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EDITORA

THE ROLE OF FINANCIAL INDICATORS IN THE ECONOMIC AND FINANCIAL ANALYSIS OF COMPANIES: AN APPLICATION TO THE FINANCIAL STATEMENTS OF SUZANO S/A FROM 2017 TO 2021

A FUNÇÃO DOS INDICADORES FINANCEIROS NA ANÁLISE ECONÔMICA-FINANCEIRA DE EMPRESAS: UMA APLICAÇÃO NAS DEMONSTRAÇÕES CONTÁBEIS DA EMPRESA SUZANO S/A NO PERÍODO DE 2017 A 2021

EL PAPEL DE LOS INDICADORES FINANCIEROS EN EL ANÁLISIS ECONÓMICO Y FINANCIERO DE LAS EMPRESAS: UNA APLICACIÓN A LOS ESTADOS FINANCIEROS DE SUZANO S/A DE 2017 A 2021

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Benedito Santiago Costa Viana[1], Maria Eugenia Rodrigues Araujo[2]

ABSTRACT

This article investigates the importance of financial indicators in assessing the economic and financial performance of companies, with a study focused on Suzano S/A, the world's largest pulp producer. The objective is to understand how key indicators, such as liquidity, debt, and profitability, contribute to evaluating the company's financial health. The study aimed to understand how these indicators were affected during the COVID-19 pandemic, a period of great economic uncertainty. The methodology used is quantitative, based on the analysis of Suzano's financial statements over five years. The data is evaluated to identify patterns and trends, allowing for a deeper understanding of the company's ability to adapt to adverse economic scenarios. The use of a mathematical approach to interpret financial indicators is highlighted as a fundamental tool for accurate analysis of financial results. The results reveal that Suzano managed to maintain its market leadership, even in the face of challenges posed by the pandemic. The liquidity ratios demonstrated the company's ability to meet its financial obligations, while debt levels remained under control. Profitability, though subject to fluctuations, remained positive, ensuring the company's competitiveness. It is concluded that the proper use of financial indicators, combined with accounting and mathematical knowledge, is essential for formulating effective business strategies. These indicators are crucial not only for assessing the company's financial health but also for ensuring its long-term stability and success in a competitive and globalized environment.

Keywords: Financial Indicators. Economic Analysis. Business Performance. Financial Management. Profitability. Liquidity.

[1] Master's Degree in Professional Master's Degree in Information Science. Universidade Federal do Maranhão (UFMA). Maranhão, Brazil. E-mail: benedito3667@hotmail.com
[2] Dr. in Informatics in Education. Universidade Federal do Maranhão (UFMA). Maranhão, Brazil. E-mail: eugenia.maria@ufma.br

RESUMO

Este artigo investiga a importância dos indicadores financeiros na avaliação do desempenho econômico-financeiro das empresas, com um estudo focado na Suzano S/A, a maior produtora mundial de celulose. O objetivo é compreender como os principais indicadores, como liquidez, endividamento e rentabilidade, contribuem para a avaliação da saúde financeira da empresa. O estudo buscou entender como esses indicadores foram afetados durante a pandemia de COVID-19, um período de grande incerteza econômica. A metodologia adotada é quantitativa, com base na análise das demonstrações financeiras da Suzano ao longo de cinco anos. Os dados são avaliados para identificar padrões e tendências, possibilitando uma compreensão aprofundada da capacidade da empresa de se adaptar a cenários econômicos adversos. A utilização de uma abordagem matemática para a interpretação dos indicadores financeiros é destacada como uma ferramenta fundamental para uma análise precisa dos resultados financeiros. Os resultados revelam que a Suzano conseguiu manter sua posição de destaque no mercado, mesmo diante dos desafios impostos pela pandemia. Os índices de liquidez mostraram a capacidade da empresa de honrar seus compromissos financeiros, enquanto o endividamento foi mantido em níveis controlados. A rentabilidade, embora tenha sofrido oscilações, se manteve positiva, assegurando a competitividade da empresa. Conclui-se que o uso adequado dos indicadores financeiros, aliado ao conhecimento contábil e matemático, é essencial para a formulação de estratégias empresariais eficazes. Esses indicadores são cruciais não apenas para a avaliação da saúde financeira da empresa, mas também para garantir sua estabilidade e sucesso no longo prazo em um ambiente competitivo e globalizado.

Palavras-chave: Indicadores Financeiros. Análise Econômico. Desempenho Empresarial. Gestão Financeira. Rentabilidade. Liquidez.

RESUMEN

Este artículo investiga la importancia de los indicadores financieros en la evaluación del desempeño económico y financiero de las empresas, con un estudio centrado en Suzano S/A, el mayor productor mundial de celulosa. El objetivo es entender cómo los principales indicadores, como liquidez, endeudamiento y rentabilidad, contribuyen a evaluar la salud financiera de la empresa. El estudio pretende comprender cómo se vieron afectados estos indicadores durante la pandemia de COVID-19, un período de gran incertidumbre económica. La metodología adoptada es cuantitativa, basada en un análisis de los estados financieros de Suzano a lo largo de cinco años. Los datos se evalúan para identificar patrones y tendencias, lo que permite comprender en profundidad la capacidad de la empresa para adaptarse a escenarios económicos adversos. El uso de un enfoque matemático para interpretar los indicadores financieros se destaca como una herramienta fundamental para analizar con precisión los resultados financieros. Los resultados muestran que Suzano ha conseguido mantener su posición destacada en el mercado, incluso ante los retos planteados por la pandemia. Los ratios de liquidez mostraron la capacidad de la empresa para hacer frente a sus compromisos financieros, mientras que la deuda se mantuvo en niveles controlados. Aunque la rentabilidad fluctuó, siguió siendo positiva, garantizando la competitividad de la empresa. Se puede concluir que el uso adecuado de indicadores financieros, combinado con conocimientos contables y matemáticos, es esencial para formular estrategias empresariales eficaces. Estos indicadores son cruciales no sólo para evaluar la salud financiera de la empresa, sino también para garantizar su estabilidad y éxito a largo plazo en un entorno competitivo y globalizado.

Palabras clave: Indicadores Financieros. Análisis Económico. Rendimiento Empresarial. Gestión Financiera. Rentabilidad. Liquidez.

1 INTRODUCTION

Accounting is an applied social science that allows experiments to be carried out so that future results for companies can be visualized and simulated. The conceptual framework of accounting provided for in CPC 00 states that the purpose of the general purpose accounting-financial report is to provide useful accounting-financial information to current and potential investors, creditors and other stakeholders.

In this way, the accounting practice uses technically known and academically known accounting-scientific tools, such as Financial Analysis of Financial Statements, which is a process of measuring the financial health of a company, organization or project, through the analysis made on financial statements, such as the balance sheet, the income statement (P&L) and the statement of cash flows.

On the other hand, financial indicators are mathematical relationships that extract relevant information from the financial statements. These financial analysis indicators have as their main objective to provide information that helps in decision-making by managers, investors, creditors and other stakeholders, therefore, they help investors, analysts and managers to understand the financial health of the company.

In this context, indicators are essential to evaluate companies and direct the management of their results. In Brazil, it is recorded that since 2015, Brazilian governments have been constantly struggling to improve the Gross Domestic Product (GDP) indicator, which is fundamental as a parameter for the economic development of a country. In general, the increase in GDP is generated by the result of large companies, recognized by the application of financial and economic indicators, on data from the Financial Statements. The calculation of indicators focuses on visualizing the results of companies to improve investments and expand their operations and geoFigureic coverage, such as VALE S/A, SUSANO S/A, PETROBRAS S/A, among other companies of the same magnitude as these.

This research is justified by the need to explore how the analysis of financial indicators can be applied in a practical way, contributing to the theoretical field of accounting and offering a solid basis for business decisions. The detailed analysis of indicators such as liquidity, indebtedness, and profitability provides a deeper understanding of the interactions between accounting and mathematical variables, in addition to providing practical subsidies for companies in times of economic crisis.

From a theoretical point of view, the study contributes to the advancement of the accounting literature by demonstrating the relevance of financial indicators in the interpretation of economic results. From a practical point of view, it offers a clear view of the importance of these indicators for the sustainability and competitiveness of companies,

especially in challenging periods, such as the COVID-19 pandemic. By analyzing Suzano S/A, one of the largest companies in Brazil, the study provides a concrete example of how large corporations use these tools to ensure their financial strength.

In this study, we chose to apply the indicators to the company Suzano S/A, which is recognized as the world's largest manufacturer of pulp and paper, in addition to of being one of the main paper producers in Latin America and leader in the Brazilian toilet paper market. The company was also the first in the world to implement the production of cellulose-based paper with 100% eucalyptus fiber on an industrial scale (Suzano, 2023).

Given its size, the company SUSANO S/A, also faces the economic difficulties of the country, and seeks in its results to minimize negative impacts. This was noticed in the reading of its Reports published on its website, which drew attention to the innovative direction that the company adopts.

From this perspective, the interest in studying the indicators in a timeline from the years 2017 to 2021, as this is a challenging period for companies operating in Brazil, given the recession of the years 2015 and 2016, change of COVID government, and new Brazilian government. In this context, the characteristics of the company SUZANO S/A are considered, which is concerned with presenting its information in the Financial Statements and other reports that are easily accessible to the navigation of its website, facilitating the performance of academic research in addition to demonstrating to investors and those interested in its information, a large volume of information about its activities.

From this perspective, the study brings as a guiding question, to understand: What is the mathematical relationship of indicators with accounting, and how are these indicators interpreted?

In view of the research question, we sought to understand an intentional sample of indicators that would allow the calculation for the study of the book and mathematical value of indicators such as Capital Structure Indices – Debt Composition; Liquidity Ratios - Current Liquidity; Profitability and profitability indexes; Net Margin and Return on Equity (ROE). Through the application of these indicators.

The objective of this study is to analyze the mathematical relationship of financial indicators with accounting, focusing on how these indicators are interpreted and applied in practice. The research is quantitative and uses mathematical description to interpret the company's results, focusing on indicators such as Capital Structure Ratios, Current Liquidity, Profitability, Net Margin and Return on Equity (ROE).

The biblioFigurey used in this work is composed of books by renowned authors in the area, scientific articles, as well as information available on the website of the company

Suzano S/A. The article is structured as follows: after this introduction, the Literature Review section addresses the theoretical concepts and studies related to financial indicators. Next, the Methodology describes the procedures used for data collection and analysis. The Analysis and Results presents the interpretations of Suzano S/A's data, and, finally, the Conclusion discusses the findings of the study and its theoretical and practical implications.

2 LITERATURE REVIEW

The analysis of financial statements is an essential process for assessing the economic health of a company (Catarina, 2023). This procedure involves the detailed review of documents such as the balance sheet, income statement, cash flow, and statement of changes in equity. By analyzing these reports, it is possible to identify trends, measure financial and operational performance, and verify the company's liquidity, profitability, and solvency (Catarina, 2023). This analysis also allows for comparisons to industry benchmarks, helping managers and investors make informed decisions about investments, financing, and operational strategies (FIA, 2021). In view of this, financial indicators are of paramount importance for such analysis, as it combines mathematical technique with accounting weighing.

In this perspective, this framework aims to present conceptual theoretical elements of accounting and mathematics, which guided this study and was structured with the following topics: Relationship between economic and financial indicators used in accounting and mathematics; Financial Indicators studied in the survey; related studies.

2.1 RELATION BETWEEN INDICATORS ECONOMIC FINANCIAL USED IN ACCOUNTING AND MATHEMATICS

Financial indicators constitute an interdisciplinary field in accounting, which is based on several theories and methodologies to develop, interpret and apply these indicators, based on mathematical reasoning. Authors such as Jensen and Meckling (1976), Fama (1970), Penman (2001), Damodaran (2002), Lev (1974), Dechow (1995), Kaplan and Norton (1992), Brealey, Myers and Allen (2011), Laney (2001) and Power (1997) have contributed significantly to the interpretation and understanding of a set of indicators capable of guiding analysts and investors on the performance of companies, these authors being precursors of the indicators used in the current economic and financial analysis of the financial statements Financial. In this research, it is also based on the studies of Azzolin (2012) and Assaf Neto (2020), among others, to conceptualize the indicators analyzed

2.2 PREVIOUS RESEARCH

In order to carry out the study, the word financial indicators was consulted on the Google Scholar platform, Scielo and search engines, identifying works that could perhaps subsidize it, at the same time bringing a differentiated approach. Numerous studies are available, however, the following studies were summarized in Table 1, which suggested a new approach for this study, differentiating from those cited.

Table 1

Summary of Previous Research

Title/Authorship/Year	Objective of the Study
Economic Performance of the Company SUZANO S.A., based on its operating segments; CRUZ, Alyson S.; *et al* 2022	This study aims to analyze the economic performance of the Brazilian multinational Suzano S.A., a leader in the production of pulp and paper, during the period from 2017 to 2021. Based on data provided by the company itself, it seeks to identify the economic behavior of the company in its different segments.
Economic and financial performance of the information technology sector: a study in companies listed on B3 – 2019-2021 period; DIAS, Alberto Noam Henrique 2022.	Analyze the economic and financial performance of companies in the Information Technology sector listed on B3, in the period from 2019 to 2021.
Economic and financial performance of meat agribusiness companies, listed on B3, before and after the beginning of Covid-19; KOECHE, Alexandre Sehn *et al*. 2021.	To analyze the economic and financial performance of the four largest companies in the meat agribusiness sector listed on B3, comparing the periods before and after the beginning of the coronavirus pandemic, from 2018 to 2020.
Effects of COVID-19 on the economic and financial indicators of companies in the Brazilian airline sector with shares on B3; SOUSA, Luana Stefany Nóbrega de. 2020.	To analyze the impact of the Covid-19 pandemic on the economic and financial performance of companies in the Brazilian airline sector with shares in B3, Azul S.A. and Gol Linhas Aéreas Inteligentes S.A.

Source: Created by the authors.

From the previous research found, the work, the Economic Performance of the Company SUZANO S.A., based on its operating segments, authored by Cruz et al. (2022), brings a very close focus to this article that differs from this one, and from the works of Dias (2022); Koeche et al. (2021); Sousa (2020).

However, this study aims to analyze the Role of Financial Indicators in the economic-financial analysis of companies: An application in the financial statements of Suzano S/A in

the period from 2017 to 2021. It proposes to understand the mathematical ratio of the indicators and their effects on the Financial Statements of the company Suzano S/A.

In the next section, financial indicators will be addressed.

2.3 FINANCIAL INDICATORS

This section aims to address the financial indicators that will be used to prepare the research in the face of the proposed problem.

First, it is worth highlighting the origin of the accounting method, attributed to the Italian mathematician and Franciscan friar Luca Pacioli, who in 1494, published the work. "Summa de Arithmetica, Geometria, Proportioni et Proportionalità," which included a treatise on accounting entitled "Particularis de Computis et Scripturis." (Schimidt, 1997), and it is added in the author's view that the method involves recording each transaction in two accounts: a debit in one account and a credit in another, so the sums of debits and credits will always be equal. This technique or mathematical relationship revolutionized accounting and is the basis of accounting systems for any size of company to this day.

In this work, Luca Pacioli addresses Proportioni et Proportionalità, which in the work "Mathematics applied to Economics" by (Simon; Blume, 1994) means that Proportions refer to the relationship between two quantities or numbers. Thus, the two quantities are in the same proportion, they increase or decrease at the same rate. indicating that one amount is double the other. And Proportionality refers to the relationship between two quantities, where one varies according to the other. Thus, for example, if the number of hours worked doubles, your payment will also double, which characterizes a relationship of direct proportionality.

In this way, the proportion and proportionality are applied in accounting from the balance defined by the double-entry method, where every debit corresponds to a credit of equal value, and the relationship of proportion and mathematical proportionality, demonstrates that there is a whole relationship between accounts and the group of accounts of the Financial Statements that follow the mathematical ratio. Therefore, the technique of calculating financial indicators is adopted to identify exactly the proportionality between Assets and Liabilities and Income, in relation to the invested capital. In this analysis, the performance of the group of accounts that make up the Balance Sheet, Income Statement, Cash Flow and other accounting reports produced in companies is measured. Since, applying financial analysis to the Financial Statements occurs so that different dimensions of the company are evaluated, by different groups of indicators that are constituted in the mathematical ratio from the combination of accounts or groups of accounts, allowing the user

of accounting information to evaluate accounting data through the Capital Structure Indexes – Composition of Indebtedness;

Liquidity Ratios - Current Liquidity; Profitability and profitability indexes; Net Margin and Return on Equity (ROE), among many other indicators in the accounting literature.

2.3.1 Capital structure ratios – composition of indebtedness

The capital structure (equity) and debt ratios are related, as the two analyze the configuration of how a company finances its operations and growth.

For Martins, Diniz and Miranda (2018), four indices are used in the relationship between capital structure and indebtedness, illustrated in Table 1 below:

Table 2

Summary of Debt Ratios and Capital Structure

Síntese dos Indices de endividamento e estrututa de capital				
PCT	Participação Capital de Terceiros	(Capitais de Terceiros / Patrimônio Líquido) * 100 ou ((PC + PNC) / PL) * 100	Quanto a empresa tomou de capitais de terceiros para cada R$ 100,00 de Capital Próprio	Quanto menor, melhor
EG	Endividamento Geral	(Capitais de Terceiros / Total do Ativo) * 100 ou ((PC + PNC) / AT) * 100	Quanto a empresa tomou de capitais de terceiros para cada R$ 100,00 de Ativo	Quanto menor, melhor
CE	Composição de Endividamento	(Passivo Circulante / Capitais de Terceiros) * 100 ou (PC / (PC + PNC)) * 100	Qual o percentual de obrigações a curto prazo em relação às obrigações totais	Quanto menor, melhor
IPL	Imobilização do Patrimônio Líquido	(Ativo Ñ Circulante - Realizável a LP) / Patrimônio Líquido) * 100 ou ((ANC - RLP) / PL) * 100	Quanto a empresa aplicou no Ativo que representam aquisições permanentes para cada R$ 100,00 de Patrimônio Líquido	Quanto menor, melhor

Source: Created by the author.

Third-Party Capital Participation Ratios. This ratio is used to measure the ratio of third-party capital (debt and loans) to the company's total capital (equity and third-party capital).

Indebtedness ratio, indicates the link that the entity has in relation to third parties, and the risk submitted.

The Debt Composition Ratio shows how much of the total debt with third parties is due in the short term.

Stockholders' Equity Fixed Assets Ratio, presents the relationship between a company's fixed assets and its shareholders' equity.

According to Martins, Diniz and Miranda (2018), the capital or equity structure indexes lack monetary adjustment of the elements used in the calculation of the quotients, especially Fixed Assets. The authors' observation is that the purchasing power of money is preserved

when the value of an asset, debt or contract is adjusted over time to counteract the effects of inflation.

2.3.2 Liquidity ratios

Assaf Neto (2014) clarifies that Liquidity ratios are financial indicators that measure a company's ability to meet its short-term obligations, that is, to honor its debts as they mature. These ratios are essential to assess the financial health of a company and its ability to face situations of need for immediate payment.

The Liquidity Indices group is also composed of four indicators according to Martins, Diniz and Miranda (2018), illustrated in Chart 2 below:

Table 3

Financial Analysis - Liquidity Ratios

Analise financeira-Índices de Liquidez				
LC	Liquidez Corrente	Ativo Circulante / Passivo Circulante ou (AC / PC)	Quanto a empresa possui de Ativo Circulante para cada R$ 1,00 de Passivo Circulante	Quanto maior, melhor
LS	Liquidez Seca	(Ativo Circulante - Estoques) / (Passivo Circulante) ou ((AC - Estoques) / PC)	Quanto a empresa possui de Ativo Liquido para cada R$ 1,00 de Passivo Circulante	Quanto maior, melhor
LI	Liquidez Imediata	(Disponível) / (Passivo Circulante) ou (Disponibilidade) / (PC)	Quanto a empresa possui de Disponível para cada R$ 1,00 de Passivo Circulante	Quanto maior, melhor
LG	Liquidez Geral	((Ativo Circulante + Realizável a LP) / (Passivo Circulante + Passivo Ñ Circulante)) ou ((AC + ARLP) / (PC + PNC))	Quanto a empresa possui de Ativo Circulante + Realizável a Longo Prazo para cada R$ 1,00 de dívida Total	Quanto maior, melhor

Source: Created by the author.

Current Ratio is obtained by dividing Current Assets by Current Liabilities, its result demonstrates how much short-term resources the company has in relation to its obligations also in the short term. According to Assaf Neto (2014), if the current liquidity is greater than 1, it means that the company has a positive net working capital, capable of meeting short-term obligations, while the result is less than 1, means that the company does not have short-term resources to meet its short-term obligations.

The Dry Liquidity Ratio, according to Warren, Reeve and Fess (2008, p. 529), is "an index that calculates the immediate capacity of a company to honor its debts". This ratio indicates how much the company has the capacity to honor its current asset commitments for each R$ 1.00 of current liabilities debt, disregarding its inventories. Since stocks may not be easily converted into cash.

Immediate Liquidity Ratio, according to Marion (2012) the immediate liquidity ratio says how much the company has immediately to pay off its short-term debts. That is, how much the company has available in Cash, Banks and Investments with Immediate Availability, for every R$ 1 of Current Liabilities." It is the most conservative liquidity ratio, as it considers only the most liquid resources.

General Liquidity Ratio, according to Assaf Neto (2014) this indicator shows the company's ability to pay all its debts (short and long term) with all its assets (short and long term). This ratio offers a broader view of the company's liquidity. For every R$1 that the company has in debt, how much rights and assets it has in current assets and in long-term realizable.

2.3.3 Profitability and profitability ratios

The Profitability and Profitability index group focuses on verifying economic aspects in the Financial Statements (Martins; David; Miranda, 2018). Among the existing Profitability and Profit ratios, the following ratios are addressed: Return on Equity (ROE); Net Margin.

2.3.3.1 Return on Equity (ROE)

The return on equity (ROE) ratio is obtained from the division of Net Income over Equity.

According to Azzolin (2012), the result measures the company's ability to generate a return on equity, that is, the profit obtained for each R$ 1.00 of capital invested. In this way, the higher the index, the better it will be for the company, since it demonstrates the return that shareholders will obtain on the invested capital.

Return on Equity (ROE) Equation.

Table 4

Return margin equation

RATE OF RETURN ON EQUITY =	NET INCOME / EQUITY

Source: Amended by the author based on information from Matarazzo (2010) and Assaf (2014).

According to Assaf Neto (2014), profitability and profitability constitute an economic evaluation of the company's performance, measuring the return on investments made and the profitability achieved by the company.

2.3.3.2 Net Margin

The net margin is obtained by dividing Net Income by Net Sales.

Table 5

Net margin equation

NET MARGIN =	NET INCOME
	SALES

Source: Amended by the author based on information from Matarazzo (2010) and Assaf (2014).

According to Assaf Neto (2014) the result will show how much the company profited for each R$1.00 of sales made, that is, how much the company obtained in profit after deducting the operational, financial and non-operational. In this way, the higher the index, the greater the company's ability to generate profit through sales.

3 METHODOLOGY

The approach of this study is quantitative, which according to Silva and Menezes (2001) represents research that uses discrete or continuous quantitative variables as a way to extract information for analysis through numerical data with the use of formulas and mathematical proportionality. In this way, the study experiments with mathematical formulas in exact and objective data, which allows the conversion of data into information for a financial accounting analysis.

Regarding the objectives of the research, the study is classified as descriptive in nature. According to Gil (2002), descriptive research has the purpose of describing the characteristics of a phenomenon. In this way, the study sought to describe and interpret the mathematical ratio through the analysis of the economic and financial indicators of the company SUZANO S.A in a pre-, during, and post-pandemic period,

For the Sample, the collection of accounting and financial data was selected through the financial statements available on the website of the company SUZANO S.A. and on the website of B3 on the Stock Exchange in the period 2017 to 2021. The indicators were calculated considering five calculation periods, as shown in the table below.

Table 6

Period for calculating the indicators

Indicator calculation periods	
2017, 2018 and 219	Period before the covid-19 pandemic
2020	Period from the beginning of and during the covid-19 pandemic
2021	Post-covid-19 pandemic period

Source: Author from the research.

The cut-off of the analyzed period served to verify the behavior of the indicators in these periods from a mathematical and accounting point of view.

The selection of the sample of economic and financial indicators of the company SUZANO S.A. occurred intentionally, in order to better understand the mathematical ratio of different groups of indicators, in the period of interest, from a generic perspective, to visualize the mathematical accounting relationship for three different approaches in the company, Financial Situation (Liquidity), Capital-Indebtedness and Indebtedness Structure and economic situation, Profitability and Profitability. However, for the group of profitability and profitability indicators, the quantitative calculation of indicators was restricted, after observing a more concrete profile of the company with the capital-indebtedness and liquidity structure ratios.

As a research procedure for each financial year, evidenced in the published financial statements, the same indicators were selected, the respective formulas were applied and a table was constructed containing the different groups of indicators calculated and the year. From this application, the triangulation of the information was made, making the accounting concepts of the indicators and mathematical ledger compatible in the reference. This procedure led to the interpretation of the function of the indicators selected in the accounting information, summarized in Table 3 below, and discussed in the Analysis and Results section.

Table 7

Liquidity Ratio; Indebtedness; Profitability and Profitability

ENTERPRISE	PERIOD	Financial situation				Capital Structure				Economic Situation	
		Liquidity Ratio				Debt Ratio				Profitability Ratio Profitability	
SUSANE		LC	LS	READ	LG	PCT	EG	EC	IPL	M.E.	ROE
	2021	2,95	2,55	1,83	0,57	7,17	0,88	0,12	0,39	0,21	0,56
	2020	2,2	1,71	1,11	0,44	13,86	0,93	0,14	0,83	-0,35	-0,1
	2019	1,65	1,24	0,82	0,44	4,7	0,82	0,145	0,35	-0,11	-0,2
	2018	5,08	4,78	4,21	0,87	3,5	0,78	0,139	0,13	0,02	0,03

	2017	1,83	1,51	0,73	0,72	1,46	0,59	0,21	0,14	0,17	0,16

Source: Author from the research.

4 ANALYSIS AND RESULT

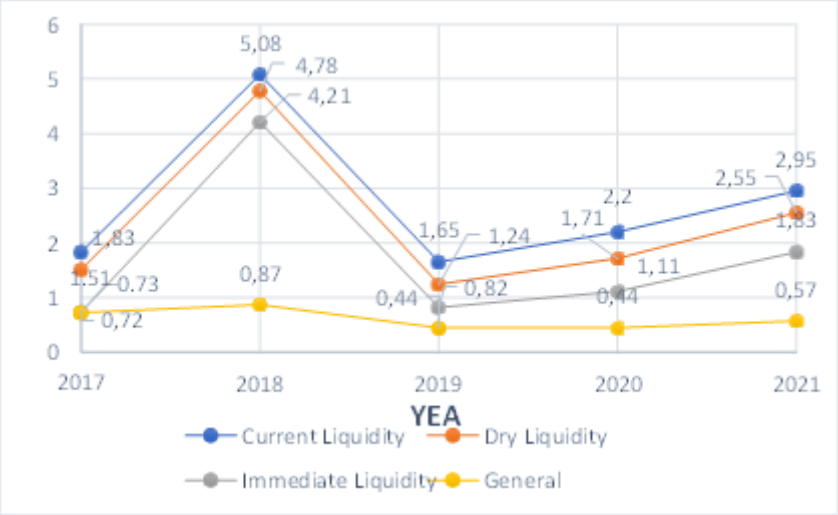
The analysis carried out in this study is focused on understanding the predominant mathematical reasoning in the indicators as presented by Simon and Blume (1994) and also by the values of the indicators found after their aplicação.de agreement with the concepts of Azzolin (2012); Assaf Neto (2014); (Martins; David; Miranda, 2018).

First, in the mathematical ratio, every indicator is composed of the numerator divided by the denominator. The numerator indicates how many parts of the unit or total are being considered, so in the financial indicators the analyst and other users of the accounting information want to identify in the financial statements, groups of accounts or accounts that are involved in the relationship with the denominator. The denominator means how many equal parts the whole or unit has been divided into. That is, how much of a group of accounts or accounts was absolved by the denominator that represents the impact of that group of accounts, that is, the effect of the debit (application) to the credit (origin).

Thus, the indicators applied in the SUZANO S/A study generated the Figures for each group of indicators calculated. Therefore:

Figure 1

Financial Condition - Liquidity Ratio



Source: Author from the research.

The liquidity ratios are divided into: current, dry, immediate and general liquidity ratios (Martins; David; Miranda, 2018). After calculating the indexes, reports on Suzano's website, texts and comments on financial information detailed in explanatory notes and management reports were consulted.

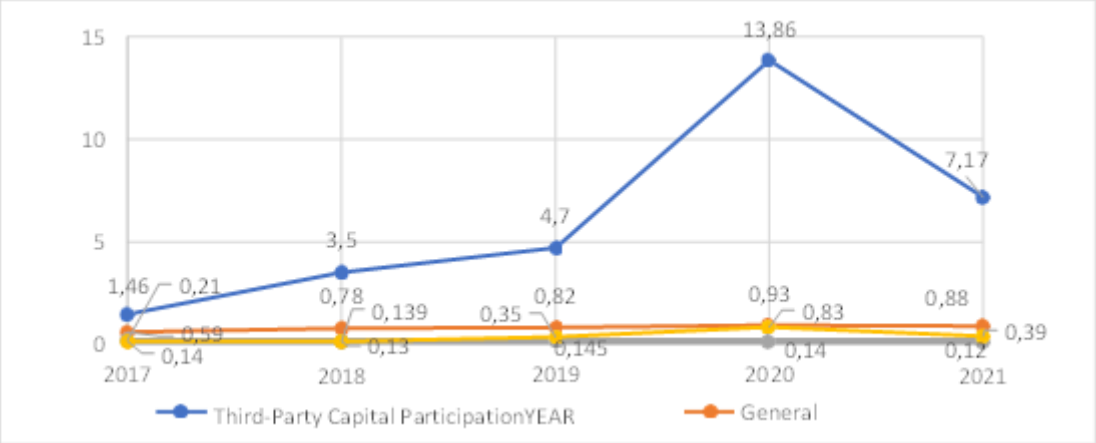
However, it was found that in 2017, the net revenue obtained from Suzano's pulp sales totaled R$6.9 billion, 12.2% higher than the revenue presented in 2016, due to the increase in the international price of pulp, partially offset by the appreciation of the Real. Net revenue from pulp exports in 2017 was R$6.3 billion, 15.4% higher than the previous year. The net financial result was negative R$1.0 billion in 2017, compared to the positive result of R$1.1 billion in 2016. This result mainly reflects monetary and exchange rate variations and derivatives results. Monetary and exchange rate variations had a negative impact on the 2017 result by R$179.4 million, while the impact was positive by R$1.4 billion in 2016.

In 2018, chart 01 shows that the highest liquidity occurred in that year, compared to all fiscal years, justified by Suzano's paper production reaching 1.3 million tons, 9.4% higher than the total produced in 2017. This variation is due to the increase in tissue production and improved industrial productivity of other paper products. Paper sales totaled 1.3 million tons, 6.2% higher than the volume sold in 2017. Sales in the domestic market reached 878 thousand tons in 2018, 8.9% higher than the previous year, while paper sales in the foreign market totaled 376 thousand tons in 2018, 0.4% higher than the previous year (SUZANO, 2018). However, in the year 2021, it is clear that in the year 2021, a trend towards new growth already begins.

As for the debt ratios and capital structure, chart 02 shows that SUZANO S/A's indebtedness reached a very high peak in 2020, and was composed of debt in foreign currency, in which that year was found to have the highest degree of indebtedness compared to 2017; 2018; 2019 and 2021. And in consultation in the Company Reports, it was found that on December 31, 2020, the gross debt was R$ 72.9 billion, with 97% of the maturities in the long term and 3% in the short term. Debt in foreign currency represented 80% of the Company's total debt and in national currency it was 20%. The percentage of gross debt in foreign currency, considering the effect of debt hedging, was 95%. Gross debt decreased by 7% (R$5.6 billion) compared to 3Q20.

Figure 2

Capital Structure - Debt Ratio



Source: Author from the research.

The last group of indicators calculated in the study was the Economic Situation Profitability index, the following Figure 03 was generated, which had to be built with references to the Gross Margin and Operating Margin indexes, which were not focused on in the study.

Figure 3

Profitability Ratio – Gross and Operating Margin

Source: Author from the research.

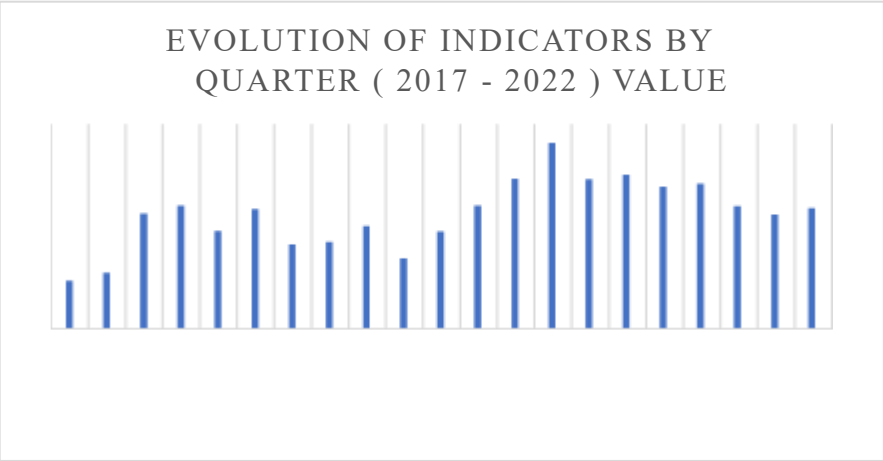
The Net Margin, profitability (IML) and return on equity (ROE) indicator suffered significant decreases in 2018; 2019; 2020, where indebtedness (EG and PCT) was high. This suggests that Suzano S/A may have faced difficulties in generating enough profit to offset the cost of financing, resulting in negative margins and returns. It is observed that in 2021, the net margin is already starting to rise due to the reduction in expenses with monetary and

exchange variations and results from derivatives, according to information obtained in Suzano's Report. (SUZANO S/A).

The Figure is added to the analysis so that the quarterly evolution of the results at SUZANO S/A can be visualized.

Figure 4

Evolution of indicators by quarter



This Figure, prepared for information purposes, identified that in fact the period of 2020, a year characterized by COVID, brought a negative impact on the company, but that in the following years SUZANO S/A has sought to recover from the pertinent problems in the global economy.

From the analysis carried out, the result was that:

Understanding and interpreting the indicators depends mainly on knowing the conceptual structure of the Financial Statements, in relation to the groups of accounts and accounts in the disposition of the Balance Sheet, Income Statement, Cash Flow and other reports.

The calculation of the indicators allowed us to see how the company's financial health behaved within the period from 2017 to 2021, and that the variable performance between the years did not compromise the market performance of SUZANO S/A.

The mathematical reasoning of proportions and proportionality helps to identify the dimension of values that imply advantages and risks for companies.

The combination of knowledge about financial indicators and mathematical meaning broadens the view of the company and favors better decision-making and strategies for the company.

And also that companies the size of SUZANO S/A, which maintains transparency and levels of information on its portals, allow researchers and investors to believe in the information disclosed, and that these entities are essential for the development of the economy and society in general due to their employability, sustainability and generation of a more positive GDP.

5 CONCLUSION

The analysis carried out in the study highlighted the essential role of financial indicators in the evaluation of the economic and financial performance of companies, exemplified by the study by Suzano S/A during the period from 2017 to 2021.

The study allowed us to answer the research question, "What is the mathematical relationship of indicators with accounting, and how are these indicators interpreted?", revealing that financial indicators are essential to translate accounting data into useful quantitative information. These indicators, built on the basis of mathematical relationships, enable analysts, managers, and investors to assess the financial health of companies, assisting in strategic decision-making.

The results show that, although Suzano S/A faced a significant increase in the level of debt in 2020, the company demonstrated resilience and a gradual recovery, supported by a well-founded financial strategy. This behavior reinforces the importance of a deep understanding of mathematical and mathematical concepts accounting indicators underlying financial indicators, which allow for an accurate analysis of financial statements and the formulation of effective strategies for organizational continuity and success.

The study concludes that the analysis of financial indicators goes beyond being a mere technical tool, constituting a crucial foundation for informed decision-making, which directly impacts the financial health and sustainability of companies.

The contribution of this study to society and academia demonstrates that the mathematical model is practical to indicate how financial indicators can be used to ensure sustainability and business growth. For academia, the study contributes with a concrete example of the application of accounting and financial theory, offering a solid basis for future research on the impact of economic crises on large corporations.

However, the study has some limitations. It focuses only on a specific period and company, which can limit the generalization of results to other organizations and economic contexts. In addition, the analysis relies on publicly available financial data, which may restrict the depth of internal evaluation of business strategies. Finally, conducting comparative studies between companies that adopt different financial and risk management strategies

could provide additional insights into the effectiveness of financial indicators in predicting the performance of companies in adverse situations and improving long-term competitiveness, validating the results obtained and certifying to analysts and investors that data extracted from the financial statements generate indicators proven by the mathematical reasoning, which adopts indicators based on the proportionality relationships generated by the investment, expands the dimension of analysis.

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