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Investment, innovation and sustainability: an economic and financial analysis in pandemic times at Suzano Papel e Celulose

Inversión, innovación y sostenibilidad: un análisis económico y financiero en tiempos de pandemia en Suzano Papel e Celulosa

Investimento, inovação e sustentabilidade: uma análise econômico-financeira em tempos pandêmicos na Suzano Papel e Celulose

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Abstract

Purpose: The present teaching case intend to encourage the discussion of company valuation techniques and their contributions to choices regarding stock investment. Through the teaching case, students will be able to apply valuation techniques and discuss the assumptions that are fundamental to the applicability of valuation methods.

Methodology: The methodology of the aforementioned case is quantitative, since, based on valuation models, the students will assess and analyze the data of the company to apply the best assessment technique of Finance Theory. Through valuation, students will be able to find different results given the assumptions determined for the analysis of the company.

Results: Based on the data, it is possible to make inferences and financial projections of the analyzed company and discuss the use of the best technique, as well as the feasibility of investing (or not) in the company.

Contributions: It is expected that the aforementioned teaching case will be an instrument for the applicability of valuation techniques in other companies and complement teaching in graduate and postgraduate courses in related disciplines to Finance and capital markets.

Keywords: Covid-19 pandemic; Suzano S.A.; Economic-Financial Situation. Valuation.

Resumen

Objetivo: El presente caso tiene por objeto enseñar pero fomentar la discusión de las técnicas de valoración de empresas y sus contribuciones a las opciones relativas a la inversión en acciones. A través de caso didáctico, los alumnos podrán aplicar técnicas de valoración y discutir los supuestos que son fundamentales para la aplicabilidad de las metodologías de valoración.

Metodología: La metodología del caso mencionado es cuantitativa, ya que, a partir de modelos de evaluación empresarial, los alumnos evaluarán y analizarán los datos de las propuestas de la empresa para aplicar la mejor técnica de evaluación sobre la ética de la teoría financiera. A través de la valoración, los estudiantes podrán encontrar diferentes resultados dados los supuestos determinados para el análisis de la empresa.

Resultados: Con base en los datos, es posible hacer inferencias y proyecciones financieras de la empresa analizada y discutir la mejor técnica a ser utilizada, así como la factibilidad de invertir (o no) en la empresa analizada.

Contribuciones: Se espera que el citado caso de enseñanza sea un instrumento para la aplicabilidad de las técnicas de valoración en otras empresas y complemente la docencia en cursos de pregrado y posgrado en disciplinas relacionadas con finanzas y mercado de capitales.

Palabras clave: Pandemia de COVID-19; Suzano S.A.; Situación Económico-Financiera. Valuación.

Resumo

Objetivo: O presente caso para ensino objetiva fomentar a discussão de técnicas de avaliação de empresas e suas contribuições para as escolhas quanto ao investimento em ações. Por meio do caso para ensino, os discentes poderão aplicar técnicas de *valuation* e discutir as premissas que são fundamentais para a aplicabilidade das metodologias de avaliação.

Metodologia: A metodologia do referido caso é quantitativa, pois a partir de modelos de avaliação de empresas os discentes avaliarão e analisarão os dados da empresa proposta para aplicarem a melhor técnica de avaliação sob a ótica da Teoria das Finanças. Mediante o *valuation*, os alunos poderão encontrar resultados distintos diante das premissas determinadas para a análise da empresa.

Resultados: Com base nos dados é possível realizar inferências e projeções financeiras da empresa analisada e discutir a melhor técnica a ser utilizada, bem como a viabilidade de se realizar investimento (ou não) na empresa analisada.

Contribuições: Espera-se que o referido caso para ensino seja um instrumento de aplicabilidade de técnicas de avaliação em outras empresas e complemente o ensino nos cursos de graduação e pós-graduação em disciplinas relacionadas a finanças e mercado de capitais.

Palavras-Chave: Pandemia do Covid-19; Suzano S.A.; Situação Econômico-Financeira. *Valuation*.

Part I – The case

1. Introduction – The company

Suzano Papel e Celulose Corporation is a publicly traded company operating in the pulp, paper, biotechnology and renewable energy business segments. With almost 100 years of existence and operating in more than 60 countries, the organization carries the brand of sustainable development. The company itself currently has a discourse that innovation and sustainability must go together (Suzano, 2021).

Since the merger with Fibria, Suzano has become the world's largest pulp producer, with a current average production capacity of 600,000 tons/year of pulp and 560,000 tons/year of paper for different uses. In Brazil, the company has six industrial units, in addition to its administrative headquarters located in São Paulo, and a forestry base whose area is distributed among the states of: São Paulo, Minas Gerais, Espírito Santo, Bahia, Piauí, Tocantins and Maranhão. Sustainable management is executed in all its cultivation areas, and the use of programs aimed at stimulating the supply of raw materials by local producers. Abroad, it has business offices in several countries, such as China and the United States (Suzano, 2021).

The company is a regional leader in the paper market and the second largest producer of eucalyptus pulp in the world, with the mission of offering products (paper and pulp) based on renewable forests. In addition, Suzano's vision is always to be among the largest and most profitable forest-based companies in the world, with one of the lowest pulp production costs in the world. Moreover, the company stands out in South America in terms of the distribution of paper and graphic products (Suzano, 2021). The company's main values are shown in Figure 1:

Figure 1 *Suzano's Values*
Source: *Adapted from Suzano (2021).*

On the Brazilian stock exchange (Brasil, Bolsa, Balcão - B^3), the company's shares are listed on the Novo Mercado and, in 2020, its capital was represented by 1,361,263,584 shares (54.1% in circulation), integrating the Ibovespa and IBrX -50 indices. Registered in CVM since 1992 and audited by *PricewaterhouseCoopers* - PWC since 2016, it is currently managed by Walter Schalka, CEO of the company. The company's board of directors has the participation of members of the founding family and the current chairman of the Board is David Feffer (Brasil, Bolsa, Balcão, 2021). The company's main competitors are Klabin, Irani, International *Paper* APPM and Finch *Paper*, with Klabin being the market leader in the category, Suzano is currently in second place (Suzano, 2021).

In 2019, Suzano's paid-in capital was in the equivalent of BRL 9,269,281,424.63. Until September/2021, most of the shares were in the control of Suzano *Holding* S.A., with 27%, followed by David Feffer, other members of the Feffer family and other shareholders, totalizing 45.7% of common shares with voting rights (Brasil, Bolsa, Balcão – B³, 2021). Still reported on Brasil, Bolsa, Balcão website (2021), the rest of the shares are segregated into Treasury Shares (0.9%) and distributed among other shareholders (53.4%), which are mostly legal entities (66%) and located in foreign markets, the company's total shares in reais represent R$ 1,361,263,584 (100% of the shares).

Among the main strengths of the corporation, the following stand out: vertically integrated operations and low production costs; FuturaGene, an owned subsidiary of Suzano, does research and genetic development of plants for global markets in the sectors of renewable forest plantations, biofuels, biochemicals and biomaterials; continuous investment in research and development of new products and applications to meet the needs of its customers; diversified products and markets with solid generation of operating cash; diversified and complementary product portfolio; high socio-environmental standards; experienced management team focused on value creation; financial policies focused on mitigating liquidity risks, among others (Suzano, 2021).

2. The Case

2.1 Economic and Financial Situation

Suzano has produced growth in its net operating revenue over the last five years, as shown in Figure 2. This increase is justified because the company has a substantial part of its net revenue from exports using the dollar price as a reference. It is known that revenue is one of the main value drivers for a company.

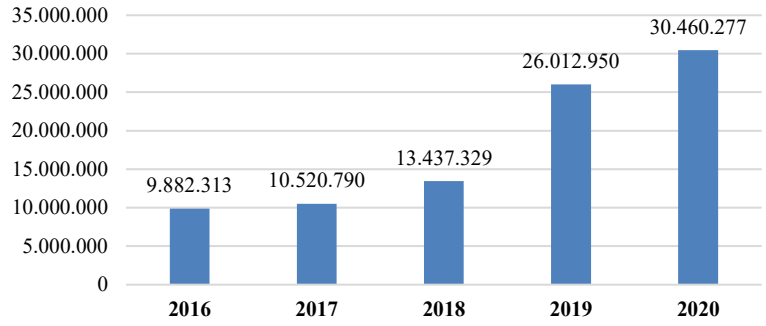

Figure 2 *Suzano's net operating revenue between 2016 and 2020 (in R$ thousands)*
Source: *Survey data (2021).*

Considering the increase in net operating revenue, the net result did not follow this evolution, as it has fallen in recent years, as shown in Figure 3. Thus, from 2019 onwards, it is possible to verify that the company begins to present losses, persisting in 2020. According to financial statements, it is possible to infer that this loss arises from the negative net financial result, originating mainly from the increase in expenses with monetary and exchange variations and negative result with derivatives (real/dollar exchange rate devaluation impacts and high volatility on *hedge* operations and cash flow). In 2020, based on the unusual nature of the Covid-19 health crisis, there was a negative impact on the real currency, due to problems in global economies and risk aversion.

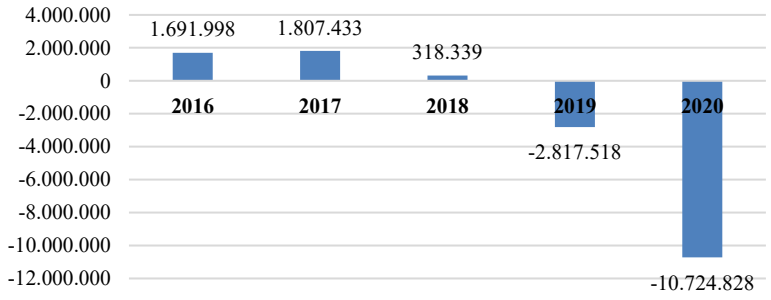

Figure 3 *Suzano's net income between 2016 and 2020 (in R$ thousands)*
Source: *Survey data (2021).*

The company's operating margin (in %), an indicator of operating performance, is not constant, varying over time. This is because, up to the operating result, there are values for net revenue (where exchange rate variation occurs because of the international market), cost of products sold (still high in the pulp and paper segments, in relation to net revenue) and operating expenses with sales, general and administrative parts (almost 25% of the gross profit in 2020),

which all contributes to the reduction of the indicator. Thus, Table 1 presents the operating margin data, *Earnings Before Interest and Taxes* (EBIT), in the last five years.

Table 1
Operating margin EBIT Suzano – in % (2016 to 2021)

Date	Operating Margin - EBIT (%)
2016	13.33
2017	30.97
2018	37.25
2019	10.10
2020	27.72

Source: *Survey data (2021).*

The capital structure is another fundamental point in the valuation of companies, mainly to infer and weight the burden of the cost of capital. Suzano's indebtedness is mostly long-term, considering both domestic and foreign currencies. At the end of 2020, the company had gross debt with 97% of maturities in the long term and only 3% in the short term. In terms of exchange rate, 80% of this debt is in foreign currency and 20% in domestic currency. This may present a risk for the organization, but when looking at its net operating cash generation, predominantly in dollars, as it is an exporter, it is clear that contracting this debt as a hedge is not entirely a problem. According to information contained in the 2020's standardized financial statement, Suzano manages to combine the payment of its debts in dollars with the sales receipts flow, also in dollars.

On the investor side, the company reported losses in 2019 and 2020, not distributing dividends in these periods. In the share price, Suzano closed on 08/19/2021 with a price of BRL 55.68. Also considering the price of common share SUZB3 (the only type owned by Suzano) and the traded volume, between 2020 and 2021 (until 08/16/2021), we have the volatility in Figure 4.

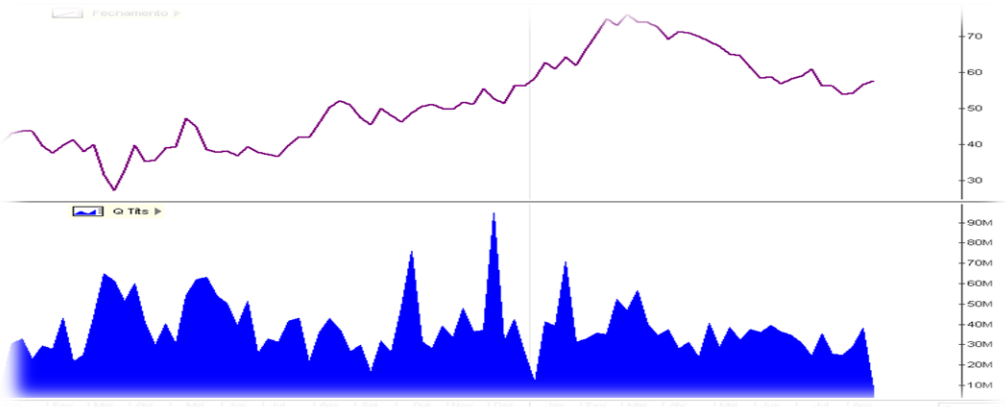

Figure 4 *Closing Price and Traded Volume Ratio between 2020 and 2021 (in BRL)*
Source: *Survey data (2021).*

On March/2020, because of the Covid-19 crisis and, the consequent panic in the capital market, with high volatility, the shares had a drop in their closing unit value. Thus, the stock went to its lowest level on the chart between 2020 and 2021.

For the reason of global social isolation measures, demand for paper (printing and writing) was reduced and pulp prices reached the lowest level in the last ten years. The company

temporarily stopped its production on the paper lines during this period, at the Mucuri and Rio Verde factories, later retaking on July/2020. Added to this, there is still the current effect of the currency devaluation.

Already in 2021, the company's shares began to fall from March 2021. According to the Money Times website (2021), the situation occurs due to the change in pulp sales, exporting more to Europe than to China, which is the main buyer, but which has been maintaining its business with the company in a slow way, without major investments.

Even with the successive declines in the value of the dollar and pulp, Suzano has part of its revenue in dollars, which ensures extra protection for investors, considering the fiscal scenario and the domestic market in Brazil. Moreover, recently, it managed to reverse the losses to a profit of 10 billion in the second quarter of 2021, driven by the 23% increase in net revenue (Valor Econômico, 2021).

The indicators linked (mainly) to the profitability of the invested capital allow an evaluation of the profits in relation to the accomplished investments. In this regard, it was observed that the company's Return on Equity presented very volatile responses in the last 05 (five) years, with a positive highlight for the year 2017 and a negative one in 2020. The justification for the reduction of this return in 2020 was through the public health crisis caused by COVID-19, which promoted a reduction in the consumption of products sold by the company. About the comparison with the sector, the company presented low responses compared to the sector average in the years 2018 and 2019 (Instituto Assaf Neto, 2021). Figure 5 shows the evolution of *Return on Equity* (ROE).

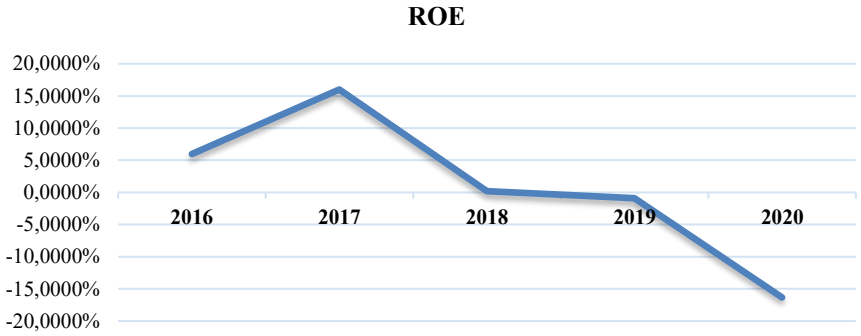

Figure 5 *ROE's evolution between the years 2016 to 2020.*
Source: *Research data (2021)*

As for efficiency in the use of equity to generate revenue, Suzano presented relevant rates in the years when it had the lowest net income, highlighting the years 2019 and 2020. Operating activities in the years 2016 to 2017 exposed an average operating efficiency of 7.08%, the following years showed a decline in the response of this turnover to operating profit. This reduction is mainly due to the increase in production costs (the exchange rate rise and sales expenses). Figure 6 shows the evolution of the operating return on net income determined by the *Return On Investment* (ROI) over the last 05 years.

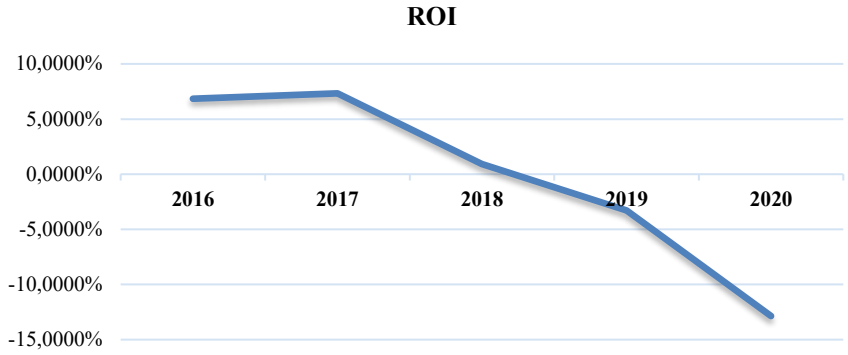

Figure 6 *ROI's evolution between the years 2016 to 2020.*
Source: *Survey data (2021).*

Due to its industrial nature, it is normal for the company to present significant immobilization capital indicators, the index in 2020 showed a significant increase, as the base (net equity) was reduced in view of the losses incurred in 2019 and 2020.

The operating leverage indicators were significant in terms of the use of third-party capital to business financing, especially in the year 2020 based on Figure 7.

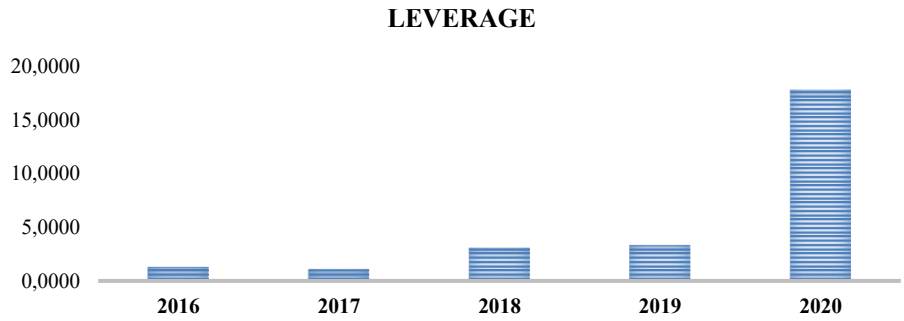

Figure 7 *Operating leverage's evolution between the years 2016 to 2020.*
Source: *Survey data (2021).*

However, it is necessary to point out that, as the basis used was the net equity, the loss years were more significant in relation to this indicator, which would require a complementary assessment. There is also a satisfactory relationship between equity capital and the ability to contribute to remuneration of capital paid to third parties.

When using the accounting valuation method, it is possible to verify that Suzano S.A. has a large variation in its book value. The company's book values rise from 2017 to 2019 and show a drop of more than 50% from 2019 to 2020. From the end of the second quarter of 2021 (06/30/2021), there is an increase in book value, close to 50%. The variations faced in its book equity value are related to the profits of these last years and the use of its Shareholders' Equity reserves, not least because it does not show accumulated profits from 2016 to 2019 and in 2020 it showed a loss.

Using the market value assessment method, from 2017 to 2020 it is possible to see a rise in this value, with 2020 presenting a market value three times greater than that found in 2017. Within 2021, there was an increase in the market value, following a decline at the end of the first half of the year. As the market valuation considers the value and number of shares and as

Suzano S.A. has shown an evolution in the share unit value since 2017, the market value is justified by this, since there has been no increase in the number of shares since 2019 end.

About comparing the two valuations (accounting and market value), there is a huge discrepancy between the two values. The market value remains much higher than the book value in all years. Using the *market-to-book index* to explain what happens to the company, we have the following: Suzano has a high *market-to-book* (or low *book-to-market*, which is the opposite), showing that your stock is overvalued in the market (stock trading at a higher price than its book value). Thus, the capital market understands that the company is worth more than what the Accounting indicates in its statements, that is, it is valuing something that is not being captured by the Accounting. The market ends up understanding that Suzano S.A. will be generating higher abnormal results for the coming periods.

2.2 Discount rates, risk and cost of capital

Before the applicability of valuation methodologies, it is necessary to evaluate the best rate using different models to capture the best risk and its impact on the cost of capital (Pereiro, 2002). In addition, it is important to know the environment in which the company operates.

Among the most used discount rates based on the literature, there is the Weighted Average Capital Cost - WACC, which corresponds to an average rate of risks assumed by equity investors in the company. This rate enables to evaluate assets based on their Free Cash Flow, as the rate covers not only the risk linked to these assets, but different financing compositions (Martins, Carvalho & Assaf Neto, 2008). The WACC formula is composed of the opportunity cost of equity capital, the explicit cost of the creditor and the proportion (structure) of invested equity and third-party capital (Cunha, Assaf Neto & Martins, 2018).

The Cost of Debt (K_d) is defined according to the onerous liabilities identified in loans and financing, including debentures and leasing held by the company (Assaf Neto, Lima & Araújo, 2008). Based on this explicit cost invested by creditors, remuneration is required for its maintenance, and the paid interest must be analyzed and verified, as this can erode the company's working capital and profitability. In defining the best model to capture K_d, the following models were adopted for verification, described in Table 2.

Table 2

Third-Party Capital Calculation Models

Model	Formula
Assaf Neto, Lima & Araujo (2008)	$Kd_{after\ IR} = \frac{DF(1-T)}{PO}$
Damodaran 1 (2006)	$Kd_{after\ IR} = Rf_{US} + S_{DP} + S_{DE}$
Damodaran 2 (2006)	$Kd_{after\ IR} = (Rf + S_D)\ x\ (1-T)$
Assaf Neto, Lima & Araujo (2008)	$Kd_{after\ IR} = (PR_{US} + \alpha_{BR})\ x\ (1-T)$

Source: *Survey data (2021).*

In line with the previous argument, there is also the Cost of Equity ($K_{e)}$, in determining the discount rate. Among the most used methodology is the *Capital Asset Pricing Model* – CAPM. This model is able to implicitly estimate the K_e, and the assumptions that guide this methodology are based on the Market Efficiency Hypothesis and asset portfolio diversification (Pereiro, 2002). For Assaf Neto (2014) there are several models for simulation.

Table 3

Cost of Equity calculating models

Theoretical basis of the Model	Formula
Pereiro (2002)	$Ke = Rf + \beta\ x\ (Rm - Rf)$
Cunha, Assaf Neto & Martins (2018)	$Ke = Rf + \beta(Rm - Rf) + \alpha_{BR}$
Damodaran (2006)	$Ke = Rf_{US} + R_{CY} + \beta_{LL}(RM_{US} - Rf_{US})$

Source: *Survey data (2021).*

Described K_d and K_e models, the rates were simulated considering the most attractive for the company and among the simulated combinations[1], the defined models were: Damodaran 2 (2006) for estimating K_d and Cunha, Assaf Neto and Martins (2018) for determination of K_e. The model chosen for K_d was determined according to Table 4.

Table 4

Model Damodaran 2 (2006)

Cost of Debt – Kd	Rates	Assumptions/Source
USA risk free interest rate	0.93%	T-Bond 10 years (Assaf Neto Institute)
Default risk assessed company	5.94%	Rating Fitch BBB - (Damodaran Table Reference)
Cost of Debt before taxes	6.87%	
(1- Marginal income tax rate)	0.66	The country's nominal rate was used (34%) - The effective rate for this period was greater than 34% according to NE.
Cost of Debt after-tax	4.53%	
US forecast inflation	1.36%	CPI/USA (Assaf Neto Institute)
Brazil forecast inflation	4.52%	IPCA (Assaf Neto Institute)
Cost of debt after taxes in BRL	**7.79%**	

Source: *Survey data (2021).*

The model considered the risk-free rate, the company's default risk and the tax benefit associated with net debt. The assumptions account the latest data released in 2020 and the values were adjusted considering national and American inflation. It is interesting to make such an adjustment, as Suzano operates significantly with foreign exchange. Table 5 shows the calculation of K_e by the model by Cunha, Assaf Neto & Martins (2018).

Table 5

Cunha, Assaf Neto & Martins's Model (2018)

Cost of Equity – Ke	Rates	Assumptions/Source
Risk-free interest rate (Rf)	0.93%	T-Bond 10 years (Assaf Neto Institute)
β (beta leveraged by capital structure)	3.319392876	Base Damodaran (Emerging countries sector)
Market risk (Rm)	2.92%	IBOVESPA Index (Assaf Neto Institute)
Market risk premium (Rm - Rf)	1.99%	
Country risk (αBR)	3.22%	
Ke = Rf+ βx(Rm-Rf)+ (αBR)	**10.76%**	
US forecast inflation	1.36%	CPI/USA (Assaf Neto Institute)
Brazil forecast inflation	4.52%	IPCA (Assaf Neto Institute)
Cost of Equity in BRL	**14.21%**	

Source: *Survey data (2021*).

[1]The information can be found in the attached spreadsheets.

The exposed model considered as assumptions the remuneration rates of the North American government bond, the average of the betas of the companies of the sector, the historical average of movements of the local market and the country risk. In calculating the beta, the sector coefficient was obtained by *benchmark* and, to leverage it, the K_d's effect, the debt risk and the current structure of the company in 2020 were used. The leveraged beta was measured according to Table 6.

Table 6
Leveraged Beta Measurement

Considered items	Values	Description
Unlevered Beta	0.736551674	Damodaran Base (Emerging countries sector)
IR/CSLL (Federal Taxes)	34%	Nominal
Debts	BRL 73,050,898.92	Onerous Liabilities
PL	BRL 13,746,017.62	Consolidated
Leveraged Beta	**3.319392876**	**β *[1+(1-,34)*(D/PL)]**

Source: *Survey data (2021).*

It should be noted that both the Beta and WACC calculations did not use the target structure, but the existing framework in the year 2020. The WACC rate was determined as shown in Table 7.

Table 7
WACC Measurement

Description	Values in %
A - Cost of debt after taxes	7.79%
B - Third Party Capital Cost Proportion	84.16%
(A x B) Total obtained	6.56%
C - Cost of Equity in BRL	14.21%
D - Cost of Equity Ratio	15.84%
(C x D) Total obtained	2.25 %
(Sum of totals obtained) WACC	**8.81%**

Source: *Research data (2021).*

After defining the 2020 WACC, long-term rate projections were made based on the same assumptions adopted in K_d and K_e. After the projections, the discount rates presented the values expressed in Table 8.

Table 8
WACC projections

Description	2020	2021	2022	2023	2024	2025
Cost of Debt - K_d	6.56%	8.52%	6.05%	4.90%	4.67%	5.29%
Cost of Equity - K_e	2.25%	2.64%	2.15%	1.92%	1.87%	2.00%
Projected WACC	**8.81%**	**11.16%**	**8.19%**	**6.82%**	**6.54%**	**7.29%**

Source: *Survey data (2021).*

The assumptions were designed taking into account the risks and data from the Brazilian Focus Bulletin and the Federal Reserve. Given the economic instability, some information was not projected and the geometric mean of historical data was considered for the measurement.

2.3 Discounted Cash Flow - DCF

This methodology allows assessing the present value of expected economic cash flows from the perspective of constant growth expectations, taking into account the associated risks (Damodaran, 2006). Galdi, Lopes and Teixeira (2008) point out that this method is based on the concept that currency has a different value in the long term. The main stages of this procedure are the projection of future cash flows, definition of the company's maturity, its perpetuity, as well as the cost of capital to be used (Assaf Neto, 2021). The assumptions made for calculating the company's DCF are described in Table 9.

Table 9
DFC Items

Variables	Adopted Assumptions
Revenue	Regression.
EBIT	Geometric average of the EBIT margin for the years 2018 to 2020
Costs and expenses	Costs 85% and Expenses 15%
Income Tax – IR	29.04%
Depreciation	6.4949% - Depreciation rate on projected fixed assets
Reinvestment (Capital Expenditure - CAPEX and Working Capital Necessity - NCG)	Based on information from the 2021 company reference form
WACC	8% - Geometric average for the projected WACC for the next few years
Perpetuity	Annual growth rate – 1.91% (GDP growth geometric mean).

Source: *Survey data (2021).*

In determining the estimated revenue values in the DCF, a correlation was obtained through multiple linear regression between revenue, exchange rate, trade balance and GDP for the period between 2010 and 2020. In determining the EBIT, only the period between 2018 and 2020 was considered, because, in 2018, Suzano purchased Fibria and its structure was incorporated in that period. As it is a significant acquisition, costs and expenses also changed, especially in 2019 and 2020. Thus, the assumption related to EBIT was calculated using the geometric mean of Suzano's historical data.

In calculating costs and expenses, revenue data and the difference in projected EBIT were considered, reaching an estimate of 85% for costs and 15% for expenses. The calculation of the tax on profits was obtained through the historic between the years 2016 to 2020, excluding the year 2018 because it presented a financial loss, and the geometric mean was applied, reaching the value shown in Table 9.

Before calculating the projected depreciation, the values of fixed assets for the next 05 years were obtained. The long-term budgeted depreciation rate was found through the historic and applied to the geometric average of the last 03 years (from 2018 to 2020), since it was in 2018, after the acquisition of Fibria, that the company had a significant increase in its fixed assets. With the average depreciation rate in hand, it was applied to the projected fixed asset values, thus obtaining the projected DCF depreciation.

For the calculation of reinvestment (including CAPEX and NCG), the assumed assumption used 2020 as a parameter, as it was during this period that Suzano completed the entire Fibria acquisition process. This report was evidenced based on the perceptions of the company's reference form and market news. Suzano's 2021 reference form describes that:

"Globally, there are no confirmed capacity increase projects until 2021, therefore, **nominal capacity growth is expected to be insignificant between 2020-2021** compared to previous years, and with capacity growth in 2020 should occur only due to the *ramp-up* of existing projects and debottlenecking projects". Still on this premise, its calculation considered the reinvestment rate, ROI and the long-term growth *g* rate.

As previously explained, for the projection and calculation of projected explicit values and perpetuity, the WACC rate presented a geometric mean of 8%. Figure 8 demonstrates the company's projected WACC values.

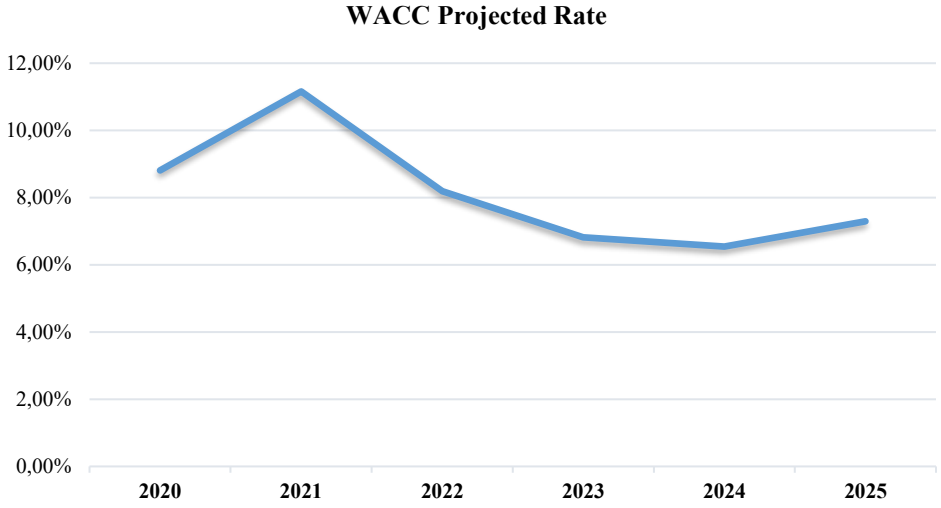

Figure 8 *Projected WACC*
Source: *Survey data (2021).*

The perpetuity value was obtained considering the geometric mean of the WACC as the discount rate and the geometric mean of the projected GDP as the current growth rate, which was 1.91%. Martins (2001) adds that the perpetuity of the company is related to its value generation after the current explicit projection period. In the case of Suzano, a period of 5 years was established for the valuation. After calculations and assumptions adopted, Table 10 expresses the company's cash flow values.

Table 10

Discounted Cash Flow Method - Projected from 2021 to 2025 (in thousands of Reais - BRL)

Description	2021	2022	2023	2024	2025
(=) Net revenue from sales and/or services	37,648,598.01	39,451,965.85	38,087,966.88	38,913,348.16	40,918,086.03
(-) Cost of Product Sold	25,008,393.79	26,206,295.85	25,300,248.22	25,848,514.58	27,180,178.36
(=) Gross Profit	12,640,204.22	13,245,670.00	12,787,718.67	13,064,833.58	13,737,907.68
(-) Operational expenses	4,413,245.96	4,624,640.44	4,464,749.69	4,561,502.57	4,796,502.06
(=) EBIT	8,226,958.25	8,621,029.55	8,322,968.98	8,503,331.01	8,941,405.61
(-) IR (29%)	2,389,517.66	2,503,975.55	2,417,403.95	2,469,790.04	2,597,028.69
(=) NOPAT	**5,837,440.60**	**6,117,054.00**	**5,905,565.04**	**6,033,540.96**	**6,344,376.93**
(+) Depreciation, amortization and depletion expenses	4,499,963.74	4,715,512.00	4,552,479.48	4,651,133.51	4,890,750.60
(=) Operating Cash Flow (OCF)	**10,337,404.33**	**10,832,566.00**	**10,458,044.52**	**10,684,674.47**	**11,235,127.53**
(-) Reinvestment (CAPEX and NCG)	3,849,512.76	4,033,904.42	3,894,437.57	3,978,831.57	4,183,813.01
(=) Company's Available Cash Flow (Free Cash Flow)	**6,487,891.58**	**6,798,661.58**	**6,563,606.95**	**6,705,842.90**	**7,051,314.52**

Source: *Survey data (2021).*

It is noticed that, over the 05 years, the Free Cash Flow values are close and trigger growth. The explicit Cash Flow (CF) value is discounted by the WACC, as shown in Table 11.

Table 11

Explicit CF value - projected from 2021 to 2025 (in thousands of Reais - BRL)

WACC		2021	2022	2023	2024	2025
8.00%		6,007,321.15	5,828,783.92	5,210,439.58	4,929,041.09	4,799,062.61
Explicit CF		**26,774,648.36**				

Source: *Survey data (2021).*

With the explicit value of the DCF, the perpetuity after 05 years is calculated, according to Table 12.

Table 12

Suzano's perpetuity after 05 years (in thousands of Reais - BRL)

Annual Growth Rate	1.91%
Current Discount Rate	8.00%
DCF value in period n	7,051,314.52
Perpetuity in the future	**115,879,318.50**
Perpetuity in the present	**78,866,444.51**

Source: *Survey data (2021).*

Using the DCF methodology, in Table 13, the value of the company was obtained considering the discount of net debts.

Table 13
Company Value (in Reais - BRL, except quantity share)

Explicit Values	BRL 26,774,648,355.70
Perpetuity	BRL 78,866,444,511.19
Enterprise Value	**BRL 105,641,092,866.89**
Net Debt	**BRL 69,210,650,202.30**
Equity Value	BRL 36,430,442,664.59
Quantity Shares	1,349,221,580
Value per Share	**BRL 27.00**

Source: *Survey data (2021).*

After the projections, the company obtained a significant value and aligned with its current structure, generating a value of BRL 27.00 per share. The market value per share of the company on 12/02/2021 was BRL 58.00 reais. Such discrepancy in the value of shares obtained by DCF may be to the detriment of Suzano's high investment in fixed and working assets, since, according to the company's accounting notes, it has been investing significantly in these assets, and in the evaluation implied a low Free Cash Flow.

References

Assaf Neto, A., Lima, FG, & de Araújo, AMP (2008). A methodological proposal for calculating the cost of capital in Brazil. *Revista de Administração-RAUSP*, *43* (1), 72-83.

Assaf Neto, A. (2014). *Valuation: value metrics & valuation of companies*. São Paulo: Atlas, vol. 20.

Assaf Neto Institute. (2021). *Indicators and financial statements*. Available at: https://www.institutoassaf.com.br/indicadores-e-demonstracoes-financeiras/nova-metodologia/indicadores-de-desempenho-e-valor-de-balancos/. Accessed on 14 Oct. 2021.

B3 – Brazil, Exchange, Over-the-counter. (2021). *Market Maker – Suzano Papel e Celulose* . São Paulo: B3. Available at: < https://www.b3.com.br/pt_br/produtos-e-servicos/negociacao/formador-de-mercado/renda-variavel/suzano-papel-e-cellulose.htm>. Accessed on: 14 Oct. 2021.

Cunha, MF, Assaf Neto, A., & Martins, E. (2018). Empirical evidence of discount rates in the valuation of companies in Brazil. *Revista Contemporânea de Contabilidade* , *15* (34), 21-41.

Damodaran, A. (2006). *Damodaran on valuation: Security analysis for investment and corporate finance*. Wiley finance series.

Martins, VA, Carvalho, LNG, & Assaf Neto, A. (2008). Anatomy of the value of companies. *Journal of Contemporary Administration - RAC*, v. 12, no. 4, p. 1071-1105, Oct-Dec/2008.

Pereiro, LE (2002). *Valuation of companies in emerging markets: a practical approach*. USA: John Wiley & Sons.

Suzano (2021). *Investor Information – Results Center.* Sao Paulo: Suzano. Available at: <https://ri.suzano.com.br/Portuguese/informacoes-financeiras/central-de-resultados/default.aspx>. Accessed on: 15 Aug. 2021.

Valor Econômico (2021). *Suzano goes from loss to profit of R$ 10 billion in the 2nd quarter*. São Paulo: Economic value. Available in: <https://valor.globo.com/empresas/noticia/2021/08/11/suzano-vai-de-prejuizo-a-lucro-de-r-10-bilhoes-no-2o-trimestre.ghtml>. Accessed on: 16 Aug. 2021.

Part II – Teaching Notes

3. Discussion Questions and Answers

a) Based on the literature, evaluating companies in emerging markets is a major challenge, whether due to socioeconomic issues in these countries or even the low market liquidity in some. To minimize valuation risk, some authors recommend the use of more valuation techniques. Based on this argument and considering the Suzano S.A. case, which capital cost model would be most appropriate in the company's valuation?

Answer suggestion:

Despite having business in other countries, Suzano is focused on emerging markets and when it comes to valuation, it becomes a challenge to define an adequate cost of capital in the analysis. In this sense, the application of a traditional model may not be the most appropriate, and it is necessary to apply methods that can capture a better cost of capital in these highly volatile environments, as mentioned by James and Koller (2000) and Pereiro (2002). It is also relevant to consider the integration of financial markets (developed ones) in the valuation, as the use of comparability can become interesting in the valuation and respecting the peculiar issues of each country, according to Assaf Neto, Lima and Araújo (2008); Pereiro (2002); James and Koller (2000). Thus, more than one model should be simulated to define which is the most suitable for the company and to identify the potential risks and how they can be reflected in the cost of capital (Damodaran, 2006; Pereiro, 2002; Estrada, 2002).

b) In the case of Suzano, what are the main techniques that could be used in your valuation? And which is the most suitable?

Answer suggestion:

Company valuation methods aim to evaluate it in order to reach a plausible market value (fair value), so that it represents a balanced potential economic value of the company (Martins, 2001). In addition to the applicability of methodologies to discover this fair value, it is important

to analyze internal and external factors in combination with the results obtained in this assessment. Copeland, Koller and Murrin (2006) argue that, in addition to financial drivers, non-financial aspects that should also be considered in the analysis also influence the company. Thus, Multiples, Discounted Cash Flow (DCF), EVA and MVA, CFROI and TSR, Fama and French Model (03 and 05 factors) could be applied in the analysis.

However, based on the context of the case, the DCF method, widely used in the market, proved more apt to understand the value behavior of the Suzano S.A. Secondarily, the multiples method is also tolerable, since, with easily disclosed information, it is possible to get quickly a relative valuation of the company. Both methods recommend the shares sale, in this analysis carried out at the beginning of 2021, as they consider that the market value is above the company's real capacity to generate value (DCF - value per share: BRL 27.00, Share Value in B^3 on 12/30/2020: BRL 58.54 and 01/29/2021: BRL 62.05).

Finally, the application of the real options model would perhaps be interesting for the Suzano S.A. analysis, given its recent investments in purchases of other companies and the possibility of expanding its industrial plant in the coming years. As the key issue for real options is the flexibility associated with uncertainty and considering the unstable and uncertain Brazilian scenario in which the company finds itself, this other method can generate important information for making investment/project decisions by Suzano S.A.

c) WACC, in the conception of Martins et al. (2008), aims to evaluate assets based on Free Cash Flow, by a rate that depends not only on the risk of these assets, but also on the different possible compositions of their financing form. Considering Suzano's capital structure in calculating this rate, do you consider the target structure to be the most appropriate?

Answer suggestion:

The target structure refers to an established standard to be executed by the company where: 50% corresponds to equity and 50% to third-party capital. However, each company may present a distinct capital structure profile that does not necessarily reach this standard, and depending on the case, using more third-party capital resources becomes more interesting than its own equity. It is noticed that Suzano has a relatively high proportion of use of third-party capital, which was reflected in the calculation of the WACC projections and, consequently, in the other valuation techniques.

d) Cash Flow Return On Investment – CFROI methodology, in the view of Padoveze and Oliveira (2006), "represents an economic metric of a company's performance and seeks to capture the basic average return rates implicit in the company's investment projects". In this context, describe the relevance of this tool in evaluating companies and calculate Suzano's CFROI (considering the last 05 years).

Answer suggestion:

To complement users regarding decisions linked to value creation, there is the Cash Flow Return on Investment – CFROI methodology, which, in the view of Basso, Alves and Nakamura (2002), allows measuring the value generated by Cash Flow Operating adjusted for inflation, making a comparison with the return on investments also adjusted for inflation.

In this sense, it is important to know how the company creates value for shareholders when it obtains a return on invested capital. For CFROI analysis, the literature recommends analyzing historical results and comparing it with a rate, in this case with the WACC. Table 14, below, shows the comparison of the CFROI with the WACC, considering the last 05 years.

From Suzano's perspective, it can be seen that, from the historical data described in Table 14, the company creates value in all years, except for 2017, the year that preceded the Fibria's purchase.

Table 14

CFROI's Measurement (last 05 years)

CFROI	**12/31/2016**	**12/31/2017**	**12/31/2018**	**12/31/2019**	**12/31/2020**
Sustainable Cash Flow	1,388,664	4,089,208	6,787,258	29,146,233	19,731,981
B. Total - gross investment	35,002,255	34,367,305	62,346,728	110,127,305	105,324,331
C. CFROI of the period (A/B)	**3.97%**	**11.90%**	**10.89%**	**26.47%**	**18.73%**
Sustainable Cash Flow	**12/31/2016**	**12/31/2017**	**12/31/2018**	**12/31/2019**	**12/31/2020**
A. Net Operating Income	720,771	3,348,758	5,894,297	4,282,360	16,102,493
B. Yearly Dep.	659,774	716,125	824,377	14,010,000	2,693,769
C. OCF of the period (A+B)	1,380,545	4,064,883	6,718,674	18,292,360	18,796,262
D. Economic depreciation	8,118	24,325	68,584	10,853,873	935,719
(C+D) Sustainable Cash Flow	**1,388,664**	**4,089,208**	**6,787,258**	**29,146,233**	**19,731,981**
Total Gross Investment	**12/31/2016**	**12/31/2017**	**12/31/2018**	**12/31/2019**	**12/31/2020**
A. Fixed Capital Investment (net)	20,072,537	19,439,425	19,843,178	68,988,369	63,506,104
B. Accumulated Depreciation	6,841,752	7,557,877	8,382,254	22,392,254	25,086,023
C. Investment in Working Capital	8,087,967	7,370,003	34,121,296	18,746,683	16,732,204
D. Gross total investment (A+B+C)	**35,002,255**	**34,367,305**	**62,346,728**	**110,127,305**	**105,324,331**
Economic Depreciation	**12/31/2016**	**12/31/2017**	**12/31/2018**	**12/31/2019**	**12/31/2020**
A. Gross Fixed Assets	27,574,063	20,155,550	20,667,555	82,998,369	66,199,873
B. WACC	24.79%	20.96%	18.21%	23.05%	8.81%
C. $(1+WACC)^{t} - 1$	841.92682	173.64961	54.868044	1.7627150	6.2322692
D. Value of t (fixed net/period depreciation)	30	27	24	5	23
E. Economic Depreciation	**8,118**	**24,325**	**68,584**	**10,853,873**	**935,719**

Source: *Survey data (2021).*

In short, by the geometric mean shown in Table 15, the company created value considering its historic.

Table 15
Evaluating projects between CFROI and WACC (last 05 years)

Periods	2016	2017	2018	2019	2020	Average of evaluated periods
CFROI	3.97%	11.90%	10.89%	26.47%	18.73%	14.39%
WACC	24.79%	20.96%	18.21%	23.05%	8.81%	19.16%
Difference	**-20.82%**	**-9.06%**	**-7.32%**	**3.41%**	**9.93%**	**16.61%**
Valuation	**Created value**	**Destroyed value**	**Created value**	**Created value**	**Created value**	**On average, the company created value**

Source: *Survey data (2021).*

As a complement analysis, a CFROI was designed for the next 05 years, as shown in Table 16.

Table 16
CFROI's Measurement (projections for the next 05 years)

CFROI	2021	2022	2023	2024	2025
A. Sustainable Cash Flow	15,383,134	20,534,252	24,918,964	29,891,255	35,365,309
B. Total - gross investment	78,212,957	86,330,290	88,309,762	94,517,870	103,190,300
C. CFROI of the period (A/B)	**19.67%**	**23.79%**	**28.22%**	**31.62%**	**34.27%**
Sustainable Cash Flow	**2021**	**2022**	**2023**	**2024**	**2025**
A. Net Operating Income	5,837,441	6,117,054	5,905,565	6,033,541	6,344,377
B. Yearly Dep.	4,499,964	4,715,512	4,552,479	4,651,134	4,890,751
C. OCF of the period (A+B)	10,337,404	10,832,566	10,458,045	10,684,674	11,235,128
D. Economic dep.	5,045,730	9,701,686	14,460,919	19,206,580	24,130,181
(C+D) Sustainable Cash Flow	**15,383,134**	**20,534,252**	**24,918,964**	**29,891,255**	**35,365,309**
Total Gross Investment	**2021**	**2022**	**2023**	**2024**	**2025**
A. Fixed Capital Investment (net) + Working Capital Investment	71,019,225	74,421,045	71,848,037	73,405,013	77,186,692
B. Accumulated Depreciation	7,193,733	11,909,245	16,461,724	21,112,858	26,003,608
D. Gross total investment (A+B+C)	**78,212,957**	**86,330,290**	**88,309,762**	**94,517,870**	**103,190,300**
Economic Depreciation	**2021**	**2022**	**2023**	**2024**	**2025**
A. Gross Fixed Assets	69,285,044	72,603,798	70,093,619	71,612,575	75,301,912
B. WACC	8.00%	8.00%	8.00%	8.00%	8.00%
C. $(1+WACC)^{t} - 1$	1.10	0.5986711	0.3877562	0.2982740	0.2496443
D. Value of t (net fixed/period depreciation)	10	6	4	3	3
E. Economic Depreciation	**5,045,730**	**9,701,686**	**14,460,919**	**19,206,580**	**24,130,181**

Source: *Survey data (2021).*

Based on the above, the company would create value for the projected years, described in Table 17.

Table 17
Evaluating projects between CFROI and WACC (projected)

Periods	2021	2022	2023	2024	2025	Average of evaluated periods
CFROI	19.67%	23.79%	28.22%	31.62%	34.27%	27.51%
WACC	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Difference	11.67%	15.79%	20.22%	23.63%	26.27%	19.51%
Valuation	**Created value**	**Created value**	**Created value**	**Created value**	**Created value**	**On average, the company created value**

Source: *Survey data (2021).*

It is worth highlighting that each methodology must be analyzed considering other variables and other methods, as Suzano has reinvested a lot in recent years in expansion and growth. Thus, other variables can make a difference in the analysis.

4. Pedagogical objectives and general guidelines

The presented case can be used in the process of knowledge construction in Administration and Accounting Sciences students. The teaching case develops from the participation of students as active agents in the teaching-learning process, in addition to bringing the student closer to the real situation exposed in the case (Leal, Miranda & Casa Nova, 2017).

This case proposes questions linked to the analysis of a company's economic-financial indices, in addition to the application of company valuation techniques. It is important to emphasize that students should look for other materials to help them in the construction cases and in discussions in the classroom. Questions may arise from the analyses, as well as from the company's report in its financial reports.

The teacher can also perform the case in a group, for resolution. Then, the professor will instigate the discussion of the findings in the case and make a survey regarding the implemented techniques. The purpose of such a debate is to share and build knowledge among your students, and after the discussions, a shared response from the group should be delivered to the teacher.

Bibliographic Indications

Assaf Neto, A., Lima, FG, & Araújo, AMP (2008). A methodological proposal for calculating the cost of capital in Brazil. *Revista de Administração-RAUSP*, *43* (1), 72-83.

Basso, LF, Alves, W., & Nakamura, WT (2002). Added value measures: a study of the impact of the difficulties encountered in estimating the total cost of capital in the option to use this type of measure in companies operating in Brazil. *Brazilian Finance Meeting*, *2*, 1-16.

Brandão, JW, Inocêncio, FC, Correia Neto, JF, & Rebouças, SMDP (2015). Analysis of multiples of Brazilian companies according to the REVAAM model. *Journal of Applied Finance*, *1* (1), 1-32.

B3 – Brazil, Exchange, Over-the-counter. (2021). *Market Maker – Suzano Papel e Celulose*. São Paulo: B3. Available at: < https://www.b3.com.br/pt_br/produtos-e-servicos/negociacao/formador-de-mercado/renda-variavel/suzano-papel-e-cellulose.htm>. Accessed on: 14 Oct. 2021.

Castro, NVDC (2014). Evaluation of Pulp and Paper Sector Companies through the CFROI Model. In *XIV USP Congress of Controllership and Accounting, São Paulo* (p. 12).

Cavalcanti, SRDC (2013). Cost of capital in the Brazilian port sector. 126 f., il. Dissertation (Master in Market Regulation). University of Brasilia, Brasilia.

Ciani, TA, Pimenta Junior, T., & Oliveira, RLD (2015). The performance of large companies from the BRIC, USA, Japan and Germany: a comparison based on value creation. *Management & Production*, *22*, 835-845.

Copeland, TE, Koller, T., & Murrin, J. (2006). *Valuation of companies - valuation: calculating and managing the value of companies*. Pearson Makron Books.

Cunha, MF, Assaf Neto, A., & Martins, E. (2018). Empirical evidence of discount rates in the valuation of companies in Brazil. *Revista Contemporânea de Contabilidade*, *15* (34), 21-41.

Damodaran, A. (2006). *Damodaran on valuation: Security analysis for investment and corporate finance*. Wiley finance series.

Damodaran, A. (2007). *Business valuation*. 2nd ed. Sao Paulo: Pearson Prentice Hall.

Damodaran, A. (2018). A. *Valuation of Investments: Tools and Techniques for Determining the Value of Any Asset*. 2nd ed. Rio de Janeiro: Qualitymark Editora.

Damodaran, A. (2018). *Damodaran Online: Data Current*. New York: Damodaran Online. Available from: <http://people.stern.nyu.edu/adamodar/New_Home_Page/datacurrent.html#multiples>. Accessed on 13 Dec. 2021.

Economática**:** database. Available at: <http://www.economatica.com.br>. Accessed on: 16 Aug. 2021.

Economic Value (2021). *Suzano goes from loss to profit of R$ 10 billion in the 2nd quarter*. São Paulo: Economic value. Available in: <https://valor.globo.com/empresas/noticia/2021/08/11/suzano-vai-de-prejuizo-a-lucro-de-r-10-bilhoes-no-2o-trimestre.ghtml>. Accessed on: 16 Aug. 2021.

Estrada, J. (2002). *Systematic risk in emerging markets: the D-CAPM*. Emerging Markets Review, v. 3, Issue 4, p. 365 – 379, Dec.

Fame, EF; & French, K. (1993). *Common risk factors in the returns on stocks and bonds*. Journal of Financial Economics, v. 33, p. 3-56.

French, KR (2021). *Kenneth R. French – Data Library*. Hanover: Kenneth R. French. Available from: <https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html>. Accessed on 29 Oct. 2021.

Galdi, FC, Teixeira, AJC, & Lopes, AB (2008). Empirical analysis of valuation models in the Brazilian environment: discounted cash flow versus the Ohlson model (RIV). *Accounting & Finance Magazine*, *19* , 31-43.

James, M.; & Koller, TM (2000). *Valuation in Emerging Markets*. The McKinsey Quarterly, no. 4, p. 78-85.

Leal, EA, Miranda, GJ, & Casa Nova, SPDC (2017). *Revolutionizing the classroom: how to involve the student by applying techniques of active learning methodologies*. São Paulo. Atlas.

Martins, E. (2001). *Business Valuation: from accounting to economic measurement*. FIPECAFI – Foundation for Accounting, Actuarial and Financial Research. Sao Paulo: Atlas.

Martins, E., Miranda, GJ, & Diniz, JA (2020). *Didactic Analysis of Financial Statements*. Sao Paulo: Atlas.

Martins, VA, Carvalho, LNG, & Assaf Neto, A. (2008). Anatomy of the value of companies. *Journal of Contemporary Administration - RAC*, v. 12, no. 4, p. 1071-1105, Oct-Dec/2008.

Money Times (2021). *Suzano did very well, but the market wants more. Cellulose was not.* So Paulo: Money Times. Available at: <https://www.moneytimes.com.br/suzano-mandou-muito-bem-mas-mercado-quer-mais-cellulose-nao-foi/>. Accessed on: 16 Aug. 2021.

Padoveze, CL, & Oliveira, JC (2006). Project evaluation using value-based management metrics (VBM–Value Based Management). *Business review,* Porto Alegre: Unifin, (1), 97-109. Available at: http://www.unifin.com.br/Content/arquivos/20080416134752.pdf. Accessed on: 16 Aug. 2021.

Pereiro, LE (2002). *Valuation of companies in emerging markets: a practical approach*. USA: John Wiley & Sons.

Suzano (2021). *Investor Information – Results Center.* Sao Paulo: Suzano. Available at: <https://ri.suzano.com.br/Portuguese/informacoes-financeiras/central-de-resultados/default.aspx>. Accessed on: 15 Aug. 2021.

Titman, S., & Martin, JD (2010). *Valuation of Projects and Investments*: Valuation. Bookman Publisher.