

METHODOLOGY FOR THE ECONOMIC AND FINANCIAL VALUATION OF COMPANIES IN INFLATIONARY CONTEXTS. CASE STUDY: PRODUCTOS EFE, S.A.

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Abstract

The objective of this study is to introduce a methodological proposal designed to evaluate the economic and financial performance of Productos EFE, S.A. within the context of Venezuelan inflation. This is particularly challenging due to limited access to economic information from governmental entities and the absence of precise data concerning the profitability of companies or comparable entities in this specific economic landscape. A feasible project-type research was conducted, with a documentary design and a descriptive level adopting a quantitative approach. The findings reveal that the proposed methodology, based on the Discounted Cash Flow (DCF) method and applied in both Bolivar and US dollar currencies, using the Garay and Gonzalez (2015) adapted Capital Asset Pricing Model (CAPM) for the Venezuelan economic context, produces highly consistent results. This is particularly evident when adjusting the cost of capital in local currency (Bolivars) for the differential inflation. The logical coherence of the methodology is demonstrated by estimating cash flows denominated in taking into account the weighted average prices by category, applying annual growth corresponding to inflation in US dollars, thus capturing expected inflation. The contribution of this work represents a technical tool that enables the valuation of companies, taking into account various macroeconomic

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variables to which the entity is exposed to the economic and financial effects generated by the macroeconomic crisis. This facilitates the construction of scenarios in which the entity could potentially position itself in the future.

Keywords: company valuation, value, inflation, company valuation methods, macroeconomic variables, financial variables, discounted cash flow.

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1. Introduction

Financial analysis is a measure of operational efficiency that allows the economic and financial performance of companies to be evaluated, regardless of their size and productive activity. It is based on financial statements that reflect sufficient and timely information for diagnosis and decision-making. However, financial statements are generally based on historical values without considering variables exogenous to business activity, such as inflation, which affects the current market value of assets and liabilities. Therefore, the data they provide will be distorted as they do not show a true picture of reality. In such cases, for a company valuation in inflationary contexts, it is necessary to apply alternative methods that allow for the presentation of current and accurate information on its true value for the purposes of negotiating terms and conditions of sale, merging with other entities, implementing growth strategies, obtaining financing, determining investment risks, listing on the stock exchange, among others.

However, valuation is not only useful for negotiations but also for understanding how the company is operating, allowing us to determine whether it is meeting the objective assigned to any business, which is none other than to generate wealth or economic value. According to García (2003), a good valuation must be based on efficient financial management, and for this, the financial analysis must be validated qualitatively and quantitatively, taking historical and projected information and referring to macroeconomic variables that may influence the valuation of the business. In this way, the valuation process will depend on the economic scenario at the time the appraisal is carried out.

Inflation is one of the most important macroeconomic indicators to be taken into account when valuing a company, as it affects both the demand and supply of goods and services and the evolution of the relationship between product prices, influencing not only the economy as a whole but also business activity. In this regard, Gherzi and Pérez (cited by Jaramillo and Ortiz, 2017) believe that valuing companies in inflationary contexts is a complex task due to the uncertainty associated with the prospective performance of the business itself (market share, sales volume, access to raw materials) and the uncertainty of macroeconomic projections (inflation, economic growth, exchange rate).

Venezuela has been suffering from a severe economic crisis for many years as a result of falling oil prices, inflation, and currency exchange controls, among other causes. The country had an unregulated currency market whose parity was at least double the subsidized rate, and

in which transactions that were not considered a priority were traded. However, the government banned this market and made it illegal to exchange bolivars for foreign currencies, except for those approved by the currency administration regime (Law Against Illegal Currency Exchange, Official Gazette No. 5,867 of September 14, 2005, amended on December 28, 2007, Official Gazette No. 5,867, reprinted due to a material error in Official Gazette No. 38,879 of February 27, 2008). The cash surpluses accumulated by foreign companies lost purchasing power because they could not be repatriated and, in many cases, there was no possibility of reinvesting that money in domestic assets. This situation, coupled with high inflation, exacerbated the loss of value of the profits that remained trapped in the country.

Currently, in the Venezuelan economy, the foreign exchange market has become more flexible, but there is still great instability in the exchange rate due to constant variations, in addition to the existence of de facto dollarization, a consequence of the preference of local economic agents to keep their earnings in foreign currency due to the high risk of an increase in the inflation rate. Faced with currency instability and high inflation, which stood at 158.3% in September 2023 (BCV, September 2023), most companies have begun to invoice in dollars in order to preserve their income, based on Article 8 of Exchange Agreement No.1 of August 21, 2018 (Official Gazette No. 6,405 Extraordinary dated 9/7/2018), in Resolution No. 19-05-02 of the Central Bank of Venezuela dated 5/9/2019 (Official Gazette No. 41,633 dated May 15, 2019) and Articles 13 to 16 of Administrative Ruling SNAT/2011/0071 dated November 8, 2011; each of which establishes the admission of methods and systems for the payment of taxes, which are required in bolivars in accordance with the provisions of Articles 318 of the Constitution () and 128 of the Law of the Central Bank of Venezuela (Official Gazette No. 6,211 Extraordinary dated December 30, 2015) and 25 of the Value Added Tax Law (Official Gazette No. 6,507 Extraordinary dated 01/29/2020).

In addition to this, with the reform of the Income Tax Law (Official Gazette No. 6,210 Extraordinary dated 12/30/2015), companies have seen the inflationary context in which they operate become even more complex, as this regulation requires the adjustment of negative net worth (Articles 171 to 175), which means that taxpayers who have been suffering losses have to recognize a tax gain due to inflation, which is unrelated to their actual financial situation. Far from correcting the distortions caused by inflation, this legislative requirement exacerbates them, placing a tax burden on taxpayers that does not reflect their true ability to pay, as it does not accurately reflect their wealth.

The economic crisis the country is going through has hit all sectors of the national economy hard, and the food sector has been no exception, with problems such as: the high level of poverty among the population, which increased from 31% to 42% in the period from 2019 to 2022 (Venezuelan Living Conditions Survey, 2022); low demand for food due to high prices and low purchasing power of the majority of the population; aggressive competition from cheaper products entering the country through smuggling across the border and from products imported under import exemptions; severe problems in the supply of raw materials,

spare parts, inputs, and packaging materials; lack of financing from national banks; collapse of basic services (drinking water, electricity, domestic gas, and internet); lack of fuel, which hinders the transport of raw materials to industries and the transport of manufactured food to supermarkets and shops; the COVID-19 pandemic and its effects on the economy, among many other problems, have caused the food industry to see its capital and the productive activity of its companies decline.

It is in this economic context that Productos Efe, S.A. operates, a company close to celebrating its 100th anniversary, majority-owned by Empresas Polar, whose main objective is the manufacture and distribution of ice cream (Empresas Polar, 2023). The company has had to withstand the onslaught of the national macroeconomic crisis and has therefore seen its productive and financial activity decline; However, it has remained in the ice cream market in Venezuela, ahead of its main competitors. The country's volatile economic situation makes it difficult to estimate macroeconomic variables and, consequently, makes it difficult to predict the future of any business or project, which is a problem for company valuation. In this regard, Milanesi (2017) states that methodological proposals for valuing companies are designed only for economies with price stability, so applying such methods in inflationary contexts without taking inflation into account can lead to erroneous results. However, in economies with high inflation, such as the Venezuelan market, it is also important to know the value of businesses for any of the reasons indicated above. Therefore, it is necessary to develop a methodology that allows this process to be carried out even in the absence of macroeconomic indicators, including country risk and obtaining projections consistent with expected inflation rates, exchange rates, and interest rates.

In line with this and based on the premise that the main financial goal of any company is to maximize its value, the objective of this study is to propose a methodology that allows for the assessment of the economic and financial performance of the company Productos Efe, S.A., in a context of macroeconomic crisis such as that experienced by Venezuela, caused mainly by its high levels of inflation. To this end, the following questions are raised: What economic and financial variables/indicators should be taken into consideration when valuing the company Productos Efe, S.A.? What method of company valuation is most appropriate for economically valuing this company in an inflationary context such as that of Venezuela? How can this valuation be carried out based on the information available in government agency repositories? These questions call for justification of the necessary and sufficient premises for developing the following objectives.

1.1 General objective

Propose a methodology for assessing the economic and financial performance of Productos Efe, S.A. for the third quarter of 2023, in the context of inflation in Venezuela.

1.2 Specific objectives

- Diagnose the economic context in which the company Productos Efe, S.A. carries out its commercial activity.
- To identify the economic and financial variables that influence the valuation of companies in inflationary contexts.
- Compare company valuation methods, taking into account the epistemological criteria established by the accounting and economic disciplines.
- Design a methodological proposal that allows for the valuation of the economic and financial performance of the company Productos Efe, S.A., for the third quarter of 2023, in the context of inflation in Venezuela.

1.3 Company valuation as a tool for value creation

Corporate finance revolves around three major decisions: investment, financing, and wealth distribution, which requires an understanding of company valuation processes (Jaramillo, 2011), as many of these decisions require the prior determination of the value of the organization or project. Hence, valuation is a fundamental process for the value generation that these decisions produce. In other words, good value management requires knowledge of the value of the business because, without this knowledge, the company as such would not be able to determine its financial objective, which is to maximize this value.

Authors such as García (2003), López and De Luna (2001), Álvarez et al. (2006), and Jaramillo (2011) consider that value is represented by the future income expectations that an investor hopes to obtain from the company or investment project, discounted at a rate that is representative of the risk they offer. Rojo (2000) expresses a similar view, considering that the value of a company is associated with its ability to contribute to the profits expected by its shareholders.

This value is classified as subjective, in that a company has a different value for different buyers and, in turn, a different value between a buyer and a seller. However, value should not be confused with price, as the former is the result of applying criteria to obtain specific data, and the latter is the result of negotiation between the buyer and seller depending on the value that each of them has as a reference (Jaramillo, 2010). In this case, while the price will be unique, there will be as many values for the company as there are people interested in its valuation; therefore, value is still an opinion, while price is a fact. Due to this subjectivity, De la Torre and Jiménez (2017) consider that value should be the result of a more or less complex calculation using a method that, based on logical or mathematical principles, seeks objectivity, neutrality, and independence from the parties involved, market forces, and even the market situation itself.

1.4 The economic environment and its influence on company valuation

Valuation is the process of assigning value to things, and in the specific case of a company, it seeks to determine the degree of usefulness it provides to its users or owners. It is not a question of determining the price of the business, which will be set by agreement in a possible future transaction, or its cost, determined in the past, but rather of measuring and quantifying monetarily the capacity to generate utility for its participants (Valls, 2001). In this valuation process, according to De la Torre and Jiménez (2017), it is necessary to predict future scenarios, given the existing uncertainty, which will lead to establishing a range of values among which the most probable will be found. Additionally, Santandreu (1990, cp. Álvarez et al., 2017) points out that, before entering into any type of valuation, it is important to consider the current situation of the company, whether it is in operation or liquidation, newly created, or showing negative results. López and De Luna (2001) add that a correct valuation must be based on technical and reasonable assumptions, taking into account the subjective perspective from which it is carried out; this is what Fernández (2008) calls technical knowledge and common sense: “the valuation of a company is an exercise in common sense that requires little technical knowledge. Both (common sense and technical knowledge) are necessary” (p.4).

For his part, Jaramillo (2010) states that in order to project the situation of the company, it is important to know the conditions of its environment so that the opportunities and limitations it faces can be identified and scenarios in which it could be located in the future can be constructed. To this end, it is necessary to study the external factors that may affect the business, including political, sociocultural, technological, and economic aspects. According to the aforementioned author, if these variables are not taken into account, the projection of the company's future situation would not be realistic, thus undermining the valuation. Reaffirming this point, García (2003) points out that one of the most important phases in valuation is obtaining information, not only about the organization, but also about the sector and the markets, recommending that this information be structured on three levels: macroeconomic, sectoral, and company-specific. Rugel (2019), for his part, considers that the value of a company is not the same in a boom or growth scenario as in a recessionary one, so the process will depend on the economic scenario at the time the valuation is carried out or the “projected scenario,” as Serrano (2000) calls it.

According to the above, it can be said that valuing a company requires methods based on techniques, fundamentals, and reasonableness in their application, but an analysis of the sector, the national and international environment, as well as various operational, legal, and financial risks and aspects must also be taken into account. Therefore, such an estimate cannot be made without considering the behavior of the economy and its impact on the company, as is done in this study. In short, the valuation process aims to determine the value of the company, which is essentially to form a professional and independent judgment based on the application of a set of methodologies and professional experience (PWC, 1999).

1.5 Inflation and company valuation processes

Inflation is defined as a sustained rise in the price level of an economy (Guerra, 2008); for inflation to exist, it is not enough for the price of a particular good or service to increase, but rather for increases to be widespread; it is characterized by its non-neutral nature, in that it affects both the demand and supply of goods and services and the evolution of the relationships between product prices. Because it contains information that can determine the terms of trade in the economy, inflation is one of the most relevant variables for economic analysis, allowing, in turn, the measurement of the flows of demand and supply of goods and services in the real sector. It is also regularly used as a deflator of other macroeconomic variables such as interest rates, devaluation, and economic growth. On the other hand, for financial and capital market analysis, inflation is the main variable in the economic environment, as it represents the opportunity cost of investments and is fundamental to the financial decision-making process.

The consequences of inflation affect all actors in an economic system. In the case of companies, it directly impacts value drivers such as revenue, cost structures, and the cost of financing sources (Milanesi, 2017). For Fernández (2019), the profitability of investments depends on the effects of inflation, such that when inflation rates are high, companies' profits are artificially inflated (without this being due to an improvement in the company's situation), resulting in higher taxes and much lower real returns on investments. For these reasons, in inflationary contexts, company valuation models must take into account the effects that a sustained and widespread rise in price levels has on the variables that influence the value of the firm in order to achieve a coherent measurement that is as close to reality as possible. According to Milanesi (2017), failing to take inflation into account in valuation processes leads to common errors such as: projecting cash flows at constant prices in scenarios of relative price changes, incorrect specification of rates, consistency between present values obtained from projected amounts in closing and opening currencies, as well as achieving a consistent valuation in two currencies, local and foreign.

2. Method

2.1 Research design

This research involves a documentary and field design (Arias, 2012); documentary, because the information was obtained and analyzed with the support of data from printed materials that allowed us to answer the research questions posed; field, in that the research took as a reference the financial information of the company Productos EFE, S.A. Likewise, the study corresponds to a projective type of research (Hurtado, 2000) and/or feasible project (UPEL, 2016), since its objective is to design a methodological proposal that allows for the assessment of the company's economic and financial performance in Venezuela's inflationary economy, which can serve as a model for the assessment of any activity related to the food sector in macroeconomic crisis environments.

2.2 Scope of the study

This research takes an integrative approach (Hurtado; 2000), beginning with a perceptual level through the diagnosis of the macroeconomic environment in which the organization operates and the identification of the economic and financial variables that influence the valuation of companies in inflationary economies. It then moves on to an apprehensive level, comparing different business valuation methods, taking into account the epistemological criteria established by the accounting and economic disciplines. Next, at the comprehensive level, given the lack of methods for valuing companies in inflationary contexts, the difficult access to economic and financial information in countries such as Venezuela, and the absence of accurate data on the profitability of companies or comparable companies. Subsequently, a methodology was designed to cover the macroeconomic indicators of the market in which the company to be valued operates, explaining in detail the steps to achieve this. Finally, at this same comprehensive level of research, the economic and financial performance of the firm was assessed by applying the proposed methodology.

2.3 Unit of study

The unit under study is the company Productos Efe, S.A., which for 97 years has been dedicated to the production, distribution, and marketing of ice cream of the highest quality, flavor, and tradition in the Venezuelan market. It has a consolidated customer base, more than 16,000 sales teams throughout the country, and various Efe ice cream shops in different regions of the country. The company is majority-owned by Empresas Polar, registered with the National Securities Superintendency, and listed on the Caracas Stock Exchange. Its vision is to remain the leader in the ice cream business in Venezuela, focusing its efforts on market growth and development (Empresas Polar, 2023).

2.4 Variables and operationalization

The event studied is the valuation of the company in inflationary contexts, which is composed of different variables that were used for its measurement. Jiménez (2010) considers that the value of a company is represented by the future income expectations of its investors, discounted at a rate that is representative of the risk offered by that organization or project. The variables to be considered for the valuation of the company in inflationary economies, whose operationalization is shown in Table 1, will be the following: net operating profit less adjusted taxes (NOPLAT), earnings before interest, taxes, depreciation, and amortization (EBITDA), levered beta, unlevered beta, weighted average cost of capital (WACC), cost of debt (K_d), cost of equity (K_s), free cash flow, country risk, growth rate, discount rate, inflation rate, interest rate, risk-free rate, earnings before interest and taxes (EBIT), and residual value. When assuming fractional values, all of the variables mentioned are continuous quantitative variables; and they are simple, as they are expressed only in numerical terms.

Table 1. Operationalization of variables				
Variables	Conceptual definition	Operational definition	Dimensions	Indicators
Net Operating Profit Less Adjusted Taxes (NOPLAT)	Represents a company's operating profit after deducting taxes	It was measured through the review and analysis of the company's financial statements.	Net Operating Profit	Sales revenue Operating expenses (salaries, rent, services, etc.)
			Tax deduction	Effective tax rate Deferred taxes
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	Gross margin minus personnel expenses and other necessary operating expenses.	It was measured through the review and analysis of the company's financial statements.	Gross margin	Sales revenue Production costs
			Personnel expenses	Salaries, bonuses
			Necessary operating expenses	Office, marketing, maintenance, logistics, etc. expenses
Leveraged beta	Measures the sensitivity of an asset to market fluctuations , taking into account the company's level of financial leverage.	It was measured through the review and analysis of the company's financial statements and through market analysis in the food sector.	Asset sensitivity	Historical price data
			Market fluctuations	Return on a relevant market index
			Level of leverage	Company debt Net equity Effective tax rate
Unlevered beta	Measures the systematic risk of a company or sector without taking into account the effect of financial leverage.	Obtained from Damodaran's tables (available on his website http://pages.stern.nyu.edu/~adamodar/), food sector.	Systematic risk	Percentage of equity Shareholders' equity Market value of capital
			Financial leverage	Percentage of debt Tax rate Debt-free capital structure
Weighted average cost of capital, WACC	Measures the average cost of a company's operating assets based on how they have been financed, either through equity (equity) or third-party resources (debt).	Calculated using the model developed by Aswath Damodaran (2007)	Operating assets	Percentage of equity Funds contributed by creditors
			Sources of financing	Shares, bonds, bank loans. Percentage of financial debt Percentage of tax Market profitability
Cost of debt (Kd)	Measures the average cost of the different sources that the company uses to finance its assets.	It was calculated taking into account the rate at which the company can borrow from the banking sector.	Sources of financing	Shares, bonds, bank loans.
			Cost of financing	Interest/ commissions/ administrative fees. Credit rating Maturity dates.

Table 1. Operationalization of variables

Variables	Conceptual definition	Operational definition	Dimensions	Indicators
Cost of equity (Ks)	Return that shareholders expect to obtain from their investment in a company, as compensation for the risk acquired (beta).	Calculated using the CAPM model adopted from the model proposed by Damodaran for emerging countries	Return	Net income Total Assets
			Investment	Growth Rates Profit distribution policies
			Risk Compensation	Risk Levels Return Volatility
Free cash flow	Balance available to pay shareholders and cover the company's debt service, after deducting investments made in fixed assets and operating cash requirements (OCR).	To calculate this, the company's financial statements were reviewed and analyzed, following the model presented by Jaramillo (2010).	Profit distribution	Net profit Profit distribution policies Accounts receivable
			Debt servicing	Accounts payable Interest, commissions, administrative fees. Credit rating Maturity dates
Country risk	Measures the likelihood of a country defaulting on its obligations to pay its external debt, in terms of interest or principal.	US risk premium: obtained from the Damodaran website and the Venezuela country risk premium from the JP Morgan Emerging Markets Bond Index.	Probability of default	Per capita income level Inflation rate GDP growth rate Political stability Legal and institutional framework
			External debt	Public debt Private corporate debt
Growth rate	Growth of FCs from year n.	The calculation used the geometric mean of sales growth (CV) over a given period, as this variable is least influenced by accounting criteria.	CF growth	Sales figures
			Cash Flows	Net profit Amortization/Provisions/Taxes Accounts Payable/Accounts Receivable Capital Expenditures
			Specified period	Three to five years Initial value/Final value

Table 1. Operationalization of variables				
Variables	Conceptual definition	Operational definition	Dimensions	Indicators
Discount rate	Used to calculate the present value of future cash flows and reflect the related risk.	It was estimated by the Weighted Average Cost of Capital (WACC) Used to calculate the present value of future cash flows	Present value	Nominal discount rate Real discount rate (inflation adjustment) Cost of capital
			Future cash flows	Expected net profits Accounts receivable Future sales
			Degree of risk	Risk premium Minimum required return
Inflation rate	A continuous, substantial, and general increase in the price level of the economy, which leads to an increase in the cost of living and a loss of purchasing power of the currency.	BCV publications	Price increase	Variations in supply and demand Variation in the PPI Minimum wage increase
			Cost of living	Prices of goods and services increase
			Loss of purchasing power	Purchase of fewer goods and services Inability to save Less investment
Interest rate	Price paid for the use of money. It is usually expressed as a percentage and refers to a period of one year.	BCV publications	Price	Percentage Liabilities/Assets Monetary policy changes
			Use of money	Administrative expenses Financial expenses
			Time period	Short or long term
Risk-free rate	Return obtained by investing in an asset that is considered 100% secure, as there is no risk of default.	For this variable, the yield on 10-year US Treasury bonds, which are considered risk-free, was used.	Investment	Fixed income securities Treasury bonds Treasury bills
			Asset	Recognized solvency Historical price
			No risk of default	Minimal fluctuation Long term (10 to 20 years)

Table 1. Operationalization of variables

Variables	Conceptual definition	Operational definition	Dimensions	Indicators
Earnings before interest and taxes (EBIT)	Operating income minus non-recurring or atypical income or expenses.	It was measured through the review and analysis of the company's financial statements.	Operating income	Sales Production costs
			Non-recurring expenses	Research and development expenses Insurance premium expenses Bank commissions and fees. Fines
Residual value	Present value of cash flows after year n, generated by the company, assuming growth g of these	Estimated using the present value of cash flows method.	Cash flow value	Net profit/ Amortization/ Provisions/Tax Accounts Payable/ Accounts Receivable Capital Expenditures
			Constant Growth Rate	Sales Figures
			Time Period	Five years

2.5 Information collection tools

The data collection technique used was document review, as information on the entity's macroeconomic environment, economic and financial variables, and company valuation methods was obtained by reviewing texts and electronic articles written by authors with recognized expertise in the field. Similarly, in the case of the company's financial statements, the information was recorded, processed, and analyzed by third parties. Among the data collection instruments used in the document review (Useche et al., 2019), the analysis matrix allowed the information related to the event studied to be grouped, related, and interpreted, while the recording matrix helped to record the data collected in the financial statements in an organized manner for the purpose of making the respective comparisons and/or descriptions.

2.6 Data processing and procedure

The research was carried out in four phases: 1) *Exploratory phase*: during this phase, a document review was conducted on topics related to the study problem in order to address in depth the concepts, theories, and principles necessary to answer the research questions posed. Likewise, information was collected from the financial statements of the company Productos EFE, S.A. for the economic cycles ending on September 30 of the years 2018, 2019, 2020, 2021, 2022, and 2023, which were provided by the company. Subsequently, the aforementioned financial information was added to the respective registration matrix; 2) *Processing and analysis of results phase*: once the information was collected and recorded, it was analyzed in accordance with the objectives, variables, and dimensions of the study. To

this end, and considering that there is no single method for valuing companies, each one was analyzed taking into account its technical advantages and disadvantages. Likewise, external factors that directly affect the company were evaluated, such as: inflation rate, exchange rate, interest rate, among others, to finally determine how each of these variables affect the financial statements; 3) *Proposal development phase*: at this stage of the research, a methodology was proposed to assess the company's economic and financial performance in an inflationary context, explaining in detail the steps for its application; 4) *Company assessment phase*: finally, using the case study methodology, the economic and financial performance of the company Productos Efe, S.A. was estimated by applying the previously designed model.

3. Results

3.1 Macroeconomic environment in which Productos Efe, S.A. operates

According to estimates by the Economic Commission for Latin America and the Caribbean (ECLAC, 2022), the Venezuelan economy contracted by nearly 75% between 2013 and 2021. After the sharp decline recorded in 2020 (30%) due to the coronavirus pandemic (COVID-19), severe shortages of fuel, and the tightening of sanctions imposed by the United States on representatives of the public sector (ECLAC, 2022), the dynamics of Venezuelan economic activity in the last two years have shown improvements thanks to the increase in oil prices on international markets and the increase in oil production, an improvement that has been intensified by Russia's invasion of Ukraine and the easing of restrictions imposed by the US government on crude oil exports, the elimination of mobility restrictions adopted during the pandemic, and the end of the hyperinflationary period that began in the last quarter of 2017.

Specifically, according to figures published by the Central Bank of Venezuela (BCV, December 30, 2022), the GDP of the Venezuelan economy grew by 17.73% in the January-September 2022 period; while the latest annual variation rate of the National Consumer Price Index (INPC), published by the official body in September 2023, was 317.6%, bringing the cumulative inflation rate to 158.3%. For its part, the minimum wage in the third quarter of the year stood at \$3.66 at the official exchange rate, which has led to a slowdown in consumption and, consequently, a slowdown in GDP. In terms of monetary policy, in May 2023, the BCV set the legal reserve requirement at 78% of deposits in bolivars and 31% for foreign currency deposits in universal banks. According to the latest report from the BCV (December 30, 2022), nominal lending rates stood at 36% in October 2022. In terms of exchange rate policy, in the first quarter of 2023, the Venezuelan currency depreciated by 73.06% against the dollar compared to the same period in 2022 (EFE, 2023), with a very slight increase in the gap between the official and parallel exchange rates, unlike in 2022, when in June it exceeded the former by more than 6%.

For 2023, according to the Banca y Negocios website (January 31, 2023), average GDP growth was estimated at 5.4%, with an estimated expansion of 6.5% as the extreme value, according to the

International Monetary Fund (IMF). In relation to prices, this variable is expected to be between 55% and 94% in 2023, which means that the country's inflation is very likely to remain one of the highest in the world. Likewise, the informal dollarization process that the country has experienced in recent years is expected to continue and deepen due to the continuity of its chronic inflationary process and its impact on the progressive rise in the exchange rate.

3.2 Economic and financial variables that influence the valuation of companies in inflationary contexts

3.2.1 Macroeconomic variables

The macroeconomic indicators taken into consideration for this study are shown in Table 2.

Table 2. Macroeconomic variables	
Variable	Definition
Gross Domestic Product (GDP)	Measure of the market value of all final goods and services produced in a year within a country.
Consumer Price Index (CPI)	Measures the evolution of prices of a basket of goods and services representative of household consumption during a given period.
Employment Indicators	Shows how much employment is being created or destroyed, as well as the percentage of active labor and unemployment.
Inflation	A continuous, substantial, and general increase in the price level of the economy, which leads to an increase in the cost of living and a loss of purchasing power of the currency.
Interest Rates	The price paid for borrowing money. It is calculated as an annual percentage of the amount of funds borrowed.
Savings and investment	Part of disposable personal income that is not consumed, allowing the measurement of resources used for investment within the financial system.
Exchange rate	Expresses how many units of one currency are needed to obtain one unit of another.
Balance of payments	Refers to all economic exchanges between a country and other countries during a given period.
Country risk	Shows the level of risk of investing in a country at a given time, the probability that the country will be unable to meet its debt payment commitments, in principal and interest, under the agreed terms.

3.2.2 Financial variables

While some valuation methods use the company's financial statements, others, such as multiples and discounted cash flow methods, use a series of financial variables such as those mentioned in Table 3.

Table 3. Financial variables	
Variable	Definition
Gross margin	Direct profit obtained by a company from a good or service. Gross Margin = Selling price – production cost
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	Gross margin minus personnel expenses and other necessary operating expenses (excluding amortization) EBITDA = Gross Margin – Personnel expenses and other expenses
Operating Income (OI)	Difference between the company's income and expenses for a given period. OI = EBITDA – Depreciation
Earnings before interest and taxes (EBIT)	Operating income minus non-recurring or atypical income or expenses. EBIT = Operating income – Atypical expenses
Earnings Before Taxes (EBT)	Difference between net operating profit and expenses, minus extraordinary income. BAI = EBIT – Extraordinary income
Earnings after Taxes or Net Profit (EAT)	The amount remaining after subtracting income and expenses from any company. BDI = BAI – Taxes

3.3 Main methods of company valuation according to the epistemological criteria established by accounting and economics

According to the literature consulted, the methods used to value companies can be classified into six groups:

3.3.1 Balance sheet-based methods

These models seek to determine the value of the company by estimating its equity, for which a well-constructed, audited, and healthy balance sheet is crucial. According to Álvarez et al. (2006), the fundamental problem with this model is that the value is obtained from a static point of view and does not take into account other factors that are not reflected in the company's financial statements, such as: the future situation of the company, the time value of money, the situation of the sector, possible human resource problems, among others.

3.3.2 Multiple-based methods

This methodology calculates the value of a company by comparing it with one or more similar companies using a series of parameters and/or ratios obtained from the accounting information of comparable companies (Aznar et al., 2016). These have the advantage of being based on historical results and the most immediate future results, so the information available is greater and more reliable; However, as these are comparative methods, their use requires information from companies with homogeneous characteristics, which is their main limitation, as it is difficult to find businesses with the same degree of maturity, sector, similar size, and which ultimately share with the company being valued, risk, growth rate, cash flows, margins, investments, future prospects, etc. (Valls, 2001). Due to these weaknesses, authors such as Álvarez et al. (2006) and Valls (2001) recommend that this method be used as a complementary method rather than as the main valuation method.

3.3.3 Mixed methods

These integrate static valuation methods with dynamic valuation methods and are based on the idea that “the value of a company can be broken down into the value of the initial amount of investments made and the value derived from its ability to generate returns higher than those required based on its level of risk” (Álvarez et al., 2006, p. 71). Their advantage is their relative simplicity and low information requirements compared to other methods, their greatest contribution being to add “to the substantial value [of the assets] the company’s capacity to generate [surplus] resources” (Viñolas and Adserá, 1997, p. 27). However, Álvarez et al. (2006) highlight as its main shortcoming the assumption that the company generates value above the value of its assets from the moment that investments yield a return above the risk-free rate and not comparatively with the cost of capital. Despite this limitation, the aforementioned authors emphasize that these methods are widely used as reference values that help approximate a value in cases where it is not possible to conduct a more comprehensive study.

3.3.4 Valuation using Discounted Cash Flow (DCF)

This is the most widely used method for valuing companies with expectations of continuity and, according to Fernández (2008), it is the only conceptually correct method because it considers the company as an entity that generates future cash flows and, therefore, has the capacity to generate profits for shareholders, where these flows, discounted to present value using an appropriate rate, serve to estimate the value of a company. Among the advantages of this methodology, as pointed out by Viñola and Adserá (1997), are: a) it is based on cash flows and not on accounting figures; b) it collects information from both the balance sheet and the income statement; c) it allows for a more accurate reflection of economic circumstances that may affect the value of the company; d) it considers the time value of money; e) it incorporates a more detailed risk analysis. However, for Damodaran (2017), this DCF method has its limitations as it is not applicable to companies in financial difficulty (negative cash flows), firms with unused

assets, and companies undergoing restructuring or involved in acquisitions. Another drawback, in the opinion of Barrionuevo (2014), is “the possible subjective nature of the criteria used to estimate risk” (p.19).

To value a company using the discounted cash flow method, projections must be made of its balance sheet (assets, liabilities, and equity), cash flows, and income statement for periods of five to ten years, assuming that from the fifth year onwards everything remains stable or unchanged (Álvarez et al., 2006). In addition, this valuation process includes other basic steps such as: 1) determining cash flows; 2) determining the growth rate; 3) calculating the discount rate; and 4) estimating the residual value.

According to this method, the formula for calculating the value of the company is as follows:

$$VE = \sum_{i=1}^n \frac{FCL_t}{(1+WACC)^t} + \frac{Vn}{(1+WACC)^t} \quad (1)$$

Where: VE = company valuation; FCL_t = expected free cash flows at the time t ; t ; time period in which the cash flow occurs; n = number of time periods expected to generate cash flows; $WACC$: weighted average cost of capital; Vn = Residual Value, which is calculated using the following equation:

$$Vn = \frac{FCL_{n+1}}{WACC - g} \quad (2)$$

Where: g is the constant growth rate after year n .

Substituting Equation 2 into Equation 1 yields the following:

$$VE = \frac{FCL_t}{(1+WACC)^t} + \frac{FCL_{n+1}}{(WACC - g)} * \frac{1}{(1+WACC)^t} \quad (3)$$

According to this formula, the value of a company is estimated in two parts: in the first part, the expected FCLs are discounted over a time horizon t , for which it is necessary to project information from the financial statements and estimate the FCL for each year, as well as the appropriate discount rate to be used. In the second part, the residual value of the company is discounted using the same discount rate, for which it must be assumed that at the end of the time horizon t , the company will experience constant growth (g).

3.3.5 Methods based on value creation

These methods are based on estimating the company's ability to create value, which will occur when the profit or wealth it generates is large enough to cover the cost of all sources of financing of the resources invested in the business. For Fernández (2008), “these indicators are much

more appropriate for measuring or planning the objectives of managers and business units, but they make no sense as a measure of value creation over a period" (p. 22), since no measure based on accounting data has much to do with value creation for shareholders.

3.3.6 Option-based methods

As a method of valuing companies, option theory is based on the present value resulting from the discounting of cash flows, and in its application it is assumed that a company is equivalent to an option; it is therefore assumed that it can be valued using option theory as an alternative to the present value of expected cash flows method. This method is very convenient for valuing companies that are in trouble because they have a negative net present value, since option theory allows us to see that despite this, they have some value, defined as the value of the option in the event that the economic scenario changes (Álvarez et al., 2006).

3.4 Methodology for valuing the company Productos EFE, S.A., in an inflationary economy

Finance and valuation experts, such as Mascareñas (2008), argue that many methods can be used for the company valuation process, depending on the purpose for which it is carried out, but that none is perfect, as there are methods that are complementary to each other rather than substitutes. Based on this assumption, the present methodological proposal was based on the Discounted Cash Flow (DCF) model, as it was the most suitable for valuing the company Productos Efe, S.A., in an inflationary economy such as Venezuela's. In addition to being considered by specialists as the only method that takes into account future value expectations, including in perpetuity, it allowed for the estimation of the different macroeconomic variables to which the company is exposed in the face of the economic and financial effects generated by the political, economic, and social crisis that the country is undergoing. To apply this method, the CAPM model adapted for emerging markets was used, which is widely disseminated and used by practitioners (Sabal, 2003; Fornero, 2003; Damodaran, 2009) and developed by Garay and González (2015) for the Venezuelan case, where certain variables used by the traditional CAPM cannot be estimated.

Similarly, in economies experiencing macroeconomic crises, the high risk of rising inflation and the resulting exchange rate instability due to constant variations can lead to inaccurate long-term projections. For this reason, the proposed methodology valued the company in local currency (bolívar) and foreign currency (US dollar). Therefore, in the process of estimating and projecting free cash flows, following Dumrauf (2010), two parallel models were chosen to apply the FCM method, in accordance with equations (1), (2), and (3). The intention was to calculate the value of the company using both methods and compare the results.

- i. Estimation, projection, and discounting of cash flows in bolivars: with this model, free cash flows **FCL** were estimated and projected in bolivars (local currency) and discounted at an equivalent **WACC** rate in bolivars, applying the Fisher equation.

$$K_{sVED} = \frac{(1+K_{sUSD})+(1+i_{VED})}{(1+i_{VEN})} - 1 \quad (4)$$

- ii. Estimation and projection of free cash flows in bolivars, conversion and discounting in dollars: this methodology allowed the projected free cash flows to be converted to dollar equivalents according to projected exchange rates and discounted at the **WACC** rate in dollars, considering the country risk in the cost of equity.

In countries such as Venezuela, where it is not easy to access economic and financial information and where there is no accurate data on the profitability of companies or comparable companies, it was necessary to use a valuation methodology that would allow for the macroeconomic indicators of the market in which the company being valued operated to be taken into account. Thus, the design of this model was justified by the need to provide a technical tool with which it would be possible to carry out an adequate valuation of the business, taking into account the economic and financial variables surrounding it and thus allowing for an appraisal that approximated reality.

Step 1. Analysis of the Financial Statements

In order to understand the information contained in the financial statements and thus ascertain the financial situation of the company Productos EFE, S.A., a detailed review of all their components was carried out. This required an in-depth analysis of the standards that have the greatest impact on their preparation: IAS 1 (Presentation of Financial Statements), IAS 2 (Inventories), IAS 7 (Cash Flow Statements), IAS 16 (Property, Plant, and Equipment), and IAS 29 (Financial Reporting in Hyperinflationary Economies). Horizontal and vertical trend analyses were used as a technique for analyzing the financial statements. The former allowed us to determine the absolute and/or relative variation of each account in all components of the financial statements for the six selected periods (2018, 2019, 2020, 2021, 2022, and 2023) and to observe the effect of inflation on each of them. The analysis was performed in nominal currency and in constant currency.

$$\text{Absolute variation} = \text{Account Year XXX2} - \text{Account Year XXX1} \quad (5)$$

$$\frac{(\text{Cuenta Año XXX2} - \text{Cuenta Año XXX1})}{\text{Cuenta Año XXX1}} \times 100 \quad \text{Relative variation} = (6)$$

The vertical analysis, which consists of determining the percentage that each item represents in relation to the total, made it possible to verify the relationships between them and

establish parameters that served to draw conclusions about the accounts of the components of the financial statements and thus obtain a perspective on their future behavior.

Vertical analysis

$$\frac{\text{Rubro}}{\text{Total de la cuenta}} \times 100 \qquad (7)$$

The review of the financial statements was a key tool for their projection, since the assumptions established to carry it out were based on the results of this analysis. Similarly, in order to better understand the internal situation of the company, financial ratios of efficiency, solvency/liquidity, profitability, and financial leverage were calculated.

Step 2. Projection of the Financial Statements

The projection of the financial statements began with the income statement, as the information contained therein was used to define the company’s future level of activity (Dumrauf, 2010). In this case, the following items were considered: sales (volume sold and historical prices), gross margin (historical), and average operating margin for the industry (Damodaran, 2023). Subsequently, the items that make up the Statement of Financial Position were analyzed and projected, namely: accounts receivable, inventories, accounts payable to suppliers, and changes in property, plant, and equipment (Capex). Once the assumptions were defined, the corresponding projections were made.

Step 3. Estimating free cash flows

Although there are other cash flows that can be used to obtain a company’s value, Free Cash Flows (FCL) or *Free Cash Flow* **FCL** are the most widely used due to the benefits they provide when performing the valuation, mainly because they show the cash flow available for payments to shareholders and third parties, and because it is the closest to the reality of the company (Jaramillo, 2010). To calculate the FCLs needed to apply the DFC method, it was necessary to use the company’s Financial Position Statement and Income Statement, projected over the time horizon **t**, as a basis. In this study, the model proposed by Jaramillo (2010) was followed, which can be seen in Table 4.

Table 4. Calculation of Free Cash Flow according to Jaramillo (2010)
OPERATING INCOME (UAII)
- TAXES ON OPERATING PROFIT
= OPERATING PROFIT AFTER TAXES (UAIID)
+ COSTS AND EXPENSES THAT DO NOT INVOLVE CASH OUTFLOWS
= GROSS CASH FLOW (FCB)
+/- CHANGES IN CAPITAL INVESTMENT
= FREE CASH FLOW (FCF)

Step 4. Estimating the discount rate

The discount rate k used to discount the estimated FCL was the *Weighted Average Cost of Capital* (WACC), which, in Fernández's opinion (2008), is the most appropriate for the DFC model because it values a company as a whole. It was calculated using the following equation:

$$WACC = \frac{S}{S+B} * Ks + \frac{B}{S+B} * Kb * (1 - tc) \quad (8)$$

Where: $\frac{S}{S+B}$ = weighting of equity capital; $\frac{B}{S+B}$ = weighting of debt; Ks = cost of equity; $Kb(1 - tc)$ = cost of debt after taxes.

Cost of Equity

To determine this, the *Capital Asset Pricing Model* (CAPM) was applied, expressed in the following formula:

$$Ks = Rf + \beta * (Rm - Rf) \quad (9)$$

Where: Rf = risk-free rate of return; Rm = market return; β = individual stock risk indicator; and $(Rm - Rf)$ = market risk premium.

At this point, the model developed by Urbi Garay and Maximiliano González (2015) was used to calculate the CAPM in Venezuela, since some variables used by the traditional CAPM, such as the risk-free rate, current market risk premium, and beta coefficient, cannot be estimated in inflationary economies such as Venezuela's due to a lack of information on macroeconomic indicators. The solution adopted by Professors Garay and González (2015) is to perform the valuation assuming that the company is located in a country where the necessary information to apply the DFC is available and then transfer the value to the corresponding country, taking into account the country risk and the currency difference. In practice, the country taken as a reference is the US because of the availability of information and, above all, the ease of access to it. Therefore, to calculate the cost of equity (Ks), information must be obtained from both the market of the reference country and the Venezuelan market. The following data were required:

Risk-free rate (Rf): the interest rate on 10-year US bonds was used, which can be found on Damodaran's website (<http://pages.stern.nyu.edu/~adamodar/>).

Unlevered: taken from Damodaran's tables (available on the website <http://pages.stern.nyu.edu/~adamodar/>), depending on the sector to which similar companies in the United States belong.

US risk premium: also obtained from Damodaran's website.

- Expected inflation rate in the United States, taken from figures provided by the International Monetary Fund (IMF).
- Venezuela country risk premium, according to data provided by Damodaran.
- Expected inflation rate in Venezuela, according to estimates by the firm Econanalítica.

Equation 8 was applied to the information collected to obtain the minimum required return for a similar business in the reference country. To adjust the return obtained, the country risk for Venezuela was added, resulting in the cost of equity in nominal dollars (Ks_{USD}). Subsequently, based on this nominal rate of return in dollars, the two parallel discount methods mentioned above were applied:

- Estimation, projection, and discounting of cash flows in bolivars: national inflation was incorporated into the rate of return, resulting in the cost of equity in bolivars, using Equation 4. The resulting value was the cost of equity in nominal terms in bolivars, equivalent to the cost of equity in dollars adjusted for the differences between inflation in Venezuela and inflation in the United States.
- Estimation and projection of free cash flows in bolivars, conversion, and discounting in dollars: the cost of equity in dollars (Ks_{USD}) was used in nominal terms to discount the projected cash flows in bolivars converted to dollars according to the projected exchange rate.

Cost of debt (Kd)

Using Equation 7, the WACC discount rate was calculated in bolivars in Venezuela, obtaining a rate for each year of estimation given the uncertainty in the calculation of the factors generated by the crisis scenario in which the company operates (Madura, 2009, cited by Rugel, 2019). In this case, the company Productos Efe, S.A., has no debt, so the debt/asset ratio ($\frac{D}{A}$) remained at zero.

Step 5. Estimation of residual value

The residual value was calculated using the present value of cash flows method, assuming a constant long-term growth rate, known as the terminal growth rate (g), and assuming that from 2014 onwards, the company's terminal growth rates (FCL) will grow steadily each year (Berk and De Marzo, 2008). Equation 2 was used for this purpose. The growth rate can be estimated based on the past behavior of different variables, the most widely accepted being sales figures (CV), as they are the least influenced by accounting criteria (Aznar et al., 2016). Therefore, to calculate g , the geometric mean of CV growth over a given period was used:

$$g = \left(\frac{CV_t}{CV_0} \right)^{\frac{1}{n}} - 1 \quad (10)$$

From this equation, the growth rate in dollars was obtained g_{USD} , taking as a reference the sales of Productos Efe, S.A. between 2018 and 2023 converted at the average exchange rate; the results used in method (ii). Then, to obtain the equivalent growth rate in bolivars, Equation 4 was applied in the calculation and discounting of the perpetuity in bolivars g_{VEF} , which was used in method (i).

Step 6. Company value

Finally, once all the elements necessary for calculating the value of a company had been obtained, using Equation 1, the free cash flows and residual value were discounted at the WACC discount rate, thereby obtaining the operating value of the company in accordance with the two proposals (i and ii). Since the company has no debt, the economic or equity value was equivalent to the operating value.

3.5 Estimation of the value of the company Productos Efe, S.A., using the proposed methodology

3.5.1 Analysis of the financial statements

An analysis was performed of the financial statements of Productos Efe, S.A. for the fiscal years ending September 30, 2018, 2019, 2020, 2021, 2022, and 2023, the first four of which were approved by the company's Shareholders' Meeting and the last of which is pending approval. The financial statements and applicable regulations (VEN-NIF GE) were reviewed in order to gain an in-depth understanding of the information presented, and once this was achieved, the financial statements were analyzed.

3.5.1.1 Trend analysis – Horizontal axis

This analysis provided insight into the evolution of each account compared to previous years, making it possible to determine whether there was growth or decline and to what extent. To this end, equations 5 and 6 were applied to the financial statements for the aforementioned years, both in constant VEF and nominal VEF, observing the effect of the inflation rate on the financial statements.

Tabla 3. Análisis horizontal del Estado de Resultados en moneda constante (año 2018 vs. 2019; 2019 vs. año 2020; 2020 vs. 2021 y 2021 vs. 2022)

Estado de Resultados	2022-2021	2021-2020	2020-2019	2019-2018
Ingresos de operación	43%	54%	-53%	-88%
Costo de ventas	110%	-51%	-98%	384%
(Pérdida) utilidad bruta	-124%	-135%	-98%	-1083%
Gastos				
Distribución y ventas	-72%	-26%	-67%	-71%
Administración	254%	-18%	-60%	-53%
Publicidad y mercadeo	43%	143%	-92%	-77%
Pérdida en operaciones	43%	-72%	-95%	547%
Fluctuación en cambio, neta	-74%	-14%	-11%	-51%
Resultado monetario	-73%	-2%	-79%	84%
Costos financieros, neto	-94%	990%	-90%	192%
Otros (egresos) ingresos, neto	-221%	-72%	-155%	-1220%
Utilidad antes de impuesto	-98%	578%	-115%	-43%
Beneficio (gasto) de impuesto:				
Diferido	-552%	-65%	-146%	-142%
Corriente	100%	-	-	-100%
Utilidad neta	100%	955%	-111%	-57%
Utilidad neta por acción	-90%	955%	-111%	-57%

Tabla 3. Análisis horizontal del Estado de Resultados en moneda constante (año 2018 vs. 2019; 2019 vs. año 2020; 2020 vs. 2021 y 2021 vs. 2022)

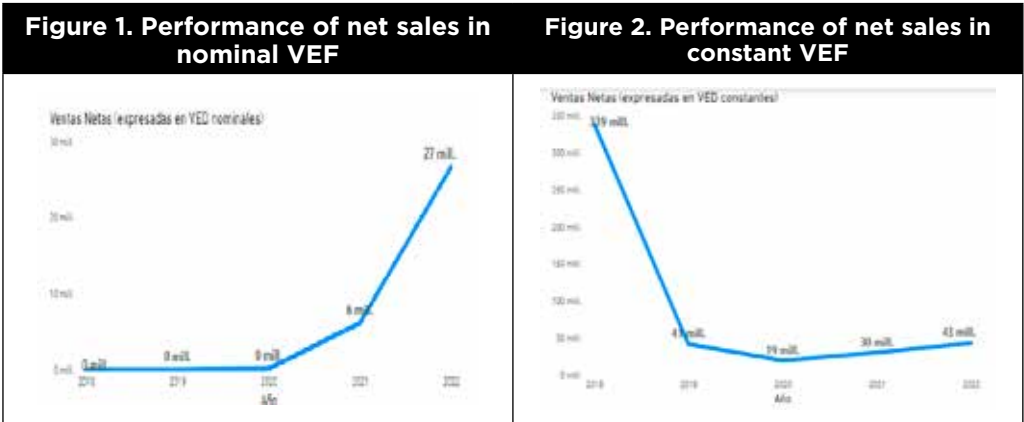
Estado de Resultados	2022-2021	2021-2020	2020-2019	2019-2018
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Utilidad neta	100%	955%	-111%	-57%
Utilidad neta por acción	-90%	955%	-111%	-57%

The historical behavior of each of the accounts is shown in Tables 1, 2, 3, and 4, noting that inflation adjustments can alter the actual variations in the accounts, which is why the financial statements were analyzed in constant currency to examine the behavior of these accounts without the influence of inflation and thus determine the actual variations.

Tabla 2. Análisis horizontal del Estado de Resultados en moneda nominal (año 2018 vs. 2019, 2019 vs. año 2020, 2020 vs. 2021 y 2021 vs. 2022)				
Estado de Situación	2020-2021	2021-2020	2020-2019	2019-2018
Activo				
Activo No Corriente				
Propiedades, planta y equipo, neto	30%	142%	1355%	13783%
Activos por derecho de uso, neto	-100%	113%	100%	11555%
Impuesto diferido	267%	188%	-48%	3243%
Cuentas por cobrar a compañías relacionadas	100%	-100%	2015%	546%
Otros activos	100%	0%	-87%	22240%
Total activo no corriente	320%	357%	1851%	1047%
Activo Corriente				
Inventarios, neto	199%	3136%	8084%	1347%
Cuentas por cobrar				
Comerciales, neto	157%	3171%	3099%	1429%
Compañías relacionadas	-100%	20814849%	12204%	133549%
Otros activos	343%	20162%	833%	36595%
Efectivo y equivalentes de efectivo	81%	532%	1787%	21187%
Total activo corriente	-17%	14273%	1945%	11714%
Total Activo	75%	1057%	1855%	21343%
Pasivos				
Capital social	0%	100%	2015%	0%
Resultado acumulado por transacción de subsidiaria en el exterior	9%	881%	1603%	33364%
Superávit por revalorización de activos	22%	1442%	2803%	14189%
Obligaciones laborales	882%	2336%	1738%	-8509%
Déficit acumulado				
Reserva patrimonial	-	100%	0%	0%
Reserva legal	0%	100%	0%	0%
Pérdidas acumuladas	118%	1520%	1738%	42511%
Total pasivos	41%	852%	1951%	24319%
Pasivo No Corriente				
Impuesto diferido	30%	1538%	1633%	13759%
Aportado para prestaciones sociales	177%	1586%	837%	1107%
Plan de beneficios definidos	572%	2024%	2081%	11747%
Provisiones	13742%	89%	100%	-
Pasivos por arrendamientos	-	-100%	100%	-
Total pasivo no corriente	157%	1586%	1659%	12889%
Pasivo Corriente				
Cuentas por pagar				
Compañías relacionadas	199%	5832%	1371%	50524%
Comerciales	-40%	5032%	829%	593%
Impuesto sobre la renta por pagar	100%	-	-	-100%
Pasivos por arrendamientos	-100%	2877%	100%	-
Otros pasivos	338%	1238%	528%	16212%
Prestamos y créditos	-	-	-	-100%
Total pasivo corriente	188%	5957%	1231%	17684%
Total Pasivo	148%	2428%	1545%	13447%
Total Pasivo y Patrimonio	75%	1057%	1855%	21343%

Tabla 4. Análisis horizontal del Estado de Resultados en moneda constante (año 2018 vs. 2019, 2019 vs. año 2020, 2020 vs. 2021 y 2021 vs. 2022)				
Estado de Situación	2022-2021	2021-2020	2020-2019	2019-2018
Activo				
Activo No Corriente				
Propiedades, planta y equipo, neto	-50%	-35%	-12%	-85%
Activos por derecho de uso, neto	-100%	-33%	100%	-
Impuesto diferido	43%	-14%	-67%	-70%
Cuentas por cobrar a compañías relacionadas	100%	-100%	11%	-14%
Otros activos	91500%	-85%	-100%	-88%
Total activo no corriente	83%	-78%	2%	-43%
Activo Corriente				
Inventarios, neto	-34%	110%	918%	-86%
Cuentas por cobrar				
Comerciales, neto	0%	89%	87%	-86%
Compañías relacionadas	-100%	1019186%	594%	229%
Otros activos	72%	7%	-51%	-4%
Efectivo y equivalentes de efectivo	-37%	-72%	-1%	-46%
Total activo corriente	-80%	530%	281%	-78%
Total Activo	-32%	-42%	4%	-47%
Pasivos				
Capital social	0%	0%	0%	0%
Resultado acumulado por transacción de subsidiaria en el exterior	-23%	-52%	11%	-15%
Superávit por revalorización de activos	-53%	-35%	-12%	-87%
Obligaciones laborales	82%	20%	23%	-14%
Déficit acumulado				
Reserva patrimonial	0%	0%	0%	0%
Reserva legal	0%	0%	0%	0%
Pérdidas acumuladas	-14%	-35%	-3%	-58%
Total pasivos	-48%	-54%	7%	-41%
Pasivo No Corriente				
Impuesto diferido	-50%	-31%	-10%	-85%
Aportado para prestaciones sociales	7%	-18%	-88%	-87%
Plan de beneficios definidos	181%	4%	15%	-70%
Provisiones	53241%	-82%	100%	-
Pasivos por arrendamientos	-	-100%	100%	-
Total pasivo no corriente	-30%	-19%	8%	-58%
Pasivo Corriente				
Cuentas por pagar				
Compañías relacionadas	181%	186%	-22%	29%
Comerciales	-77%	179%	-52%	-85%
Impuesto sobre la renta por pagar	100%	-	-	-100%
Pasivos por arrendamientos	-100%	46%	100%	-
Otros pasivos	89%	-32%	-67%	-58%
Prestamos y créditos	-	-	-	-100%
Total pasivo corriente	12%	177%	-30%	-55%
Total Pasivo	-4%	24%	-14%	-65%
Total Pasivo y Patrimonio	-32%	-42%	4%	-47%

An illustrative case is that of net sales, which in nominal currency showed an increase of 8,364% and 1,163% for the years 2018-2019 and 2019-2020, respectively; However, when considering real terms, a reduction of -88% and -53% was observed for the same years, as can be seen in Figures 1 and 2.



3.5.1.2 Trend analysis – Vertical axis

The vertical analysis helped to understand the performance of each item in relation to the total, which was very useful for making estimates of various future accounts based on the trends shown. Thus, when applied to the income statement, this analysis showed the relationship of each item with respect to sales, as can be seen in Tables 5 and 6. This result was fundamental in establishing some assumptions for the projection of the financial statements, since several items are projected according to the estimated future growth in sales. Another of the assumptions established was the operating margin for the projection of the Income Statement.

Tabla 5. Análisis vertical del Estado de Resultados en moneda nominal (años 2018, 2019 y 2020)

ITEM	Unidad	sep-18	Vertical	sep-19	Vertical	sep-20	Vertical
Estado de Resultados, VED							
Ingresos							
Ventas brutas	VED	167	110%	14.604	122%	155.000	100%
Otros ingresos	VED	2	2%	832	7%	2.184	1%
Descuentos y devoluciones en ventas	VED	(27)	-15%	(3.468)	-25%	(6.038)	-4%
Ingresos de operación	VED	142	100%	12.048	100%	152.134	100%
Costos							
Materia prima	VED	(8)	-4%	(7)	0%	(0)	0%
Materia de empaque	VED	(8)	-6%	(9)	0%	(1)	0%
Otros costos variables	VED	2	1%	(1.372)	-11%	(54.760)	-36%
Costo primo variable	VED	(12)	-8%	(1.388)	-12%	(54.761)	-36%
Mano de obra directa	VED	(7)	-5%	(9.555)	-79%	(59.315)	-39%
Carga fabril	VED	6	4%	(2.524)	-21%	10.370	7%
Depreciación	VED	-	0%	(9)	0%	(1.425)	-1%
Costo fijo	VED	(1)	-1%	(12.087)	-100%	(50.370)	-33%
Transporte	VED	(2)	-1%	(257)	-2%	(11.207)	-7%
Costos de ventas	VED	(15)	-10%	(13.732)	-114%	(116.338)	-76%
Utilidad bruta	VED	128	90%	(1.684)	-14%	35.796	24%
Gastos							
Distribución	VED	(94)	-66%	(15.269)	-127%	(114.328)	-75%
Publicidad y mercadeo	VED	(3)	-2%	(463)	-4%	(761)	-1%
Generales y administrativos	VED	(21)	-15%	(7.043)	-56%	(88.529)	-45%
Depreciación y amortización	VED	-	0%	(32)	0%	(2.229)	-1%
Gastos operativos	VED	(118)	-83%	(22.807)	-189%	(195.864)	-122%
Utilidad en operaciones	VED	10	7%	(24.491)	-203%	(150.068)	-99%
Ingresos financieros							
Ingresos financieros	VED	2	1%	1.289	11%	21.195	14%
Gastos financieros	VED	(263)	-206%	(110.867)	-920%	(1.574.308)	-1288%
Otros ingresos (egresos) neto	VED	0	0%	(1.264)	-10%	41.021	27%
Utilidad antes de impuestos	VED	(262)	-198%	(135.333)	-1123%	(2.062.161)	-1355%
ISLR	VED	(19)	-13%	(1.402)	-12%	(39.630)	-91%
Utilidad neta	VED	(281)	-211%	(136.828)	-1136%	(2.200.792)	-1447%
Depreciación y amortización	VED	-	0%	(40)	0%	(3.654)	-2%
EBITDA	VED	10		(24.451)		(146.414)	

Tabla 6. Análisis vertical del Estado de Resultados en moneda nominal (años 2021, 2022 y 2023)

ITEM	Unidad	sep-21	Vertical	sep-22	Vertical	sep-23	Vertical
Estado de Resultados, VED							
Ingresos							
Ventas brutas	VED	6.803.155	110%	29.691.205	111%	156.191.535	118%
Otros ingresos	VED	21.645	0%	34.863	0%	(27.793)	0%
Descuentos y devoluciones en ventas	VED	(659.829)	-11%	(3.022.969)	-11%	(24.315.732)	-18%
Ingresos de operación	VED	6.165.971	100%	26.693.100	100%	131.848.010	100%
Costos							
Materia prima	VED	-	0%	(808.202)	-3%	(6.919.358)	-5%
Materia de empaque	VED	-	0%	(822.659)	-3%	(5.932.874)	-4%
Otros costos variables	VED	(2.039.695)	-33%	(6.836.935)	-26%	(6.290.058)	-5%
Costo primo variable	VED	(2.039.695)	-33%	(8.487.796)	-32%	(19.142.290)	-15%
Mano de obra directa	VED	(788.350)	-13%	(1.705.941)	-6%	(1.518.057)	-1%
Carga fabril	VED	(53.446)	-1%	(3.427.386)	-13%	(44.143.156)	-33%
Depreciación	VED	(26.337)	0%	(452.799)	-2%	(553.617)	0%
Costo fijo	VED	(668.174)	-14%	(5.586.127)	-21%	(46.214.531)	-35%
Transporte	VED	(320.058)	-5%	(2.378.117)	-9%	(7.013.748)	-5%
Costos de ventas	VED	(3.227.827)	-52%	(16.452.039)	-62%	(72.378.866)	-55%
Utilidad bruta	VED	2.938.044	48%	10.241.061	38%	59.477.144	45%
Margen bruto							
		48%		38%		45%	
Gastos							
Distribución	VED	(2.807.844)	-42%	(9.698.769)	-36%	(61.033.002)	-46%
Publicidad y mercadeo	VED	(58.560)	-1%	(652.867)	-3%	(10.338.322)	-8%
Generales y administrativos	VED	(1.328.317)	-22%	(1.213.928)	-5%	(15.821.092)	-12%
Depreciación y amortización	VED	(39.046)	-1%	(700.891)	-3%	(1.107.660)	-1%
Gastos operativos	VED	(4.033.767)	-65%	(12.306.455)	-46%	(88.301.275)	-67%
Utilidad en operaciones	VED	(1.095.723)	-18%	(2.065.594)	-8%	(28.824.131)	-32%
Margen operativo							
		-18%		-8%		-22%	
Ingresos financieros	VED	344.605	6%	1.567.632	6%	28.230.381	21%
Gastos financieros	VED	(34.511.585)	-560%	(50.122.286)	-188%	(378.314.782)	-287%
Otros ingresos (egresos) neto	VED	248.732	4%	531.312	2%	4.491.100	3%
Utilidad antes de impuestos	VED	(35.903.971)	-568%	(50.088.736)	-188%	(374.417.432)	-284%
Margen EBT							
		-568%		-188%		-284%	
ISLR	VED	(3.469.959)	-56%	1.815.000	7%	(373.193)	0%
Utilidad neta	VED	(38.473.929)	-624%	(48.273.736)	-181%	(374.790.615)	-284%
Margen neto							
		-624%		-181%		-284%	
Depreciación y amortización	VED	(65.383)	-1%	(1.153.690)	-4%	(1.661.477)	-1%
EBITDA	VED	(1.830.340)	-17%	(911.704)	-3%	(27.162.655)	-21%
Margen EBITDA		-22%		-9%		-17%	

3.5.1.3 Financial ratios

To understand the company's internal situation, financial indicators of efficiency, liquidity/solvency, profitability, and financial leverage were calculated. In the first (see Table 7), the results show that the company renews its inventories three times a year on average, i.e., every 112 days. it can also be seen that it collects its accounts on average 24 times a year, suggesting that it offers its customers a maximum credit term of 45 days, which is consistent with the inflationary environment in which it operates, where the value of the currency is in constant decline, forcing companies to grant very short credit terms.

Table 7. Efficiency ratios: 2018, 2019, 2020, 2021, and 2022

Indicadores	Unidad	sep-18	sep-19	sep-20	sep-21	sep-22	sep-23
Rotación de cuentas por cobrar comerciales	días	14	11	16	14	15	18
Rotación de inventarios	días	251	7	81	111	147	77
Rotación de cuentas por pagar a proveedores	días	133	12	22	48	30	22
Ciclo de efectivo	días	133	6	75	77	133	73

In the case of the liquidity/solvency indicator (see Table 8), the effective ratio assesses a company's ability to cover its short-term obligations immediately. In this regard, the index is less than 0, which is not favorable for the company as it indicates that it does not have the necessary cash to cover its debts instantly. On the other hand, the acid ratio follows the same logic as the previous indicator, but includes the company's trade accounts receivable, and although this increases the ratio, it is still less than 1, suggesting that the company, even if it collected all its debts, would not be able to cover its liabilities. Finally, the current ratio, which compares current assets to current liabilities, offers a more encouraging result by indicating that the company has a high level of inventory, implying that it has a significant amount of unsold stock.

Table 8. Efficiency ratios: 2018, 2019, 2020, 2021, and 2022

Indicadores	Unidad	sep-18	sep-19	sep-20	sep-21	sep-22	sep-23
Razón efectiva	veces	0,64x	0,72x	0,99x	0,12x	0,07x	0,23x
Razón ácida	veces	0,90x	0,74x	1,05x	0,16x	0,10x	0,33x
Razón corriente	veces	1,53x	1,02x	1,56x	3,97x	0,31x	0,75x

During 2019 and 2020, the company experienced a significant decline in its operating margin, attributable to a series of adverse events such as the nationwide power outages in 2019, which caused considerable losses in sales and an increase in returns. Despite these challenges, the company managed to improve its margin in subsequent years; however, operating margins remain unfavorable (see Table 9), which is also reflected in the return on assets and return to shareholders, both of which are negative. These indicators suggest that the company is not generating an adequate return on its assets or providing a satisfactory return to its shareholders.

Tabla 9. Razones rentabilidad – Años 2018, 2019, 2020, 2021, 2022 y 2023

Indicadores	Unidad	sep-18	sep-19	sep-20	sep-21	sep-22	sep-23
Ventas	USD	5.253.009,57	3.353.984,18	805.123,13	2.011.053,69	4.865.630,90	5.356.161,26
EBITDA	USD	435.851,01	(31.530.039,83)	(1.453.405,16)	(440.524,95)	(443.765,69)	(925.730,64)
Margen bruto	%	0,65	(6,95)	(0,20)	0,47	0,35	0,46
Margen operativo		0,07	(2,03)	(0,99)	(0,18)	(0,08)	(0,22)
Margen EBITDA	%	0,08	(9,40)	(1,81)	(0,22)	(0,09)	(0,17)
Rendimiento sobre Activos (ROA)	%	(0,16)	(2,57)	(0,47)	(0,74)	(0,27)	(0,48)
Rendimiento sobre Patrimonio (ROE)	%	(0,22)	(3,11)	(0,55)	(1,10)	(0,49)	(1,03)

The leverage and coverage ratios (see Table 10) show that the company has more equity than debt, given that the Liabilities/Assets ratio is less than 1. Similarly, the Liabilities/Equity ratio is also less than 1, indicating that the company is financed to a greater extent with its own capital. Because of this, it is consistent that the other ratios are equal to or less than 0, as the company has had no debt since 2018.

Tabla 10. Razones apalancamiento y cobertura – Años 2018, 2019, 2020, 2021, 2022 y 2023							
Indicadores	Unidad	sep-18	sep-19	sep-20	sep-21	sep-22	sep-23
Pasivo / Activo	veces	0,27	0,17	0,14	0,32	0,45	0,54
Pasivo / Patrimonio	veces	0,37	0,21	0,17	0,47	0,83	1,16
Deuda / Patrimonio	veces	0,02	(0,00)	-	-	-	-
Deuda / (Deuda + Patrimonio)	veces	0,02	(0,00)	-	-	-	-
Deuda / EBITDA	veces	1,05	0,00	-	-	-	-
EBITDA / Intereses	veces	0,10	(0,73)	(0,13)	(0,03)	(0,06)	(0,05)

3.5.2 Financial Statement Projection

The projection of the financial statements requires a series of assumptions necessary for this purpose. First, based on the income statement, a projection of the entity’s revenues for the next five years was made (see Table 11). To do this, the price and quantity variables (average price per category and tons sold) were linked to GDP growth and the exchange rate, using estimates from the firm Econanalítica as a reference, which includes data on GDP, manufacturing GDP, and INPC variations. Since this data is available until 2026, a conservative scenario was adopted for the following two years (2027 and 2028), estimating that the economy will grow at rates above 4% and face annual inflation above 150% throughout the projection period. This scenario assumes a 1:1 *pass-through*, which means that the exchange rate is expected to vary in the same proportion as the inflation rate. It is important to note that economic growth is limited due to the collapse of output during the hyperinflationary period between 2016 and 2021 and a slowdown in sales in fiscal year 2023.

Sales volume for the explicit projection period for the years 2024 to 2028 was estimated using the tons sold in 2023 as a basis, applying a growth rate equivalent to the GDP projection, according to the macroeconomic assumptions set out in Table 12. To calculate gross sales, the weighted average prices by category for the 2022-2023 fiscal period were taken into account, to which an annual growth rate corresponding to inflation in US dollars was applied, according to data from the International Monetary Fund (IMF).

Table 11. Revenue projection							
Volumen vendido por categoría	Unidad	sep-18	sep-19	sep-20	sep-21	sep-22	sep-23
Familiares	ton	588.669,33	614.599,01	642.409,29	676.144,18	711.650,60	749.021,56
Institucionales	ton	500.754,37	522.811,58	546.468,53	575.165,27	605.368,97	637.158,76
Toneladas vendidas	ton	1.089.423,70	1.137.410,59	1.188.877,82	1.251.309,45	1.317.019,57	1.386.180,32
Precios por categoría							
Familiares	USD/ton	5,93	6,07	6,20	6,33	6,47	6,57
Institucionales	USD/ton	5,49	5,49	5,49	5,49	5,49	5,49
Familiares	VED/ton	146,46	565,97	1.370,25	2.509,38	6.779,47	18.223,73
Institucionales	VED/ton	139,68	511,33	1.211,84	2.174,57	5.752,28	15.216,23
Ventas por categoría							
Familiares	VED	86.218.101,85	347.846.294,46	880.264.462,19	1.696.705.593,86	4.824.612.634,76	13.649.963.443,85
Institucionales	VED	69.945.640,28	267.328.620,22	662.234.216,80	1.250.738.149,16	3.482.254.579,60	9.695.152.390,84
Ventas brutas	VED	156.163.742,13	615.174.914,68	1.542.498.678,99	2.947.443.743,02	8.306.867.214,36	23.345.115.834,69

Table 12. Macroeconomic estimates used for the financial statement projection

ITEM	Unidad	sep-24	sep-25	sep-26	sep-27	sep-28
PIB	%	4,40%	4,52%	5,25%	5,25%	5,25%
PIB manufactura	%	1,87%	2,16%	3,48%	3,48%	3,48%
Variación INPC	%	220,34%	195,61%	164,52%	164,52%	164,52%
Variación INPC, alimentos y bebidas no alcohólicas	%	231,35%	189,41%	165,00%	165,00%	165,00%
Inflación USA	%	2,43%	2,16%	2,06%	2,13%	1,62%
Tipo de cambio, cierre	VED/USD	139,16	296,83	520,48	1.376,80	3.641,97
Tipo de cambio, promedio	VED/USD	93,18	220,84	396,28	1.048,26	2.772,91

To project the operating working capital variables (see Table 13), data was extracted from the Statement of Financial Position, including accounts receivable, inventory, and accounts payable, in which case the previously calculated efficiency indicators for 2023 were used, such as the days of turnover for the aforementioned items (see Table 14).

Table 13. Operating Working Capital Projection

Capital de trabajo operativo	Unidad	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Cuentas por cobrar	VED	10.726.834	26.015.400	65.231.399	124.645.734	351.292.730	987.251.785
Inventario	VED	24.293.482	59.969.888	150.369.383	287.329.450	809.789.023	2.275.781.959
Cuentas por pagar	VED	8.828.879	17.052.151	42.756.817	81.700.759	230.259.646	647.107.745
Capital de trabajo operativo neto	VED	26.191.436	68.933.136	172.843.966	330.274.425	930.822.108	2.615.926.000

Table 14. Efficiency indicators for 2023

Rotación de cuentas por cobrar comerciales	días	18
Rotación de inventarios	días	77
Rotación de cuentas por pagar a proveedores	días	22
Ciclo de efectivo	días	73

Discounts and sales returns were subtracted from gross sales, taking the average percentage value on gross sales for the 2020-2023 period, which was 14.52%, and applying it to the projection period. This yielded the projected operating income for the company, based on which the gross margin for 2023 was maintained at 45.67%.

Table 15. Capex and average useful life of the company's assets

Capex/Ventas	%	3,71%
Depreciación/Capex	%	65,16%
Vida útil promedio	años	10

To obtain the gross profit and operating profit (UAll), the average operating margin for the industry was taken from the Damodaran website. Likewise, to project tax payments and thus obtain the operating profit after taxes, data on Venezuela's income tax rate from the same website was also used, which stands at 34%.

Tabla 16. Flujo de Caja Bruto VED (determinado conforme método i)

ITEM	Unidad	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Ventas brutas	VED	156.191.535	615.174.915	1.542.498.679	2.947.443.743	8.306.867.214	23.345.115.835
Otros ingresos	VED	(27.793)	-	-	-	-	-
Descuentos y devoluciones en ventas	VED	(24.315.732)	(89.337.365)	(224.005.831)	(428.035.753)	(1.206.345.727)	(3.390.240.871)
Ingresos de operación	VED	131.848.010	525.837.550	1.318.492.848	2.519.407.990	7.100.521.487	19.954.874.964
Costo de ventas	VED	71.630.806	285.678.698	716.314.991	1.368.751.992	3.857.593.914	10.841.147.986
Utilidad bruta	VED	60.217.203	240.158.852	602.177.857	1.150.655.998	3.242.927.573	9.113.726.978
Margen bruto	%	46%	46%	46%	46%	46%	46%
Utilidad operacional (UAll)	VED	(28.824.131)	64.362.516	161.383.525	308.375.538	869.103.830	2.442.476.696
Margen operativo	%	-19%	12%	12%	12%	12%	12%
Impuestos sobre la utilidad operacional	VED	(4.855)	(4.981.659)	(12.491.085)	(23.868.267)	(67.268.636)	(189.047.696)
Utilidad operacional después de impuestos	VED	(28.824.131)	59.380.857	148.892.440	284.507.271	801.835.194	2.253.428.999
Depreciación y amortización	VED	1.661.477	14.881.933	37.315.178	71.302.744	200.954.618	564.750.670
Flujo de caja bruto	VED	(27.162.655)	74.262.790	186.207.618	355.810.016	1.002.789.811	2.818.179.670

Subsequently, the estimated annual depreciation was calculated according to the average ratio to capital expenditure (Capex) for the industry published by Damodaran (2023) (see Table 15). In this way, the gross cash flow was obtained in VED for method (i) and USD for method (ii), broken down in Tables 16 and 17.

Next, a projection of the variation in working capital was made for each year of the explicit projection period, and then the fixed capital expenditure (Capex) for the industry to which the company belongs was considered, which according to data obtained from the Damodaran (2023) database is 3.71%; this percentage was applied to operating sales. It is important to note that these capital investments do not consider any aggressive growth plans for the future and represent minimum operating working capital and fixed maintenance capital expenditures, in accordance with industry parameters and the company's financial and operating history.

3.5.3 Estimation of free cash flows

Tabla 17. Flujo de Caja Bruto USD (determinado conforme método ii)							
<i>ITEM</i>	<i>Unidad</i>	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Ventas brutas	USD	6.329.259	6.601.904	6.984.723	7.437.768	7.924.425	8.418.988
Otros ingresos	USD	(1.126)	-	-	-	-	-
Descuentos y devoluciones en ventas	USD	(985.332)	(958.746)	(1.014.340)	(1.080.133)	(1.150.806)	(1.222.628)
Ingresos de operación	USD	5.342.801	5.643.158	5.970.383	6.357.635	6.773.619	7.196.360
Costo de ventas	USD	2.902.654	3.065.833	3.243.609	3.453.996	3.679.993	3.909.661
Utilidad bruta	USD	2.440.147	2.577.325	2.726.774	2.903.639	3.093.626	3.286.699
Margen bruto	%	46%	46%	46%	46%	46%	46%
Utilidad operacional (UAI)	USD	(1.168.024)	690.723	730.775	778.175	829.091	880.834
Margen operativo	%	-22%	12%	12%	12%	12%	12%
Impuestos sobre la utilidad operacional	USD	(197)	(53.462)	(56.562)	(60.231)	(64.172)	(68.177)
Utilidad operacional después de impuestos	USD	(1.168.024)	637.261	674.213	717.944	764.919	812.658
Depreciación y amortización	USD	67.327	159.709	168.970	179.930	191.703	203.667
Flujo de caja bruto	USD	(1.100.697)	796.970	843.183	897.874	956.622	1.016.325

The free cash flow estimate was made using the method proposed by Jaramillo (2010), which can be seen in Table 4. Thus, the difference between the gross cash flow in VED and USD and the variations in capital investment yield the projected free cash flow, which is shown in Tables 18 and 19.

Table 18. Free cash flows in VED (method i)							
<i>ITEM</i>	<i>Unidad</i>	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Flujo de caja bruto	VED	(27.162.655)	74.262.790	186.207.618	355.810.016	1.002.789.811	2.818.179.670
Variación de capital de trabajo	VED	553.458	(42.741.700)	(103.910.829)	(157.430.460)	(600.547.682)	(1.685.103.892)
Capex de mantenimiento	VED		(22.839.302)	(57.267.604)	(109.428.322)	(308.405.052)	(866.722.854)
Variaciones en la inversión de capital	VED	553.458	(65.581.002)	(161.178.434)	(266.858.782)	(908.952.734)	(2.551.826.746)
Flujo de caja libre	VED	(26.609.196)	8.681.788	25.029.185	88.951.234	93.837.077	266.352.924

Table 19. Free cash flows in dollars (method ii)

ITEM	Unidad	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Flujo de caja bruto	USD	(1.100.697)	796.970	843.183	897.874	956.622	1.016.325
Variación de capital de trabajo	USD	22.427	(458.693)	(470.528)	(397.270)	(572.899)	(607.702)
Capex de mantenimiento	USD	-	(245.106)	(259.318)	(276.138)	(294.206)	(312.568)
Variaciones en la inversión de capital	USD	22.427	(703.799)	(729.846)	(673.409)	(867.105)	(920.270)
Flujo de caja libre	USD	(1.078.269)	93.171	113.337	224.465	89.517	96.055

3.5.4 Discount rate estimate – Weighted Average Cost of Capital (WACC)

To estimate the WACC discount rate, we first calculated the cost of equity (Ks) using the CAPM method adapted for Venezuela, as explained in the methodology. Next, we calculated the cost of debt.

3.5.4.1 Cost of equity (Ks) – CAPM method for Venezuela

First, the unlevered beta of the sector to which similar companies in the United States belong was sought, which according to Damodaran (2023) is 0.75. Subsequently, the risk premium variable was taken from the same source, which is 4.86%, and then the risk-free rate was taken using the yield on 10-year Treasury bonds as an indicator. Another important piece of data was the expected inflation rate in the United States, which, according to figures provided by the International Monetary Fund (IMF), is expected to average 2.08% over the next five years. Finally, country risk was defined according to Damodaran’s estimates (2023). With this data and using Equation 8, the cost of equity (Ks) was obtained, which was converted to bolivars using Equation 4.

3.5.4.2 Cost of debt (Ks)

For the cost of debt, it is known that the highest interest rate applied to loans is 16% (BCV, September 2023); however, the company does not expect to have long-term debt, so this element results in zero. Thus, using Equation 8 described in the methodology, the WACC discount rate in bolivars in Venezuela was calculated for method (i) and the WACC discount rate in dollars for method (ii), obtaining a rate for each year (see Table 20).

Tabla 20. Cuadro resumen de la adaptación del CAPM a Venezuela							
ITEM	Unidad	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Rendimiento libre de riesgo (Rf)	%	4,83%	4,83%	4,83%	4,83%	4,83%	4,83%
Rendimiento de mercado (Rm)	%	9,64%	9,64%	9,64%	9,64%	9,64%	9,64%
WACC nominal USD en EEUU	%	8,43%	8,43%	8,43%	8,43%	8,43%	8,43%
Riesgo país	%	29,82%	29,82%	29,82%	29,82%	29,82%	29,82%
WACC USD en Venezuela	%	38,26%	38,26%	38,26%	38,26%	38,26%	38,26%
Inflación en Venezuela	%	340%	220%	196%	165%	165%	165%
Inflación en Estados Unidos	%	3%	2%	2%	2%	2%	2%
Pasivo/Activo	veces	-	-	-	-	-	-
WACC VED en Venezuela	%	493%	332%	300%	258%	258%	260%

3.5.5 Estimation of the discount rate – Weighted Average Cost of Capital (WACC)

The growth rate ⁹ was estimated using Equation 10, considering the value of sales in dollars to avoid distortions in horizontal sales growth due to the influence of inflation, as observed in the horizontal analysis (see Table 1), resulting in 0.4% for method (ii). Then, applying the same Equation 4, the growth rate in bolivars was estimated for method (i). The result shows that to grow 0.4% in dollar sales, the company has to grow 161% nominally in bolivars. Finally, Equation 2 was used to obtain the residual value in method (i), which was Bs. 706,162,650, and \$254,665 for method (ii), as can be seen in Tables 21 and 22.

Tabla 21. Valor residual de la empresa VED							
ITEM	Unidad	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Tasa de descuento	%	493%	332%	300%	258%	258%	260%
Tasa de descuento acumulada	%		432%	1730%	6199%	22196%	79883%
Tasa de crecimiento de la perpetuidad	%						161%
Flujo de caja libre	VED		8.681.788	25.029.185	88.951.234	93.837.077	266.352.924
Perpetuidad	VED						706.162.650

Tabla 22. Valor residual de la empresa USD							
ITEM	Unidad	sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Tasa de descuento	%	38,26%	38,26%	38,26%	38,26%	38,26%	38,26%
Tasa de descuento acumulada	%		138,26%	191,14%	264,27%	365,36%	505,13%
Tasa de crecimiento de la perpetuidad	%						0,39%
Flujo de caja libre	USD		93.171	113.337	224.465	89.517	96.055
Perpetuidad	USD						254.665

3.5.6 Company value

Applying Equation 1 (discounted cash flow method), the following present values were obtained (see Table 23), which when added together give the value of the company today, in 2023.

Tabla 23. Valor la empresa Productos EFE, S.A., en bolívares							
Descuento de flujo de caja libre, VED							
		sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Tasa de descuento	%	493%	332%	300%	258%	258%	260%
Tasa de descuento acumulada	%		432%	1730%	6199%	22196%	79883%
Tasa de crecimiento de la perpetuidad	%						161%
Flujo de caja libre	VED		8.681.788	25.029.185	88.951.234	93.837.077	266.352.924
Perpetuidad	VED						706.162.650
Flujo de caja libre descontado	VED		2.007.969	1.446.962	1.435.005	422.757	333.427
Perpetuidad descontada	VED						883.991
Valor operativo	VED	6.530.112					
Deuda	VED	-					
Valor económico	VED	6.530.112					
Acciones	acciones	700.000.000					
Valor económico por acción	VED	0,01					
Capitalización de mercado	VED	840.000.000					
Precio por acción	VED	1,20					
Valor del patrimonio	VED	576.133.270					
Valor por acción	VED	0,82					
Valor patrimonial	USD	184.001					
Acciones	acciones	700.000.000					
Valor patrimonial por acción	USD	0,0003					

The discount on free cash flow included the perpetuity calculated in the previous step. This discount yielded an operating value of 6.5 million bolivars as of September 30, 2023, which, when discounted by zero debt, resulted in an equivalent equity value. This value was 0.01 bolivars per share, for a total of 700 million shares issued, which was compared to a value of 1.2 bolivars per share in the Productos Efe, S.A. share price at the close of September 29, 2023. This value was also lower than the equity value according to the Financial Statements at the end of fiscal year 2023, equivalent to 576 million bolivars.

To obtain the value of the company in dollars (see Table 24), the free cash flow in bolivars was estimated, converted, and discounted in dollars; the cost of equity in nominal dollars was used to discount the projected cash flows in bolivars converted to dollars according to the projected exchange rate, resulting in an operating value of \$305,555 as of September 30, 2023, which, when discounted by zero debt, resulted in an equivalent equity value. This value was \$0.0004 per share, for a total of 700 million shares issued, which was compared to a value of \$0.03 per share in the Productos Efe, S.A. share price at the close of September 29, 2023.

This value was also lower than the equity value according to the Financial Statements at the end of fiscal year 2023, equivalent to \$16.23 million.

Tabla 24. Valor la empresa Productos EFE, S.A., en dólares							
Descuento de flujo de caja libre, USD							
		sep-23	sep-24	sep-25	sep-26	sep-27	sep-28
Tasa de descuento	%	38%	38%	38%	38%	38%	38%
Tasa de descuento acumulada	%		138%	191%	264%	365%	505%
Tasa de crecimiento de la perpetuidad	%						0,4%
Flujo de caja libre	USD		93.170,79	113.336,84	224.465,24	89.516,89	96.055,30
Perpetuidad	USD						254.664,62
Flujo de caja libre descontado	USD		67.390,53	59.293,80	84.938,85	24.500,86	19.015,90
Perpetuidad descontada	USD						50.415,50
	USD						
Valor operativo	USD		305.555				
Deuda	USD		0				
Valor económico	USD		305.555				
Acciones	USD		700.000.000				
Valor económico por acción	USD		0,0004				
Capitalización de mercado	USD		23.668.906				
Precio por acción	USD		0,03				
Valor del patrimonio	USD		16.233.862				
Valor por acción	USD		0,02				

When comparing the values obtained (see Table 25) using method (i) -in local currency (bolivars)- and method (ii) -foreign currency (US dollars)-, it can be seen that the difference between the two values is immaterial, as the company has average sales results of more than \$4 million.

Table 25. Comparison of results obtained according to methods (i) and (ii) in USD	
Company value method (i) USD*	Company value method (ii) USD
189,689	305,555
Difference	
115,867	
Average sales in USD (Sept. 2018 to Sept. 2023)	
4,222,927.26	
Materiality	
3	

*Bolivars to USD using the closing rate for Sept. 2023 TC Bs./\$ 34.43

4. Discussion of results

In applying the proposed model, the first problem to be solved was the lack of publication of figures or estimates of the main macroeconomic indicators by government agencies such as the BCV, which made it necessary to resort to data published by internationally recognized entities or private national economic and financial consulting firms. A similar obstacle was the difficulty in obtaining the market values used by the CAPM model to calculate the cost of capital, necessary to obtain the WACC discount rate. In this case, the solution adopted was the comparable technique contained in the CAPM model proposed by Garay and González (2015) for the Venezuelan economy, which consists of identifying companies similar to the company being valued with shares listed on developed capital markets, generally companies listed on the US Stock Exchange that operate in the same industrial sector, and then adjusting the result according to inflation and the country risk of the market in which the company being valued is located.

Based on the DFC method, the methodology designed was mainly based on projected financial statement information, which was the result of a process full of assumptions based on historical information contained in the financial statements for the periods studied. The analysis of the environment played a very important role in establishing these assumptions, in order to identify the opportunities and limitations faced by the company and the macroeconomic variables that influenced its performance, which made it possible to construct a realistic projection of the company's future situation. In the case study, the price and quantity assumptions (average price per category and tons sold) were linked to GDP growth and the exchange rate, respectively. Other assumptions were determined based on experience and logic, as was the case with setting prices in dollars and taking into account inflation in the United States, which was done to counteract the effects of inflation and the instability of the national currency. This way of establishing assumptions corroborates what has been stated by authors cited in the theoretical references of this study (López and De Luna, 2001; Fernández, 2008; Álvarez et al., 2017), in that company valuation is an exercise in common sense based on technical and reasonable assumptions.

On the other hand, when applying the DCF method in local currency (bolívar) and foreign currency (US dollar), the proposed methodology showed that both methods lead to very similar results when the cost of capital in local currency (bolívares) is adjusted for differential inflation, demonstrating the logical consistency of the methodology when estimating nominal cash flows taking into account weighted average prices by category, applying annual growth corresponding to inflation in US dollars, thus capturing expected inflation. The proposed valuation methodology, which adapts the CAPM model for emerging markets, contains many controversial aspects that are the subject of debate, such as the country risk premium and the use of comparable betas. However, it is proposed as a solution to address the absence of market values and the lack of information on macroeconomic variables from official bodies. Valuing companies in inflationary contexts is a complex task due to the uncertainty associated

with the entire process and the uncertainty of economic and financial projections. However, with technique, reasonableness, and analysis of the environment and its impact on the company, sufficient support can be obtained to arrive at a reasonable value.

5. Conclusions

Company valuation is a complex and multidisciplinary process that requires the theoretical and technical knowledge necessary to approximate a range of data within which a company's value lies. There are different methods for calculating this value, each with its advantages and disadvantages, but when used properly, they can yield a reliable estimate. This valuation process will depend on the economic context in which it is carried out, as it is not the same to value a business in a stable economy as it is to do so in an inflationary context in which the effects of inflation, as the main macroeconomic variable, impact not only the economy as a whole but also business activity by affecting income, cost structures, sources of financing, and cash flows.

This study proposes a methodology for assessing the economic and financial performance of companies in an inflationary context, using as a case study the company Productos Efe, S.A., a company that operates in a high-inflation economy such as Venezuela's. This proposal is justified by the need to provide a technical tool with which it is possible to carry out an adequate valuation of the business, taking into account the economic and financial variables that surround it. In this sense, the model developed seeks to present a logical sequence of valuation using the Discounted Cash Flow (DCF) method, in local currency (bolivar) and foreign currency (US dollar), and using the model developed by Garay and González (2015) for the Venezuelan case, in which certain variables used by the traditional CAPM are not possible to estimate. In applying this methodology, the following should be noted:

- 1) The valuation of companies is a subjective process, in that common sense is present when establishing the different assumptions on which the cash flow projections will be based, which will ultimately reveal the future income expectations that are expected to be achieved by the company.
- 2) When projecting cash flows, there must be consistency, since if nominal flows are projected, the cost of capital must be nominal, and if flows are projected in constant currency, a real cost of capital must be used. In this sense, nominal flows were proposed as a methodology, since they require forecasts of quantities and price trends to be established.
- 3) The choice of discount rate is one of the most critical and controversial points in the application of the methodology due to the uncertainty that exists in the estimation of factors such as country risk and country risk premium; any variation will affect the value of the business.

- 4) The discount rate must be applied consistently, in the sense that if variations in the inflation rate, exchange rate, etc. are applied, individual estimates of the discount rate must also be made for each fiscal year of the company.
- 5) On the other hand, the proposed methodology shows that when applying the DCF method in local currency (bolivar) and foreign currency (US dollar), both methods lead to very similar results when the cost of capital in local currency (bolivars) is adjusted for differential inflation; demonstrating the logical consistency of the model when estimating nominal cash flows taking into account weighted average prices by category, applying an annual growth rate corresponding to inflation in US dollars, thus capturing expected inflation.

The calculated value of the company was Bs. 6,530,112, with free cash flow being the determining factor for this value. The company's gross profit fell during 2019 and 2020 as a result of the electrical problems in Venezuela and the global pandemic, but it has shown a recovery through a slight increase in its gross margins. However, although operating margins have increased, they have not returned to positive territory, so the company must maintain better control of its costs and expenses in order to have short-term coverage and liquidity that allows it to guarantee the operational continuity of its processes and cover its working capital without incurring excessive debt with third parties, given the uncertain context of the crisis.

The contribution of this study is to provide a technical tool with which it is possible to carry out an adequate valuation of companies in inflationary contexts, characterized by the difficulty of accessing economic and financial information and accurate data on the profitability of companies or a comparable company. In this way, the proposed methodology allows for consideration of the different macroeconomic variables to which the company is exposed in the face of the economic and financial effects generated by the crisis, thus enabling the construction of scenarios in which it could find itself in the future.

6. Recommendations and limitations

The free cash flow method discounted at the weighted average cost of capital (WACC) was used to value the company, as it was considered the most appropriate method for valuing companies in high inflation contexts, since it allows for the estimation of the different macroeconomic variables to which the company is exposed in the face of the economic and financial effects generated by the crisis. However, it would be very interesting to compare the results obtained in the application of the proposed methodology with the use of stochastic company valuation methods such as real options.

Likewise, for the purposes of comparing the results obtained in this study, it is recommended that the proposed methodology be applied in companies in the same sector as the company evaluated here and in other sectors. Similarly, it is suggested as a proposal

for future research to extend the scope of studies of this type to companies where an internal analysis of the entity can be carried out, thereby gaining a better understanding of its processes and obtaining key information about it, so that the estimates made are more accurate. Finally, in order to determine the value of the company in different scenarios (pessimistic, moderate, and optimistic), it is recommended that the application of the proposed methodology be expanded through a sensitivity analysis.

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