of the results for the enterprise value sensitivity analysis (full dataset available in Appendix E):

Sensitivity Analysis - Enterprise Value (millions of USD)					
Sensitivity	Growth rate				
	1.00%	1.50%	2.00%	2.50%	3.00%
9.50%	41,940.52	43,903.37	46,127.92	48,670.27	51,603.76
9.85%	40,233.17	42,016.46	44,026.92	46,310.90	48,928.32
10.20%	38,656.29	40,281.91	42,105.77	44,166.49	46,513.43
10.55%	37,195.52	38,682.02	40,342.38	42,208.99	44,322.84
10.90%	35,838.55	37,201.76	38,718.13	40,415.03	42,326.73
11.25%	34,574.73	35,828.22	37,217.23	38,764.98	40,500.34
10.53%	37,296.25	38,792.12	40,463.47	42,343.08	44,472.48
11.95%	32,290.78	33,358.42	34,533.36	35,832.63	37,277.07
12.30%	31,255.54	32,244.17	33,328.77	34,524.05	35,847.85
12.65%	30,282.91	31,200.24	32,203.70	33,306.03	34,522.59
13.00%	29,367.39	30,220.21	31,150.56	32,169.52	33,290.37
13.35%	28,504.13	29,298.42	30,162.69	31,106.62	32,141.75
13.70%	27,688.79	28,429.84	29,234.22	30,110.43	31,068.52
14.05%	26,917.52	27,610.02	28,359.98	29,174.87	30,063.51
14.40%	26,186.86	26,834.98	27,535.36	28,294.60	29,120.44

Table 16 - Sensitivity Analysis - Enterprise Value

Another sensitivity analysis using the same inputs of discount and growth rate is presented next, but rather studies the implied share price, a summary of the outputs are presented in table below (full dataset available in Appendix F):

Sensitivity Analysis - Share Price (USD)					
Sensitivity	Growth rate				
	1.00%	1.50%	2.00%	2.50%	3.00%
9.50%	2.94	3.06	3.20	3.37	3.55
9.85%	2.83	2.94	3.07	3.22	3.38
10.20%	2.73	2.83	2.95	3.08	3.23
10.55%	2.64	2.73	2.84	2.96	3.09
10.90%	2.55	2.64	2.73	2.84	2.96
11.25%	2.47	2.55	2.64	2.74	2.85
10.53%	2.64	2.74	2.84	2.96	3.10
11.95%	2.32	2.39	2.47	2.55	2.64
12.30%	2.26	2.32	2.39	2.47	2.55
12.65%	2.20	2.26	2.32	2.39	2.47
13.00%	2.14	2.19	2.25	2.32	2.39
13.35%	2.08	2.13	2.19	2.25	2.32
13.70%	2.03	2.08	2.13	2.19	2.25
14.05%	1.98	2.03	2.07	2.13	2.18
14.40%	1.94	1.98	2.02	2.07	2.12

Table 17 - Sensitivity Analysis - Implied share price

In both tables above are highlighted the best (bull), base and worst (bear) scenarios, respectively in green, beige and red. The bull case represents the lowest discount rate and bigger growth rate, meaning the firm grows in a fast pace while investors expect lower returns, while the bear case represents the highest discount rate and lowest growth, meaning the cash flows does not grow much but the investors are still requiring high returns. In the two tables above (16 and 17), values around the bottom-left are the outputs for bear scenarios, while the top-right are the outputs for bull scenarios.

Identifying bull and bear scenarios is not the only valuable information in a sensitivity analysis, the values in the top-left and bottom-right are important to consider as they represent respectively low-risk low-growth and high-risk high-growth scenarios. The first means the company does not grow too much but the investors also do not expect a big return for it being translated into a safe but slow scenario, while the second is the complete opposite, showing a big growth but also very risky scenario.

4.9 Scenario Analysis

The scenario analysis is another complementary tool to measure how the discounted cash flow valuation would result if a few inputs were different to simulate a different scenario. It differs from the sensitivity analysis as it aims to see the result of the valuation when several variables change by rerunning the entire model in each scenario, while sensitivity analysis just changes one variable at a time. This way we can assume different values which would represent a bear and bull scenario and see how different the outputs would be based on these assumptions.

The variables changed to estimate these new scenarios were annual percentage increase in sales, discount rate and growth rate. The table below summarizes the inputs for each of these values in each of the scenarios, and the outputs obtained in each of them after rerunning the DCF model:

Scenario	Revenue CAGR	WACC	g	EV (€ m)	Equity Value (€ m)	Price (€)
Bear	2.50%	14.00%	1.00%	23,185.48	27,456.41	1.75
Base	4.19%	10.53%	2.00%	40,463.47	44,734.40	2.84
Bull	5.70%	9.20%	3.00%	62,052.96	66,323.89	4.22

Table 18 - Scenario Analysis

The bear scenario would happen where the growth rate decreases while the increase in sales also slows down and the investors require a bigger return for their investments. On the other hand, the bull scenario represents a higher increase in sales with a bigger growth rate in perpetuity and the investors require less return for their investments

4.10 Monte Carlo Simulation

Another tool we can use to understand how our valuation would result in different scenarios is the Monte Carlo simulation. This approach consists in randomly picking different values for selected inputs and rerunning the valuation thousands of times, in this case used a standard deviation of 15% and ran the simulation 10 thousand times to see how the enterprise value and consequently the share price would be distributed after all the runs. All inputs variables are modeled as independent random variables drawn from a normal distribution.

The summary of the results is found in the table below:

Statistic	Enterprise Value	Equity Value	Share price
Mean EV	\$40,466.20	\$44,737.57	\$2.84
Median EV	\$40,463.45	\$44,734.76	\$2.84
5th percentile EV	\$32,863.77	\$37,134.53	\$2.36
95th percentile EV	\$47,959.62	\$52,230.80	\$3.32

Table 19 - Monte Carlo Simulation summary

To have a better perspective of how the distribution of the results I plotted the two histogram graphs below based on the enterprise value and the share price:

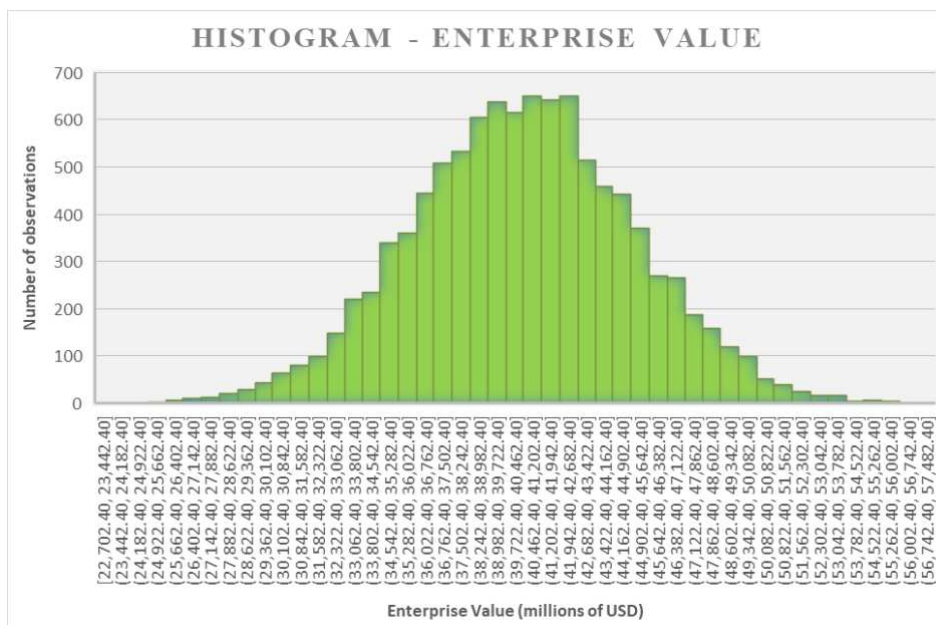


Figure 12 - Histogram Enterprise Value

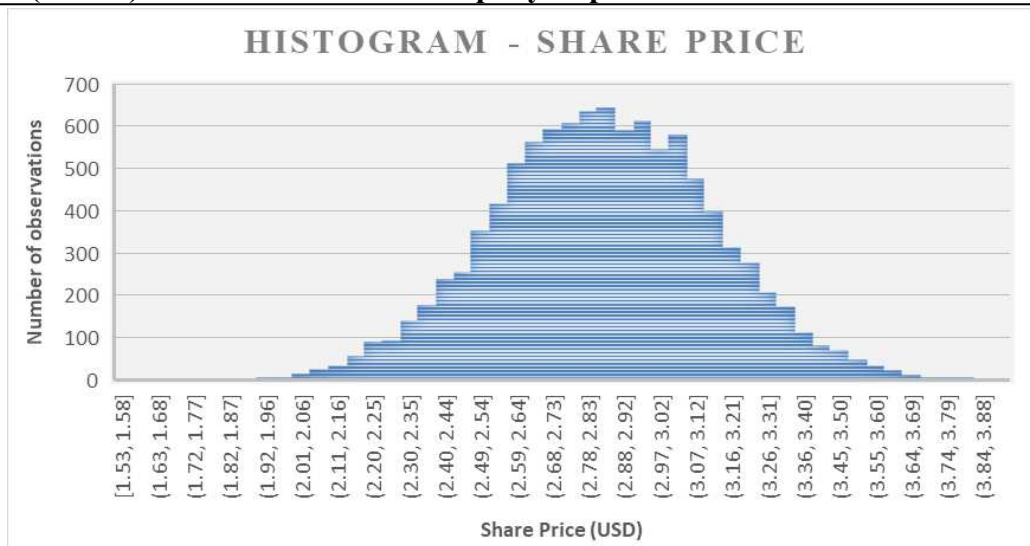


Figure 13 - Histogram Share Price

These graphs allow us to see how the 10,000 random draws were distributed around the mean EV and share price (our base scenario values) were distributed. As Monte Carlo approach consists in a probability distribution, we can see (as the bell-shaped figures illustrate) that while the mean EV (and mean share price) are our point estimate, there is a 90% probability the true value will lie between the 5th and 95th percentiles.

5. Differences between my valuation and report

Comparing this report to another equity report made by LSEG (Refinitiv) on the same firm and stock, the main difference is regarding the valuation methodology used to evaluate the security, while this report uses a discount cash flow approach building an intrinsic value with a 6-year free cash flow forecast, including complementary tools as sensitivity and scenario analysis plus Monte Carlo simulation, the other equity report is based on multiples, focusing on more on relative valuation, consensus of analysts in the market and quantitative data.

The LSEG report bases itself on data availability and market opinion on the stock, using data to build the report which consists of an analysis in earnings, risk and momentum. It also uses I/B/E/S analyst forecasts for earnings and price target to reflect how the market average sees ABEV in a 1-year forecast horizon.

On the other hand, it is very limited and not customized for the firm itself, depending on a lot of data availability and other analysts’ public opinion. Also, it relies on peers without checking if these are similar enough to Ambev in terms of size, geography operations, emerging markets exposures and other factors that could make these companies not comparable.

This DCF report offers a detailed assumption-driven analysis following step by step of the valuation model, adjusted by the emerging market risk exposure, with many stress testing approaches with long-term horizons, showing not only results for one scenario, but also presents other possibilities and how the outputs would change on each.

Not surprisingly, the two reports differ in the expected return of this company, LSEG computes a 1-year target price of \$3.1 USD, which is equal to 67.5% expected return when compared to the price of the stock price on 31st December, 2024 which is \$1.85 USD, expecting a higher return compared to the results of this report, presented in chapter 7.

6. Potential Limitations

6.1 Forecasting Uncertainty

It is also important to analyze and identify potential limitations in the valuation presented, one of them is related to the forecasting of the income statement and consequently the free cash flows, as the assumptions made basically consist in the company maintaining an increase in the rate of sales per year which would not be realistic or achievable in scenarios of downturn in consumer spending, raw-material sudden huge cost increase and no unforeseen competition entering the market.

These are valid points to make the forecast of the free cash flows change significantly, which is a problem for the model as it could change completely the outputs. Less concerning but also still valid to mention are cases where the operations of Ambev are impacted somehow and the firm is not able to maintain the cost/revenue margin for the future.

6.2 WACC sensibility

The computation of Ambev's cost of capital consists in the addition of a country risk premium variable to compensate for the exposure of the firm's exposure to emerging markets, however because of the data unavailability it was not possible to precisely adjust for each of the countries the company operates in.

This means that the cost of capital is accurately adjust for the exposure in Brazil (which corresponds to around 54%), however is not precise when it comes to adjusting for the other countries that the firm sells at.

6.3 Macroeconomic risks

As mentioned, many times throughout this report, Ambev operates in many south and central American countries that are currently facing political and economic issues, as Argentina. The risk exposure to these countries could significantly change the revenue originating there if

things get worse in these regions. Not only could these revenues easily be impacted, but they also comprehend a significant portion of Ambev as shown in table 1.

Brazil also is an emerging market and therefore has inflation, currency depreciation and political crisis issues, although not as heavy as Argentina, but had these issues historically and is where more than half of the revenue comes from. Which means that Ambev revenue is very depending on Brazil political and economic scenario to be smooth, so this important portion of sales are not impacted more than what is foreseen.

7. Investment Recommendation

This valuation resulted in a 1-year target share price of the stock ABEV listed in NYSE as a American depositary receipt, we can compare with the price of the security in the market and see if an investor should buy, hold or sell the stock of the Ambev listed in NYSE.

For December 31st, 2025, this model resulted in a share price of \$2.84 USD, when compared to the market closing price of December 31st, 2024, of \$1.85 USD, it is implied that the share today is undervalued, meaning that according to the assumptions in this report the stock should be 53.74% higher in 12/31/2025 than it is. Therefore, the investment recommendation is to buy this stock.

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Appendix

Appendix A - Revenue forecast breakdown

	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022	2,023	2,024	2025E	2026E	2027E	2028E	2029E	2030E
<i>(USD millions)</i>																
INCOME STATEMENT - Forecast																
Revenue (USD)	14,250	13,170	15,013	13,840	13,204	11,429	13,520	15,469	15,982	16,665	17,364.04	18,092.15	18,850.79	19,641.23	20,464.83	21,322.95
Revenue growth		-7.58%	14.00%	-7.82%	-4.60%	-13.44%	18.30%	14.42%	3.32%	4.27%						
Volume sold in hectoliters ('000 hl)	169,078.22	159,821.65	162,829.44	158,716.86	163,242.99	165,797.87	180,368.06	185,749.71	183,659.02	181,920.49						
Revenue per region																
Brazil																
Revenue	8,029.82	7,206.92	8,259.94	7,387.87	7,141.89	5,911.53	6,604.02	8,274.51	9,292.73	9,055.28	9,434.99	9,830.61	10,242.83	10,672.33	11,119.84	11,586.11
Revenue share	56.35%	54.72%	55.02%	53.38%	54.09%	51.72%	48.85%	53.49%	58.14%	54.34%						
Revenue / hectoliter	70.22	67.38	77.66	72.68	66.87	53.12	55.25	65.57	73.51	70.57						
Volume sold in hectoliters ('000 hl)	114,354.14	106,961.44	106,360.00	101,642.93	106,806.69	111,285.40	119,530.56	126,184.42	126,419.66	128,320.21						
Volume sold share	67.63%	66.93%	65.32%	64.04%	65.43%	67.12%	66.27%	67.93%	68.83%	70.54%						
Central America & Caribbean																
Revenue	1,015.32	1,147.46	1,483.48	1,601.85	1,715.77	1,432.89	1,846.01	1,832.12	2,013.37	2,053.75	2,139.86	2,229.59	2,323.08	2,420.49	2,521.99	2,627.74
Revenue share	7.12%	8.71%	9.88%	11.57%	12.99%	12.54%	13.65%	11.84%	12.60%	12.32%						
Revenue / hectoliter	111.46	118.65	120.89	121.72	123.80	125.13	137.74	155.44	165.37	165.51						
Volume sold in hectoliters ('000 hl)	9,109.32	9,671.26	12,271.76	13,159.79	13,859.48	11,451.19	13,401.86	11,786.28	12,174.62	12,408.58						
Volume sold share	5.39%	6.05%	7.54%	8.29%	8.49%	6.91%	7.43%	6.35%	6.63%	6.82%						
Canada																
Revenue	1,772.02	1,866.19	1,894.26	1,887.12	1,799.73	1,821.13	1,994.71	1,991.53	1,910.82	1,861.89	1,939.97	2,021.31	2,106.07	2,194.38	2,286.39	2,382.27
Revenue share	12.44%	14.17%	12.62%	13.64%	13.63%	15.93%	14.75%	12.87%	11.96%	11.17%						
Revenue / hectoliter	182.68	181.99	186.89	189.80	187.75	182.13	201.00	206.48	211.72	212.93						
Volume sold in hectoliters ('000 hl)	9,700.30	10,254.46	10,135.67	9,942.92	9,585.69	9,998.88	9,924.07	9,645.04	9,025.17	8,744.15						
Volume sold share	5.74%	6.42%	6.22%	6.26%	5.87%	6.03%	5.50%	5.19%	4.91%	4.81%						
LAS																
Revenue	3,433.09	2,949.50	3,375.60	2,962.92	2,546.18	2,263.24	3,075.31	3,371.31	2,765.50	3,694.32	3,849.23	4,010.63	4,178.81	4,354.03	4,536.60	4,726.83
Revenue share	24.09%	22.40%	22.48%	21.41%	19.28%	19.80%	22.75%	21.79%	17.30%	22.17%						
Revenue / hectoliter	95.59	89.56	99.10	87.22	77.18	68.45	81.98	88.41	76.74	113.86						
Volume sold in hectoliters ('000 hl)	35,914.46	32,934.50	34,062.01	33,971.21	32,991.14	33,062.40	37,511.57	38,133.98	36,039.57	32,447.56						
Volume sold share	21.24%	20.61%	20.92%	21.40%	20.21%	19.94%	20.80%	20.53%	19.62%	17.84%						

Appendix B - Income Statement Forecast

	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022	2,023	2,024	2025E	2026E	2027E	2028E	2029E	2030E
<i>(USD millions)</i>																
INCOME STATEMENT - Forecast																
Revenue	14,250	13,170	15,013	13,840	13,204	11,429	13,520	15,469	15,982	16,665	17,364.04	18,092.15	18,850.79	19,641.23	20,464.83	21,322.95
Cost of revenue	(4,899)	(4,817)	(5,651)	(5,304)	(5,504)	(5,299)	(6,618)	(7,845)	(7,876)	(8,126)	(8,499)	(8,855)	(9,227)	(9,613)	(10,017)	(10,437)
Gross profit	9,351	8,353	9,363	8,536	7,700	6,130	6,902	7,625	8,107	8,540	8,865	9,237	9,624	10,028	10,448	10,886
Other Operating Expense/(Income) - Net	591	353	382	261	374	525	394	488	407	458	522	543	566	590	615	640
General and administrative	(4,105)	(4,094)	(4,522)	(4,048)	(3,891)	(3,439)	(4,054)	(4,652)	(4,698)	(4,917)	(5,054)	(5,195)	(5,341)	(5,492)	(5,647)	(5,807)
Operating Profit before Non-Recurring Income/Expenses	5,837	4,612	5,222	4,749	4,182	3,215	3,243	3,461	3,816	4,080	4,333	4,585	4,849	5,126	5,416	5,719
Non operating expenses																
Financing Income/(Expense) - Net - Total	(516)	(719)	(1,164)	(756)	(477)	(235)	(307)	(381)	(423)	(155)	(330)	(344)	(359)	(374)	(389)	(406)
Sale of Tangible & Intangible Fixed Assets - Gain/(Loss)	16	20	0	(8)	8	5	12	17	17	23	5	5	5	5	6	6
Equity Earnings/(Loss) - before Taxes including Non-Re	1	(1)	(1)	0	(6)	(8)	(21)	(6)	(37)	1	(4)	(5)	(5)	(5)	(5)	(6)
Other Non-Operating Income/(Expense) - Total	18	(345)	0	58	(8)	(421)	(117)	(178)	52	(37)	(43)	(45)	(48)	(50)	(53)	(56)
Normalized Non-Recurring	(319)	301	(34)	(427)	(413)	85	(255)	(150)	(412)	(281)	(174)	(181)	(189)	(196)	(205)	(213)
Income before tax	5,037	3,869	4,023	3,615	3,286	2,642	2,553	2,763	3,014	3,631	3,786	4,015	4,255	4,506	4,769	5,044
Income tax expense	(1,108)	(91)	(1,582)	(489)	(192)	(345)	(118)	127	(15)	(865)	(1,287)	(1,365)	(1,447)	(1,532)	(1,621)	(1,715)
Earnings	3,928	3,779	2,441	3,127	3,094	2,297	2,435	2,890	2,999	2,766	2,499	2,650	2,808	2,974	3,147	3,329
Minority Interest	139	155	163	97	104	69	84	84	92	76	81	81	81	81	81	81
Net Income after Minority Interest	3,789	3,623	2,278	3,029	2,991	2,228	2,351	2,806	2,907	2,690	2,580	2,731	2,889	3,055	3,228	3,410
Net Income	3,789	3,623	2,278	3,029	2,991	2,228	2,351	2,806	2,907	2,690	2,580	2,731	2,889	3,055	3,228	3,410

Historical FCF and forecast (in Mio. USD)												
Year	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	3,286	2,642	2,553	2,763	3,014	3,631	3,786	4,015	4,255	4,506	4,769	5,044
Tax	-192	-345	-118	127	-15	-865	-1,287	-1,365	-1,447	-1,532	-1,621	-1,715
EBIT after tax	3,094	2,297	2,435	2,890	2,999	2,766	2,499	2,650	2,808	2,974	3,147	3,329
+ D&A and Non cash expenses	1,619	1,219	1,258	1,637	2,014	2,127	1,551	1,616	1,683	1,754	1,828	1,904
Net working capital	-47	176	557	-521	-59	-31	12	22	-3	-97	-26	-20
- Capital expenditures (CAPEX)	1,287	919	1,425	1,268	1,203	885	1,244	1,277	1,310	1,344	1,380	1,416
Free Cash flow (FCFF)	3,380	2,773	2,825	2,738	3,750	3,978	2,793	2,967	3,185	3,480	3,621	3,838

	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E
Maintenance Capex						885	902	921	939	958	977	996
Growth Capex	402	34	540	383	319	0	342	356	371	387	403	420
Growth Capex rate	3.05%	0.30%	3.99%	2.48%	1.99%	0.00%	1.97%	1.97%	1.97%	1.97%	1.97%	1.97%
Total Capex							1,244	1,277	1,310	1,344	1,380	1,416

Appendix D - Beta regression output

SUMMARY OUTPUT									
<i>Regression Statistics</i>									
Multiple R	0.415502418								
R Square	0.172642259								
Adjusted R Square	0.172114271								
Standard Error	0.021510178								
Observations	1569								

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.151290191	0.151290191	326.9811913	1.57461E-66
Residual	1567	0.725031699	0.000462688		
Total	1568	0.876321889			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0.0006	0.000543781	-1.1179422	0.26376304	-0.001674531	0.000458699	-0.001674531	0.000458699
X Variable 1	0.7795	0.043105946	18.08262125	1.57461E-66	0.694917093	0.864019912	0.694917093	0.864019912

Sensitivity Analysis - Enterprise Value (millions of USD)									
Sensitivity	Growth rate								
	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%
9.50%	41,940.52	42,892.21	43,903.37	44,979.77	46,127.92	47,355.27	48,670.27	50,082.69	51,603.76
9.85%	40,233.17	41,098.90	42,016.46	42,990.66	44,026.92	45,131.34	46,310.90	47,573.53	48,928.32
10.20%	38,656.29	39,446.39	40,281.91	41,166.86	42,105.77	43,103.73	44,166.49	45,300.58	46,513.43
10.55%	37,195.52	37,918.79	38,682.02	39,488.61	40,342.38	41,247.57	42,208.99	43,232.04	44,322.84
10.90%	35,838.55	36,502.49	37,201.76	37,939.23	38,718.13	39,542.06	40,415.03	41,341.56	42,326.73
11.25%	34,574.73	35,185.80	35,828.22	36,504.45	37,217.23	37,969.61	38,764.98	39,607.14	40,500.34
10.53%	37,296.25	38,024.02	38,792.12	39,603.99	40,463.47	41,374.88	42,343.08	43,373.54	44,472.48
11.95%	32,290.78	32,812.13	33,358.42	33,931.49	34,533.36	35,166.25	35,832.63	36,535.22	37,277.07
12.30%	31,255.54	31,738.67	32,244.17	32,773.62	33,328.77	33,911.54	34,524.05	35,168.62	35,847.85
12.65%	30,282.91	30,731.52	31,200.24	31,690.46	32,203.70	32,741.62	33,306.03	33,898.95	34,522.59
13.00%	29,367.39	29,784.73	30,220.21	30,675.05	31,150.56	31,648.19	32,169.52	32,716.28	33,290.37
13.35%	28,504.13	28,893.07	29,298.42	29,721.24	30,162.69	30,624.03	31,106.62	31,611.98	32,141.75
13.70%	27,688.79	28,051.87	28,429.84	28,823.62	29,234.22	29,662.76	30,110.43	30,578.54	31,068.52
14.05%	26,917.52	27,257.01	27,610.02	27,977.37	28,359.98	28,758.79	29,174.87	29,609.36	30,063.51
14.40%	26,186.86	26,504.76	26,834.98	27,178.25	27,535.36	27,907.17	28,294.60	28,698.66	29,120.44

Appendix F - Full Share Price Sensitivity Analysis

Sensitivity Analysis - Share Price (USD)									
Sensitivity	Growth rate								
	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%
9.50%	2.94	3.00	3.06	3.13	3.20	3.28	3.37	3.46	3.55
9.85%	2.83	2.88	2.94	3.00	3.07	3.14	3.22	3.30	3.38
10.20%	2.73	2.78	2.83	2.89	2.95	3.01	3.08	3.15	3.23
10.55%	2.64	2.68	2.73	2.78	2.84	2.89	2.96	3.02	3.09
10.90%	2.55	2.59	2.64	2.68	2.73	2.79	2.84	2.90	2.96
11.25%	2.47	2.51	2.55	2.59	2.64	2.69	2.74	2.79	2.85
10.53%	2.64	2.69	2.74	2.79	2.84	2.90	2.96	3.03	3.10
11.95%	2.32	2.36	2.39	2.43	2.47	2.51	2.55	2.59	2.64
12.30%	2.26	2.29	2.32	2.36	2.39	2.43	2.47	2.51	2.55
12.65%	2.20	2.23	2.26	2.29	2.32	2.35	2.39	2.43	2.47
13.00%	2.14	2.17	2.19	2.22	2.25	2.28	2.32	2.35	2.39
13.35%	2.08	2.11	2.13	2.16	2.19	2.22	2.25	2.28	2.32
13.70%	2.03	2.06	2.08	2.10	2.13	2.16	2.19	2.22	2.25
14.05%	1.98	2.00	2.03	2.05	2.07	2.10	2.13	2.15	2.18
14.40%	1.94	1.96	1.98	2.00	2.02	2.05	2.07	2.10	2.12