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Bachelor in Production Engineering

THE IMPACTS OF THE ESG NARRATIVE ON THE EVOLUTION OF THE VALUE OF LISTED BRAZILIAN COMPANIES

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To my grandfather, Nelson Esteves Sampaio, who remains alive in the greatest traits of my character.

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“Truth is ever to be found in simplicity, and not in the multiplicity and confusion of things”

- Sir Isaac Newton

RESUMO

Atualmente, as empresas estão pressionadas a abordar não apenas as preocupações dos analistas sobre questões de desempenho financeiro, mas também sobre as questões ambientais, sociais e de governança, agora amplamente chamadas de ESG (Ambiental, Social e Governança) (BALATBAT, 2012). Conforme relatado por Broadstock et al. (2020), o investimento em ESG estimulou o interesse geral entre os gestores de ativos e, em 2019, a capitalização de carteiras com foco em ESG nos principais mercados ultrapassou US $ 30 trilhões.

Nesse contexto, o objetivo principal deste trabalho é explorar a existência de impactos da narrativa ESG no valor de mercado das empresas listadas em bolsa, comparando dois grupos distintos por meio de estudos de caso: empresas com implementação clara e consolidada de iniciativas ESG, pertencentes ao Índice de Sustentabilidade Empresarial (ISE) da Bolsa de Valores (B3); e corporações sem narrativa ESG ou com atuação mais difusa dessas práticas (não pertencentes ao ISE).

O documento baseia-se no cálculo e na análise de diversos indicadores das empresas selecionadas para avaliar diferenças entre os seus desempenhos financeiros e identificar possíveis assimetrias na evolução e dimensionamento dos valores de mercado, que podem ser explicadas por um acréscimo de valor relacionado à adoção de práticas ESG.

Em suma, dentro de suas limitações, este documento não foi capaz de identificar claras influências positivas das práticas ESG e de uma melhor visibilidade ESG sobre a evolução dos valores de mercado das empresas brasileiras listadas analisadas, dentro do período entre 2013 e 2020. Para o caso da Vale S.A., enquanto uma implementação melhor e mais precoce de políticas ESG poderia ter contribuído para reduzir os riscos dos desastres ocorridos em 2015 e 2019, que afetaram, momentaneamente, seu valor de mercado, visto que multas substanciais foram aplicadas pelo governo, esses dois episódios próximos não foram suficientes para quebrar uma linha de tendência ascendente de seus indicadores de mercado.

ABSTRACT

Companies are currently pressured to not only address analysts concerns on financial performance issues but also environmental, social and governance concerns, now widely referred to as ESG (Environmental, Social and Governance) (BALATBAT, 2012). As reported by Broadstock et al. (2020), ESG investing has stimulated mainstream interest among asset managers, and in 2019, the capitalization of ESG focused portfolios in major markets exceeded US$30 trillion.

In this context, the primary objective of this work is to explore the existence of impacts of the ESG narrative on the market value of companies, comparing two distinct groups trough case studies: companies with clear and consolidated implementation of ESG initiatives, belonging to the Brazilian Stock Exchange's (B3) Corporate Sustainability Index (ISE); and companies without an ESG narrative or with more diffuse performance of these practices (not belonging to ISE).

The document is based on the calculation and the analysis of various indicators of the selected companies to assess differences between their financial performances and identify possible asymmetries in the evolution and dimensioning of market values, which may be explained by an addition of value related to adoption of ESG practices.

In summary, inside its limitations, this document was not able to identify any clear positive influences of ESG practices and of a better ESG visibility in the evolution of the listed Brazilian companies' market values analyzed, inside the timeframe between 2013 and 2020. For the case of Vale, while a sooner and better implementation of ESG policies could have contributed to reduce the risks of the disasters that occurred in 2015 and 2019, which affected, momentarily, its market value, as substantial fines were applied by the government, these two close episodes were not sufficient to break a positive trendline of its market indicators.

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LIST OF ABBREVIATIONS

BRL – Brazilian Real

CEO – Chief Executive Officer

CFC – *Conselho Federal de Contabilidade* (Federal Accounting Council)

COGS – Cost of Goods Sold

CRCs – *Conselhos Regionais de Contabilidade (*Regional Accounting Councils)

CS – Corporate Sustainability

CVM – *Comissão de Valores Mobiliários (*Securities and Exchange Commission)

EBIT – Earnings Before Interest and Taxes

EBITDA – Earnings Before Interest, Taxes, Depreciation and Amortization

ESG – Environmental, Social and Governance

FY – Fiscal Year

GDP – Gross Domestic Product

GGE – Greenhouse Gas Emissions

GHG – Greenhouse Gases

IASB – International Accounting Standards Board

IBOV – Ibovespa Stock Exchange Index

IFRS – International Financial Reporting Standards

IPCA – *Índice de Preços ao Consumidor Amplo* (Brazil's Consumer Inflation Index)

LT – Long-term

NOPAT – Net Operating Profit After Taxes

NWC – Net Working Capital

PRI - Principles for the Responsible Investment

ROA – Return on Assets

ROC – Return on Capital

ROE – Return on Equity

ROIC – Return on Invested Capital

SRI – Socially Responsible Investing

ST – Short-term

STI – Short-term Investments

USD – United States' Dollar

WACC – Weighted Average Cost of Capital

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CHAPTER 1 – INTRODUCTION

1.1 – Motivation

This final paper synthesizes the knowledge acquired during my graduation in Production Engineering at Escola Politécnica of Universidade de São Paulo, and during the two-year double-degree exchange program carried out in Instituto Superior Técnico of Universidade de Lisboa.

Although the first contact with ESG related themes started already in São Paulo, through an undergraduate research program approaching the concepts of Sustainable Development and Circular Economy, a deeper familiarization was obtained during my stay in Lisboa, through the enrollment in the courses of Environmental Impacts and Seminars on Innovation and Sustainable Development.

Moreover, having the opportunity to further explore the study of financial topics, I developed my final dissertation at Instituto Superior Técnico over the theme of performance and financial sustainability assessment of listed companies, carrying out a comparison analysis between different market segments in Portugal and in Brazil.

The current final paper is motivated by an expansion of this previous work, in an attempt to further explore, inside the Brazilian context, the relation between financial performance, market values and an expanded understanding over the concept of corporate sustainability, integrating environmental, social and governance (ESG) factors.

1.2 – Context

As reported by Broadstock et al. (2020), ESG investing has stimulated mainstream interest among asset managers. In 2019, the capitalization of ESG focused portfolios in major markets exceeded US$30 trillion. According to Boffo and Palatano (2020), the considerable recent attention which has been given to ESG criteria and investing, is due in part to at least three factors:

First, recent industry and academic studies suggest that ESG investing can, under certain conditions, help improve risk management and lead to returns that are not inferior to returns from traditional financial investments. Despite the recent studies there is a growing awareness of the complexity of measuring ESG performances.

Second, growing societal attention to the risks from climate change, the benefits of globally-accepted standards of responsible business conduct, the need for diversity in the

workplace and on boards, suggests that societal values will increasingly influence investor and consumer choices may increasingly impact corporate performance.

Third, there is growing momentum for corporations and financial institutions to move way from short-term perspectives of risks and returns, so as to better reflect longer-term sustainability in investment performance. In this manner, some investors seek to enhance the sustainability of long-term returns, and others may wish to incorporate more formalized alignment with societal values. In either case, there is growing evidence that the sustainability of finance must incorporate broader external factors to maximize returns and profits over the long-term, while reducing the propensity for controversies that erode stakeholder trust.

ESG scoring and reporting has the potential to unlock a significant amount of information on the management and resilience of companies when pursuing long-term value creation. It could also represent an important market-based mechanism to help investors better align their portfolios with environmental and social criteria that align with sustainable development (BOFFO; PALATANO 2020).

As a result, companies are currently pressured to not only address analysts concerns on financial performance issues but also environmental, social and governance concerns, now widely referred to as ESG (BALATBAT, 2012).

1.3 – Objectives

This work primary objective is to explore the existence of impacts of the ESG narrative on the market value of companies, comparing two distinct groups trough case studies:

1. Companies with clear and consolidated implementation of ESG initiatives, belonging to the Brazilian Stock Exchange's (B3) Corporate Sustainability Index (ISE).

2. Companies without an ESG narrative or with more diffuse performance of these practices (not belonging to ISE).

Regarding this goal, the project will be based on the calculation and the analysis of various indicators of the selected companies to assess differences between their financial performances and identify possible asymmetries in the evolution and dimensioning of market values, which may be explained by an addition of value related to adoption of ESG practices. Therefore, the document will:

- Provide clear definitions of corporate performance and ESG concepts, using the existing academic literature, as well as the identification of the main key indicators related to these themes.
- Map the past financial performance of selected listed companies, as well as market indicators and their status concerning the adoption of ESG practices and measurements, from 2013 to 2020.
- Compare each pair of companies based on these three perspectives.
- Assess preliminary conclusions and their limitations.

1.4 – Structure

In order to pursue the objective stated in Section 1.3, this document is structured in five chapters. The first introductory chapter is focused on sharing the author's motivations about this topic, explaining the context in which the theme is approached, and establishing the objective pursued by the document.

The second chapter is a brief literature review of topics related to the evolution of Accounting in Brazil, the concept of Performance inside a business context, the definition, the evolution, and the related subjects to the theme of ESG, and the assessment of the main indicators related to a firm's financial performance, ESG practices and market value's evolution.

The third chapter is devoted to explain the methodology of this study, based on the conjunction of both quantitative and qualitative data to carry out each of the case studies. It is divided into four main steps: First, a literature review will be conducted in order to identify the main concepts and indicators related to the themes of financial performance, market valuation and the ESG concept. The second stage will involve the collection of accounting and extra-accounting information, from 2013 to 2020, from each of the three pairs of public listed companies selected. Third, the application of the obtained performance, market valuation and ESG indicators to each company will be conducted. Finally, the last stage will involve consolidating the results obtained and carrying out an analysis involving both concomitant horizontal and vertical analyses.

The fourth chapter contains the analysis and the results of this study, which is divided into the three pairs of companies. Each will involve the financial assessment, based on the

Performance, Efficiency, Leverage and Liquidity dimensions, followed by the ESG approaches and policies' analysis and, finally, the market value's indicators assessment.

Ultimately, the last chapter is responsible for synthetizing the conclusions of the report, describing the current circumstances about the relation between ESG commitments and the market value of the selected companies, in Brazil.

CHAPTER 2 – LITERATURE REVIEW

2.1 – Accounting in Brazil

Accounting is a social-factual science, and its social nature is reflected in the concern with understanding the way in which individuals create, modify, and interpret accounting phenomena, about which they inform their users (SCHMIDT, 1998). In this way, Accounting is influenced by the environment in which it operates, and the different cultures, values, histories, economic and political structures influence the accounting practices of each country.

In Brazil, a landmark in the country's accounting history occurred in 1946, when Decree-Law No. 9,295 was enacted, which determined the creation of the Federal Accounting Council (CFC) and the Regional Accounting Councils (CRCs), intended to supervise the practice of the professions of accountant (bachelor of accounting) and bookkeeper (accounting technician). (HERMES, 1986).

In 1976, Law No. 6,404, known as the Brazilian Corporation Law (Lei das Sociedades por Ações), was passed, initiating a new phase in the history of national accounting with the introduction of revaluation at market value, the creation of the unrealized profit reserve, the separation between commercial accounting and tax Accounting, and the consolidation of the financial statements of the same group, or of investments in companies considered as controlled. (BUGARIM; OLIVEIRA, 2014).

In the same year, the Securities and Exchange Commission (CVM) was created, with the objective of inspecting, regulating, disciplining, and developing the securities market in Brazil, and regulated by Law No. 6,385 / 1976. (SILVA; MARTINS, 2006)

Later, in 1981, through Resolution CFC nº 530/81, the Federal Accounting Council approved the Brazilian Accounting Standards, which, in turn, in 1993, were renamed "Fundamental Accounting Principles" by Resolution CFC nº 750 / 93, concretely consisting of the principles of the Entity, Continuity (Going Concern), Opportunity, Registration at Original Value, Competence, Prudence and Monetary Update - the latter being revoked by Resolution CFC nº. 1,282 / 2010. These principles support the essence of the doctrines and theories related to Accounting Science in the country and are detailed in Table 1.

Table 1: Framework of Accounting Principles in Brazil.

Accounting Principles
Brazil (CFC Resolution No. 750/93)
1. Entity
It recognizes Equity as an object of Accounting and affirms equity autonomy: the need to differentiate a particular Equity in the universe of existing equities, regardless of belonging to a person, a group of people, a society or institution of any nature or purpose, for-profit or non-profit. Consequently, in this sense, the Equity is not to be confused with those of its partners or owners, in the case of a company or institution.
2. Going Concern (continuity)
It assumes that the Entity will continue to operate in the foreseeable future, generally related to the time horizon of one year, and, therefore, the measurement and presentation of the equity components take this circumstance into account.
3. Opportunity
It refers to the process of measuring and presenting the equity components to produce complete and timely information, determining that the record of changes in equity be made immediately and to the correct extent, regardless of the causes that originated
4. Registry at Original Value
It determines that the equity components must be initially recorded at the original values of the transactions, expressed in national currency.
5. Accrual
It determines that the effects of transactions and other events are recognized in the periods to which they refer, regardless of receipt or payment. The Accrual Principle presupposes the simultaneous confrontation of revenues and related expenses.
6. Prudence
This principle presupposes the use of a certain degree of precaution in exercising the judgments necessary to the estimates in certain conditions of uncertainty, in the sense that assets and revenues are not overestimated and that liabilities and expenses are not underestimated, attributing greater reliability to the process of measurement and presentation of equity components.

Source: Resolution CFC nº 750 / 93; own elaboration.

In order to modernize and harmonize the provisions of Brazilian corporate law with the best international practices, in 2007 Law 11,638 was published, which reformulated the accounting portion of the Brazilian Corporate Law (Law 6,404 / 1976), in order to meet the need for greater transparency and quality of accounting information.

Consequently, in Brazil, the convergence towards international accounting standards had as a legal landmark the enactment of this legislation, that explicitly determined the adoption of international accounting standards in the Brazilian regulatory framework (BUGARIM; OLIVEIRA, 2014), or, in other words, through the gradual adoption of the standards issued by the International Accounting Standards Board (IASB), known as International Financial Reporting Standards (IFRS), which was already occurring in more than 100 countries, including all the nations of the European Community (BRAGA; ALMEIDA, 2008).

2.2 – Performance

The evaluation of performance, from a financial perspective, has traditionally been based on accounting information from Financial Statements, such as the Balance Sheet, the Income Statement, and the Cash Flow statement, endorsing the importance of the accounting concepts discussed previously. It is important to mention, however, that this analysis has some limitations, especially when performed by an external analyst, as he does not have all the information elements, so his sensitivity is necessary in order to identify any inconsistencies in the financial statements. Some of these issues relate to the classification of items in the short and medium / long term, influencing the results of the analysis and the correct diagnosis of the company (MACEDO, 2017). It can also be related to the so-called Creative Accounting, which, according to Naser (1993) "is the transformation of financial accounting figures from what they actually are to what preparer desires by taking advantage of the existing rules and/or ignoring some or all of them".

The performance evaluation provides a set of information allowing to characterize the company's activity, providing a global view of the results achieved, allowing to verify whether the decisions were made in accordance with the expected results, quantifying the deviations to later take the necessary corrective measures. Through this methodology, the company will be able to become more efficient and profitable, contributing to guarantee and solidify its continuity (MACEDO, 2017).

In the current business context, characterized by innovation and global competitiveness, performance analysis in all its fullness and naturally with a particular focus on finance, as well as the creation of value, assumes increasing importance in the decision making of companies (MACEDO, 2017).

In a business context, the Oxford Business English Dictionary (PARKINSON; NOBLE, 2006) defines "performance" as "how far a company or an investment makes a profit". That is, the performance of a company can be directly associated to the magnitude of its profits (or possibly losses), in a given instant or period of time. To evaluate a business performance in a most comprehensive and effective manner, however, it is also necessary, more than access the company profitability (computing all financial indicators related), to compare it to its own past and to other similar businesses. Performance will be here segregated into four distinct classes: technical, financial, economic and market.

According to Parkinson and Noble (2006), “technical efficiency” is defined as “a situation in which a machine or a business produces at the highest possible amount or quality of goods or services with a particular amount of resources”. In this sense, for the purpose of this project, the technical performance of a business will be defined as one closely related to its main activity efficiency (how fast can the company produce and deliver its products or services, or how well it uses its available labor or the capacity of its machines) and efficacy (what is the percentage of defective products produced or how many of them are delivered correctly and on time).

Finance, in a business context, is defined as “the activity of managing money, especially by a commercial organization or government” (PARKINSON; NOBLE, 2006). As a result, Financial Performance is here defined as a subjective measure of how good the company is at managing its money, generated from its primary mode of business - being closely related to the activities of investment and financial funding. It can be segregated between short-term and long-term financial performance, being the first one related to current assets and liabilities, and the second being related to long-term assets and liabilities.

Parkinson and Noble (2006) define and economic business as one producing enough profit to continue, being the term “profitable” a synonym. In this context, for the purpose of this project, the Economic Performance concept will be observed exclusively related to how good the company is at generating results from its primary mode of business, being related to its products/services sales, profit margins and cost structure.

Finally, market performance is defined as “the amount of trade in a particular type of goods, services, investments, etc.” (PARKINSON; NOBLE, 2006). Market performance, therefore, can be here related to the behavior of all companies inside a specific segment (e.g., Manufacturing Industries) or also the behavior of the whole national market. It can be given by stock indexes, segment indexes and changes on the gross domestic product (GDP).

2.3 – ESG

2.3.1 – Sustainable Development

Never in the world’s history had there been more drastic growth in production, consumption, and wealth than after the Industrial Revolution. In the period between 1800 and 1970, when the world’s population tripled from around 978 million to 3632 million, seemingly unslackened economic growth occurred and the quantity of manufacturing production in the world increased about 1730 times (ROSTOW, 1978).

The 20th century was a century of fluctuation between optimistic and pessimistic outlooks with regard to human development. The optimism reflected by predictions at the beginning of the century, of almost unlimited possibilities opening up because of scientific and technological advances, was shattered by economic turmoil and destructive global wars during the first half of the century. But soon after World War II, an unprecedented economic boom paved the way for renewed optimism about the prospects of rising living standards worldwide. It was, however, during this period of industrial and commercial expansion that the environmental crisis started looming larger on the horizon, forcing people to change their basic assumptions about growth and development (PISANI, 2006).

According to Pisani (2006), by the 1970s the existing notions of 'progress', 'growth' and 'development' were being challenged. During the 1960s the mood had been optimistic, and it had been assumed that the development problems of the underdeveloped world would be solved quickly as a result of world-wide economic growth, but in the 1970s the optimism faded. Economic growth did not prove to be the hoped-for solution to global inequalities. This realization necessitated a paradigm shift to a new notion of development.

Inside the context of environmental degradation and increasing sustainability awareness, Stockholm 1972 was the first world conference in which industrialized countries discussed about the negative externalities of overproduction and how governments should act in order to sustain the adopted economic system while guaranteeing environmental and social stability for the future (SOHN, 1973).

The conference resulted in the conception of a document through which nations agreed to take responsibility for environmental consequences of their actions, and an action plan composed by 109 recommendations (UNEP, 1972).

The common acknowledgment at that time was that industrial production constituted the main cause of environmental degradation. However, policy makers did not know exactly how to manage their domestic industrial output, which should attend to the increasing demand related to the growing population without generating the same previous impact on the environment (SOHN, 1973).

As an alternative to tackle this challenge, the idea of Sustainable Development was firstly introduced in the document called "Our Common Future", in 1987. The concept was defined as the development that should meet the "needs of the present without compromising the ability of future generations to meet their own needs" (MEADOWS ET AL., 2004).

Subsequently, in 1992, the United Nations organized a world conference with members of 172 countries and approximately 1400 non-governmental organizations, in Rio de Janeiro, to retake some points discussed twenty years before, rethink economic development under the lens of Sustainable Development and recognize that some local issues evolved to global problems (GADOTTI, 2002).

The main result from this meeting was the approval of the "Agenda 21", a document that proposed an effective action plan aimed to promote sustainable ways of development and change previous consume patterns. It was not restricted to environmental problems, but also considered social problems such as poverty, demographic pressures, and the amount of external debt of underdeveloped countries (GADOTTI, 2002).

Ultimately, in September 2015, the United Nations organized a meeting in its headquarters in New York to define the Sustainable Development Goals (SDGs), which would guide the 2030 Agenda for the sustainable development (MORTON, 2017). The SDGs represent an urgent call for action by all United Nations Member States, in a global partnership to promote prosperity to humankind aligned with social and environmental constraints. The simplified goals are shown in Figure 1.

Figure 1: United Nations' 17 Sustainable Development Goals

Source: MORTON, 2017.

Although within a relatively reduced timeframe, the energetic spread and evolution of the subject of Sustainable Development, as well as the challenges it embraces, depicts the significant relevance of the concept. Moreover, requiring the alignment and the combined work

of various agents of society, the promotion of changes over companies is extremely relevant, where both consumers and the government start exerting pressure for the alignment over this new frameset.

2.3.2 – ESG Concept and Evolution

Given the context of increasing relevance of the concept of Sustainable Development and the growing perception of environmental and social imbalance caused by companies' focus on mass production, seeking economies of scale, and stimulating unsustainable demands from the perspective of the planet's carrying capacity, large companies and investors started to question what would be the future regulatory frameworks and its potential impacts and opportunities in their activities and investments. (UNITED NATIONS, 2019).

Ethical and socially responsible investment originated in the 18th century when religious groups identified the need to meet investors' values by imposing investment restrictions. The Sullivan principles were originally developed in 1977 to apply economic pressure on South Africa in protest of its system of apartheid. The principles were revised in 1999 and were designed to increase the active participation of corporations in the advancement of human rights and social justice at the international level (JOHNSON, 2020).

From the 1960s until mid-1990s, 'socially responsible investing (SRI)' was used as a term to incorporate investment restrictions (negative screening) into the investment process. Investors started to exclude controversial sectors, such as alcohol, tobacco, adult entertainment and military equipment from their portfolios. This ethically motivated way of investing used exclusionary screening to narrow the investment possibilities by the nature of the business, restricting portfolio construction. The main objective was the creation of social consciousness through investment decisions while financial returns were put aside (JOHNSON, 2020).

From the late 1990s, as an evolution of the SRI concept, ESG factors started to be introduced. ESG (environmental, social and governance) refers to three groupings of factors that can be used to measure the sustainability and ethical impact of an investment in a company or business. These factors are used by financial services investment firms to help determine the future financial performance of companies (JOHNSON, 2020):

1. **Environmental criteria** address how a company performs as a steward of the natural environment. Examples include: Air and water pollution; Animal Treatment; Climate Change Impact/Greenhouse Gas Emissions (GGE);

Deforestation; Energy efficiency; Fracking; Methane emissions; Sustainable land use; and Waste management.

2. **Social criteria** examine how a company manages relationships with its employees, suppliers, customers, and the communities where it operates: Conflict zones; Consumer Privacy and Data Security; Employee Relations; Gender Equality; Health and Safety; Human Rights; Labor Standards; Modern-day Slavery; Supply Chain Standards; and Working Conditions.

3. **Governance** deals with a company's leadership, executive pay, audits and internal controls, and shareholder rights: Anticorruption and Bribery; Board Independence; Code of Ethics; Executive Pay; Gender Balance; Risk Management; Shareholder Rights; and Tax Transparency.

2.3.3 – From traditional to ESG Investment approaches

Like traditional investment strategies, ESG Investing is mainly concerned about the financial returns derived from the performance of the target company and market expectations of its future growth, dividends distribution and cash flows. The distinction is that, when searching for investment targets that will outperform the market, ESG investors assess also non-traditional aspects that may generate value.

According to Johnson (2020), in recent years, there have been clear global signs that ESG investment, and integration of ESG, is increasing, and the drivers of this change could include the following examples:

- **Investor demand**: Increasing influence of millennials (includes those currently aged 30–40 years old), with concerns about long-term sustainability of their investments, across financial services with resulting investor interest.
- **Long-term investment horizon**: Investment firms' focus on sustainability and longevity of their investments, regulatory concerns about the long-term sustainability of systemically important companies, and to prepare for increased life expectancy.
- **Condition of doing business**: The increasing requirement for ESG to be embraced fully by companies, issuers, and suppliers as a prerequisite, or alternatively face a potential loss of business if ESG is not integrated.

- **Risk mitigation**: Keeping ahead of investment trends, such as the potential for stranded assets, where commonly held assets can suffer premature devaluations. Investment firms may also consider how ESG integration could help to mitigate exposure to actual or potential litigation risk from investors.
- **Intangible value**: The shift from mainly tangible value towards intangible value in stock markets, making richer investment information, such as ESG controversies, more relevant and beneficial.
- **Climate change impact**: Insurance claims from natural losses have quadrupled since the 1980s. Recent examples of climate-related issues include Indonesia's government preparations to relocate their capital city Jakarta owing to rising water levels and subsidence, Singapore airport's new runway being elevated, at much increased expenses, owing to rising seawaters and a project in Kuala Lumpur to create an underground highway that can be sealed off to become a giant water storage tank during monsoon rains.

Also according to Johnson (2020), however, there is a lack of consensus of the nomenclature used for referring to ESG investment approaches. In order to quantify the amount of investment in ESG, the Global Sustainable Investment Alliance (GSIA, 2020) has provided a definition of the types of sustainable investment by consolidating the existing literature, which can be divided in seven different clusters:

1. **Negative/Exclusionary Screening**: the exclusion from a fund or portfolio of certain sector, companies or practices based on specific ESG criteria;
2. **Positive/Best-in-class Screening**: investment in sectors, companies or projects selected for positive ESG performance relative to industry peers;
3. **Norms-based screening**: screening of investment against minimum standards of business practice based on international norms, such as those issued by the OECD, ILO, UN, and UNICEF;
4. **ESG Integration**: the systematic and explicit inclusion by investment managers of environmental, social, and governance factors into financial analysis;
5. **Sustainability Themed Investing**: Investing in themes or assets specifically contributing to sustainable solutions - environmental and social - (e.g.,

sustainable agriculture, green buildings, lower carbon tilted portfolio, gender equity, diversity);

6. **Impact/Community Investing**: targeted investments aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose; and
7. **Corporate Engagement & Shareholder Action**: Employing shareholder power to influence corporate behavior, including through direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.

Finally, based on the congregation of these different ESG investment approaches, the Global Sustainable Investment Alliance was able to analyzed the evolution of the aggregate investment related to this theme, composing the Sustainable Investing Assets amount. Table 2 depicts the growth of these assets in five different main regions, from 2014 to 2020.

Table 2: Growth of Sustainable Investing Assets by region, in local currency, from 2014 to 2020. Expressed in billions.

					GROWTH PER PERIOD			COMPOUND ANNUAL GROWTH RATE (CARG) 2014-2020
	2014	2016	2018	2020	GROWTH 2014-2016	GROWTH 2016-2018	GROWTH 2018-2020	
Europe* (EUR)	€9,885	€11,045	€12,306	€10,730	12%	11%	-13%	1%
United States (USD)	$6,572	$8,723	$11,995	$17,081	33%	38%	42%	17%
Canada (CAD)	$1,011	$1,505	$2,132	$3,166	49%	42%	48%	21%
Australasia* (AUD)	$203	$707	$1,033	$1,295	248%	46%	25%	36%
Japan (JPY)	¥840	¥57,056	¥231,952	¥310,039	6,692%	307%	34%	168%

Source: GSIA, 2020.

The clear recent and expressive positive evolution, although not evenly distributed between each of the regions, contributes to confirm the relevant repercussion of the ESG approaches in financial markets, and therefore, also on the different listed companies worldwide. It depicts the growing concern of investors alongside the demand for sustainable practices, besides the potential positive attractivity, for corporation's market values, generated by the implementation of ESG initiatives.

2.3.4 – Brazilian Context and ISE

Concerning Brazil's framework, the Brazilian stock exchange (B3) was the first to become a signatory of the UN Global Pact, in 2004, and the first stock exchange in an emerging country to commit to the Principles for the Responsible Investment (PRI), in 2010. In addition, it is one of the founding signatories of UN Sustainable Stock Exchanges (SSE) initiative since 2014, as well as a member of the Sustainability Working Group of the World Federation of Scholarships (WFE) (CHRIST, 2021).

Aiming to reinforce the incentive to Corporate Sustainability practices, the Corporate Sustainability Index (ISE) was created in 2005 by the São Paulo Stock Exchange (currently B3) in partnership with financial market agents, universities, and others, and it is the 4th index of its type in the world. The first was the 1999 Dow Jones Sustainability Indexes (DJSI), the second was the FTSE4Good of 2001 and the JSE was the third, launched in 2003. It is a pioneering initiative in Latin America and its preparation was initially financed by the International Finance Corporation (IFC), the financial arm of the World Bank (BACARJI, 2010).

This index seeks to apply the Triple Bottom Line concepts, that is, to integrate environmental, social, and economic-financial elements in the assessment of Corporate Sustainability (CS) practices. ISE measures the average return of a theoretical stock portfolio of publicly traded companies listed on B3 with the best sustainability practices, based on efficiency economic, environmental balance, social justice, and corporate governance. According to B3 (2021), ISE's mission is to support investors in decision-making on socially responsible investments and induce companies to adopt the best corporate sustainability practices. In this way, it contributes to the development of a new culture among Brazilian companies and investors, based on practices that favor sustainability (CHRIST, 2021).

According to B3 (2021), the companies that constitute the ISE portfolio are selected annually, based on a screening process, which analyzes quantitative and qualitative aspects of the sustainable practices of Brazilian public listed corporations. To be selected, companies interested in participating must pay the inscription fee and answer a questionnaire with more than 200 objective questions related to the theme of sustainability. This questionnaire has seven dimensions that assess, among others, environmental, social, and economic-financial elements in an integrated manner. After sending the responses, companies must submit documents that prove the responses indicated.

All dimensions are subdivided into a set of criteria and these into indicators. The Environmental, Social, Economic-financial and Climate Change dimensions follow the same pattern, being divided into four criteria: Policy, Management, Performance and Legal Compliance. With regard to the Environmental dimension, there is a distinction between the questionnaires based on the company's activity and its differentiated impacts on the environment. The weights of these criteria are defined by the relevance of the topic in the current context of business management and society's demands.

After receiving the answers, the company's score in each of the seven dimensions is calculated (all have the same weight of 100). This score is then normalized so that the set has zero mean and unity standard deviation (Z). The main quantitative criteria adopted in the selection process are, according to B3 (2021):

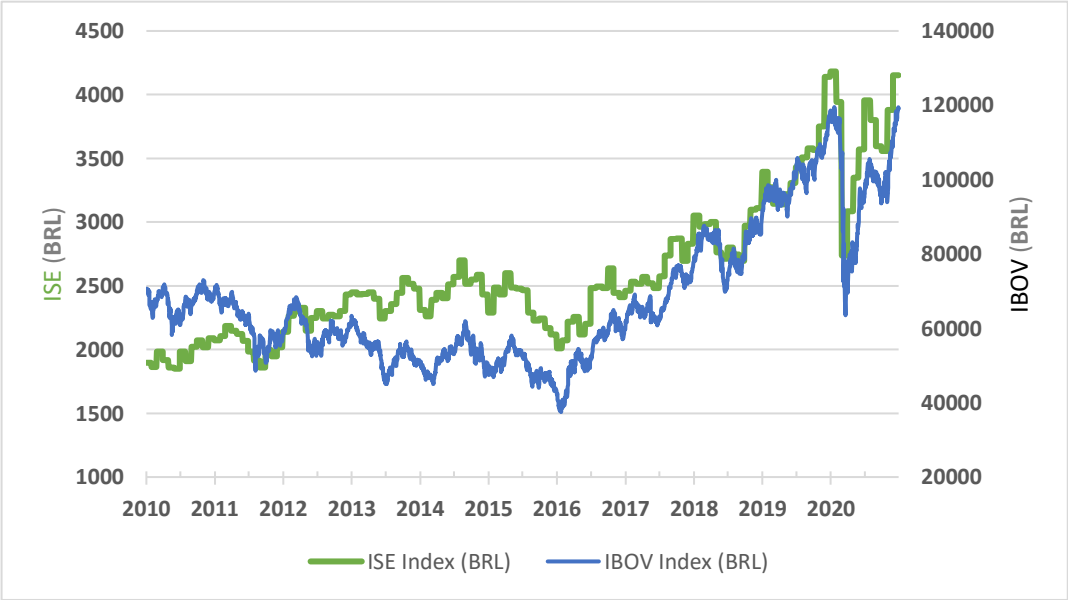
- **Criterion 1 – Total Z**: It is the sum of the standard deviations of each dimension. Choosing the best companies, based on a single variable, requires the arbitrary choice of a cutoff point, this value depends on the number of participating companies, individual and overall performance. Therefore, the cutoff point cannot be defined in advance.
- **Criterion 2 – Minimum Z**: The average can mask the existence of very different performances between the dimensions that make up the questionnaire. Thus, in addition to the total Z, the assessment incorporates a criterion of minimum grade by each dimension. Companies that perform in one or more dimensions below this minimum (Z) criterion may not be part of the portfolio.
- **Criterion 3 – Clustering**: A third criterion that can be adopted to complement the analysis is clustering, also called cluster analysis. That is, companies in each of the groups tend to perform similarly to each other and different from companies in the other groups. Thus, the groups present both internal homogeneity (within each group) and external heterogeneity (between different groups).

The score found obtained the questionnaire makes up the quantitative assessment, while corporate documents generate the qualitative analysis. Together, these performances serve as a basis for the assessment of the ISE's Deliberative Council (CISE) and the decision on the group of companies that will comprise the portfolio, considering the limit of 40 companies. Selected

companies are automatically authorized to use the ISE B3 logo on advertising items and campaigns.

The first edition of the Corporate Sustainability Index (ISE) consisted of 28 companies from 12 different economic sectors. In the years that followed, the number of companies in the portfolio fluctuated, reaching a maximum of 40 companies in 2014 and a minimum of 30 in 2019. Five companies have been uninterruptedly in ISE's portfolio since its creation: Banco do Brasil, Bradesco, Braskem, Cemig and Natura.

Figure 2: Ibovespa Index versus ISE Index - price evolution in BRL



Source: B3, BLOOMBERG; own elaboration.

Since its creation, ISE B3 has presented a performance of 294.73% against 245.06% of the Ibovespa Index (with the closing base on 11/25/2020). In the same period, the ISE B3 had even less volatility: 25.62% compared to 28.10% from Ibovespa.

2.4 – Key indicators

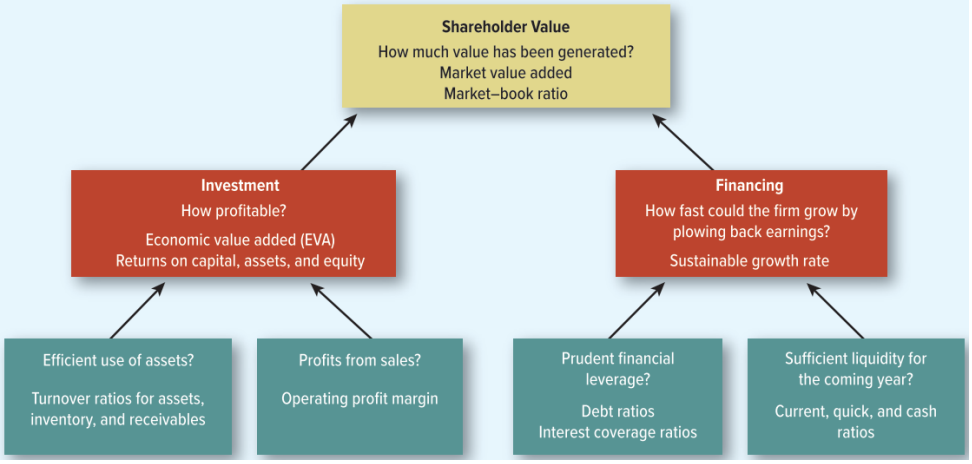
2.4.1 – Financial Indicators

Financial analysis plays a crucial role at verifying the financial health and economic situation of a company, which requires an in-depth study of an extensive amount of data from its sources of financial information, being the Income Statement, the Balance Sheet, and the Cash Flow Statement the most relevant ones (MACEDO, 2017). In this domain, financial ratios, either in a univariate or multivariate approach, are an indispensable tool in financial analysis, since they allow to build the synthesis and identify the relationship of the data being analyzed.

More importantly, enabling a better comparison between different companies, they allow to control the effect of the magnitude of the variables, evaluating companies with greater independence from their size.

According to Brealey, Myers and Allen (2020), shareholder value depends on two major types of decision: investment and financing. The chart below (Figure 3) provides an overview of how common financial ratios relate to the ultimate objective of value added for shareholders, serving as a road map for the following proposed main financial indicators.

Figure 3: How common financial ratios relate to shareholder value.



Source: BREALEY, 2020.

Brealey, Myers and Allen (2020) also propose a segregation of these ratios into four types of measurements: Performance, Efficiency, Leverage and Liquidity. They present a set of main relevant indicators, detailed bellow:

Performance measures

Inside performance measures, the main ratios included are: Return on Capital, Return on Equity, Return on Assets and Earnings per Share.

The Return on Capital (ROC), or Return on Invested Capital (ROIC) ratio, is used to assess a company's efficiency at allocating its capital to profitable investments. ROC gives a sense of how well a company is using its money to generate returns and comparing it with the company’s weighted average cost of capital (WACC) (which will be further detailed later at the topic of Value Creation) reveals whether invested capital is being used effectively. It is equal to the total profits that the company has earned for its debt and equity holders, divided by the amount of money that they have contributed with (BREALEY, 2020).

$$\text{ROC} = \frac{\text{NOPAT}}{\text{total capital}} = \frac{\text{after-tax interest + net income}}{\text{LT debt + total equity}} \quad (1)$$

Total long-term capital, here called total capital and also known as total capitalization, is the sum of long-term debt and shareholders' equity, and it is smaller than the value of total assets as it does not include current liabilities. Inside NOPAT (Net Operating Profit After Taxes), the reason that the tax shield is subtracted on debt interest is that it allows to calculate the income that the company would have earned with all-equity financing. The tax advantages of debt financing are picked up when we compare the company's return on capital with its weighted-average cost of capital (WACC). WACC already includes an adjustment for the interest tax shield, while, more often than not, financial analysts ignore this refinement and use the gross interest payment to calculate ROC. It is only approximately correct to compare this measure with the weighted average cost of capital (BREALEY, 2020).

Return on Assets (ROA), on the other hand, measures the income available to debt and equity investors per dollar of the firm's total assets. According to Rakićević *et al.* (2016), it is considered as an overall measure of profitability and it measures how efficiently a management utilizes company's assets to generate earnings. They also point out a potential drawback of ROA indicator, as its measurements include all business's assets, including those borrowed from creditors as well as those which arise out of contributions by investors. In that sense, a company could have a high ROA, but still be in financial straits because most of the assets were paid for through leveraging. For this reason, many investors turn their attention to the other major profitability ratio - return on equity ratio (ROE).

$$\text{ROA} = \frac{\text{NOPAT}}{\text{total assets}} \quad (2)$$

The Return on Equity (ROE) ratio is measured as the income to shareholders per dollar invested and it needs to be compared with the company's cost of equity. Contrary to ROA, which remain relatively unaffected by a company's choice of capital structure - the choice of using debt versus equity to fund operations, ROE measures how efficiently the company is utilizing its equity, and the higher its value, the better. This is of great importance to investors, since their return on investment is directly related to ROE (RAKIĆEVIĆ *ET AL.*, 2016).

According to Walsh (2006), at the level of the individual business, a good return on equity will keep in place the financial framework for a thriving, growing enterprise. At the level of the total economy, return on equity drives industrial investment, growth in gross national

product, employment, government tax receipts and so on. It is, therefore, a critical feature of the overall modern market economy as well as of individual companies.

$$\text{ROE} = \frac{\text{net income}}{\text{equity}} \tag{3}$$

According to Walsh (2006), one of the most widely quoted statistics when there is a discussion of a company's performance is the earnings per share ratio (EPS). It is important to note the profit used in the calculation is the figure after all preferred dividends have been distributed, known as Net Income Available to Common Shareholders. The ratio can be calculated by dividing this amount by the number of common shares:

$$\text{Earnings per Share (EPS)} = \frac{\text{Net Income Available to Common Shareholders}}{\text{Number of common shares}} \tag{4}$$

Also, according to Walsh (2006), it serves no purpose in comparing the earnings per share of one company with another since an enterprise can elect to have a large number of shares of low denomination or a smaller number of a higher denomination. A company can also decide to increase or reduce the number of shares on issue. This decision will automatically alter the earnings per share. We cannot say, therefore, that a company with an earnings per share value of 50¢ is any better than one with a value of 40¢. While the absolute amount of earnings per share tells nothing about a company's performance, the growth in EPS over time is a very important statistic. Indeed, many chairpersons stress it as a prime target in annual reports. Furthermore, growth in earnings per share has a significant influence on the market price of the share.

Efficiency Measures

The main efficiency measures that can be pointed out are: asset turnover, inventory turnover, days in inventory, receivables turnover, average collection period, net profit margin and the operating profit margin.

Asset turnover, also known as sales-to-assets ratio, measures the sales generated per dollar of assets and is an indication of how efficient the company is in utilizing assets to generate sales. Asset-intensive companies such as mining, manufacturing, and so on will generally have lower asset turnover ratios compared to companies that have fewer assets, such as consulting and service companies. (RIST; PIZZICA, 2015).

Generally, the higher this ratio is, the more effective the assets are being managed. (TUGAS, 2012). It is important to notice that this ratio compares a flow measure (sales over the entire year) with a snapshot measure (assets at a point in time). Frequently, analysts use the average of the firm's assets at the start and end of the year. The idea is that it better measures the assets that the firm had to work with during the year (BREALEY, 2020).

$$\text{Asset turnover} = \frac{\text{Net sales}}{\text{average total assets}} \tag{5}$$

The inventory turnover shows how many times a company's inventory is sold and replaced over a given period. It can be calculated as cost of goods sold over average inventory for that period. (RIST; PIZZICA, 2015)

$$\text{Inventory turnover} = \frac{\text{cost of goods sold}}{\text{average inventory}} \tag{6}$$

Days in inventory, also known as Inventory Period ratio, is directly and inversely related to inventory turnover, and measures the average number of days the company holds its inventory before selling it to customers. Usually, the lower the number of days in inventory, the better the position of the company as cash is not tied up in inventory (RIST; PIZZICA, 2015).

$$\text{Inventory period} = \frac{\text{average inventory}}{\text{daily costs of goods sold}} \tag{7}$$

The receivables turnover ratio measures the firm's sales as a proportion of its receivables - which correspond to the sales for which the company has not yet been paid. It shows how many times during the period (year) is a unit of receivable converted into sales. If customers are quick to pay, unpaid bills will be a relatively small proportion of sales and the receivables turnover will be high. According to Fridson and Alvarez (2011), a decline in the ratio may signal that the company's customers are paying more slowly because they are encountering financial difficulties. Alternatively, the company may be trying to increase its sales by liberalizing its credit standards, allowing its salespeople to do more business with less financially capable customers.

$$\text{Receivables turnover} = \frac{\text{Net sales}}{\text{average accounts receivable}} \tag{8}$$

Average collection period, also known as Receivables Collection Period and Accounts receivable period, indicates the amount of time (in days) it takes a company to convert its receivables into cash (RIST; PIZZICA, 2015).

The company's credit terms will have a significant impact on the average collection period: the better the credit terms, the higher the average collection period. An increase in the average collection period could indicate an increased risk of the company's customers not being able to pay for their purchases. A possible result is that the company will have to hold greater levels of current assets as a reserve for potential losses or bad debt expense. Most large companies (nonretail) do not handle many cash sales. Therefore, when looking at financial statements, it can be assumed that total sales do not include any cash sales. However, in smaller companies and in retail businesses, cash sales can be a significant part of the total sales (RIST; PIZZICA, 2015).

$$\text{Accounts receivable period} = \frac{\text{average accounts receivable}}{\text{average daily sales}} \tag{9}$$

The net profit margin ratio, or return on sales (ROS), measures the proportion of sales that finds its way into profits. It measures, therefore, the effectiveness with which profit is generated from revenue through the value-add management process (BULL, 2008). The profit margin is the ratio of net income to sales, and as a rule of thumb, a higher profit margin is preferred since lower profit margin (as compared with similar firm) may mean higher interest charges because of higher debt (TUGAS, 2012).

$$\text{Profit margin} = \frac{\text{Net income}}{\text{Net sales}} \tag{10}$$

At last, the operating profit margin constitutes an alternative measure of profit margin, adding back the after-tax debt interest to net income, and it is especially useful when comparing companies with different levels of debt finance. Operating margin shows how well management has run the business—buying and selling wisely and controlling selling and administrative expenses—before taking into account financial policies (which largely determine interest expense) and the tax rate (which is outside management's control) (FRIDSON; ALVAREZ, 2011). As a rule of thumb, a higher operating margin is preferred since lower operating margin (as compared with similar firm) may mean higher operating costs (TUGAS, 2012).

$$\text{Operating profit margin} = \frac{\text{NOPAT}}{\text{Net sales}} \tag{11}$$

Leverage Measures

The main leverage measures include: the Long-term Debt Ratio, the Total Debt Ratio, the Time-interest-earned indicator, the Cash Coverage ratio and the Debt-to-equity Ratio.

Financial leverage is usually measured by the ratio of long-term debt to total long-term capital. The long-term debt ratio, also known as capital structure ratio or capitalization ratio, indicates the debt component of a company's capital structure or how much of the company's financing is represented by long-term debt. The amount of leverage that is right for the company varies based on the industry in which the company operates and the maturity of the company as well as other factors. What is optimal for one company might not be right for another. However, low debt and high equity levels in the capitalization ratio generally indicate lower risk for investors. (RIST; PIZZICA, 2015).

$$\text{Long-term Debt Ratio} = \frac{\text{long-term debt}}{\text{long-term debt + equity}} \tag{12}$$

The Total Debt Ratio, also known as debt to asset ratio, shows the proportion of a company's total debt relative to its assets and its measure gives an idea as to the leverage of the company along with the potential risks the company faces in terms of its debt-load (RIST; PIZZICA, 2015). It is especially useful when dealing with a company that is a regular short-term borrower, and it becomes necessary to consider all liabilities in the debt ratio. Usually, the higher this indicator, the higher the level of debt and the associated risks.

$$\text{Total debt ratio} = \frac{\text{total liabilities}}{\text{total assets}} \tag{13}$$

Additionally, the Cash Coverage ratio constitutes another method of assessing the extent to which interest obligations are covered by earnings and is useful for determining the amount of cash available to pay for a borrower's interest expense. Since depreciation is deducted when calculating the firm's earnings, even though no cash goes out the door, it is first necessary to add back all non-cash expenses included in EBIT (such as depreciation and amortization), obtaining the amount also known as EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization), and then divide by the interest expense.

$$\text{Cash coverage} = \frac{\text{EBITDA}}{\text{interest payments}} \tag{14}$$

Finally, the Debt-to-Equity ratio, according to Walsh (2006), is one of the most fundamental measures in corporate finance and it is a great test for the financial strength of a company. The purpose of the ratio is to measure the mix of funds in the balance sheet and to make a comparison between those funds that have been supplied by the owners (equity) and those which have been borrowed (debt). It can be obtained by simply dividing the total debt of a company (short-term and long-term debt) by its total equity:

$$\text{Debt-to-equity} = \frac{\text{Short term debt} + \text{Long term debt}}{\text{Equity}} \tag{15}$$

The debt/equity or leverage decision is one of great importance to management since there is a risk return trade-off. The impulse to achieve high returns for the shareholders must be restrained by the company's risk profile, and even a very well-managed company can suffer an unexpected deterioration in its financial position either from a default on the part of a major debtor or a general worsening of business conditions. Such deterioration can be very difficult to recover from and it is prudent to keep some liquidity in reserve to guard against such an eventuality (WALSH, 2006).

Liquidity Measures

The most immediate danger faced by a lender is the risk that the borrower will suffer illiquidity—an inability to raise cash to pay its obligations (FRIDSON; ALVAREZ, 2011). A company must maintain sufficient cash resources to pay all legitimate bills as they arise, and one that cannot do so has run out of liquidity and is in a very serious financial condition. Ironically, this is so even if it is currently generating good profits (WALSH, 2006).

Inside Liquidity ratios, there are four mains included: net-working-capital-to-total-assets ratio, current ratio, quick ratio, and cash ratio. Before discussing these, however, it is necessary to understand other three measures closely related to liquidity: net working capital, net working capital requirements and net cash.

First, the net working capital concept assumes that permanent capital should cover short-term items related to the exploration cycle and not covered by the exploration itself (suppliers), since they have "immobilization" characteristics (continuous renewal). It corresponds to the difference between current assets and current liabilities, where current assets include cash, marketable securities, inventories, and accounts receivable, that are mostly liquid. Following the rule of minimum financial balance, net working capital must be, overall, positive (BREIA, 2014).

$$\text{Net working capital} = \text{Current Assets} - \text{Current Liabilities} \quad (16)$$

The net working capital requirements, in turn, correspond to the working capital value associated with the financing of the exploration cycle, which can be given by the difference between cyclical operating requirements (inventories, credits granted to customers and recoverable taxes) and cyclical operating resources (debts to suppliers and taxes payable) (BREIA, 2014).

$$\text{Net working capital requirements} = \text{Cyclical requirements} - \text{Cyclical resources} \quad (17)$$

Short-term assets and liabilities, therefore, have a cyclical component (recurring) and an acyclic component (not directly dependent on the exploitation cycle). Net cash, as opposed to the net working capital requirements, corresponds to the difference between the acyclic components (Acyclic requirements less Acyclic resources), and can be equated to the following equation (BREIA, 2014):

$$\text{Net cash} = \text{Net working capital} - \text{Net working capital requirements} \quad (18)$$

From the previous formulation it is clear that the higher the working capital requirements, the greater the potential pressure (and the potential risk) on net cash. When there are, for example, high customer balances (receivables), either in terms of amounts or receipt periods, significant continued delays may cause not only net cash stresses, but also serious solvency risks, in case stable permanent capital reinforcement is not possible (BREIA, 2014).

Listed as the first liquidity ratio, the net-working-capital-to-total-assets ratio compares the net liquid assets to the total assets of the firm and helps to determine the short-term company's solvency.

$$\text{Net-working-capital-to-assets ratio} = \frac{\text{Net Working Capital}}{\text{Total Assets}} \quad (19)$$

Whatever the underlying cause, illiquidity manifests itself as an excess of current cash payments due, over cash currently available. The current ratio gauges the risk of this occurring by comparing the claims against the company that will become payable during the current operating cycle (current liabilities) with the assets that are already in the form of cash or that will be converted to cash during the current operating cycle (current assets) (FRIDSON; ALVAREZ, 2011). The current ratio can depict how many times the firm would be able to pay its current liabilities if it converts all its current assets to cash and it is simply the ratio of current assets to current liabilities.

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}} \quad (20)$$

Analysts also apply a more stringent test of liquidity by calculating the quick ratio, or acid test, which considers only cash and current assets that can be most quickly converted to cash (marketable securities and receivables) (FRIDSON; ALVAREZ, 2011). It deducts the least liquid component from the current assets (inventories, or possibly also long-term receivables) and divides the result by current liabilities. It is therefore very useful in industries, where high level of stock must be held. The higher the acid test ratio, the safer a position the company is in (RIST; PIZZICA, 2015).

$$\text{Quick ratio} = \frac{\text{cash + marketable securities + receivables}}{\text{current liabilities}} \quad (21)$$

Ultimately, the cash ratio, also called as absolute liquidity ratio, is able to show how many times the firm would be able to pay its current liabilities using its most liquid assets (cash and marketable securities). This number can be compared to industry averages or other companies to compare liquidity (RIST; PIZZICA, 2015).

$$\text{Cash ratio} = \frac{\text{cash + marketable securities}}{\text{current liabilities}} \quad (22)$$

The DuPont method

According to Rakićević et al. (2016), the DuPont analysis, also known as the DuPont method or DuPont scheme, is a common form of financial ratio (statement) analysis that decomposes profitability ratios into its multiplicative components. This decomposition enables the analyst to perceive the sources of a firm's superior/inferior return. The famous are DuPont decompositions of two profitability ratios, already mentioned above: Return on Assets (ROA) and Return on Equity (ROE) ratios.

Using DuPont analysis, ROA can be decomposed into the product of two components: net profit margin (NPM) and asset turnover ratio (ATR), also already mentioned:

$$\text{ROA} = \text{NPM} \times \text{ATR} = \frac{\text{Net profit}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Total Assets}} \quad (23)$$

To achieve a certain level of ROA, companies with low profit margins tend to have high asset turnover, while those with high-profit margins have low asset turnover (RAKIĆEVIĆ *ET AL.*, 2016).

Carrying DuPont disaggregation technique, ROE can also be decomposed into two components - ROA and financial leverage ratio (FLR). Further, through decomposition of ROA, the ROE is decomposed into three components - net profit margin, asset turnover, and financial leverage ratio. The financial leverage ratio is a measure of how much assets a company holds relative to its equity. A high financial leverage ratio means that the company is using debt to finance its assets (RAKIĆEVIĆ *ET AL.*, 2016). Therefore, the DuPont decomposition formula for ROE is:

$$\text{ROA} = \text{NPM} \times \text{ATR} \times \text{FLR} = \frac{\text{Net profit}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Total Assets}} \times \frac{\text{Total assets}}{\text{Shareholders' equity}} \qquad (24)$$

Financial ratios overview

Table 3: Financial ratios overview.

Type	Measure	Formula	Rule of thumb
Performance	Return on Capital (%)	NOPAT / Total (long-term) capital	Higher, better
	Return on Assets (%)	NOPAT / Total assets	Higher, better
	Return on Equity (%)	Net income / Equity	Higher, better
	Earnings-per-share (EPS)	Net income / Number of commom shares	Higher, better
Efficiency	Asset turnover	Net sales / Average total assets	Higher, better
	Inventory turnover	COGS / Average inventory	Higher, better
	Inventory period (days)	Average inventory / Daily COGS (365 days)	Lower, better
	Receivables turnover	Net sales / Average accounts receivable	Higher, better
	Accounts receivable period (days)	Average accounts receivable / Average daily sales (365 days)	Lower, better
	Profit margin (%)	Net income / Net sales	Higher, better
	Operating profit margin (%)	NOPAT / Net sales	Higher, better
Leverage	Long-term debt ratio (%)	Long-term debt / (Long-term debt + Equity)	Lower, better
	Total debt ratio (%)	Total liabilities / Total assets	Lower, better
	Times-interest-earned	EBIT / Interest payments	Higher, better
	Cash coverage	EBITDA / Interest payments	Higher, better
	Debt to Equity	Total liabilities / Equity	Lower, better
Liquidity	Net working capital	Current Assets - Current Liabilities	Higher, better
	Net working capital requirements	Cyclical requirements - Cyclical resources	Lower, better
	Net Cash	Net working capital - Net working capital requirements	Higher, better
	Net-working-capital-to-assets	Net working capital / Total assets	Higher, better
	Current ratio	Current Assets / Current Liabilities	Higher, better
	Quick ratio	(Cash + marketable securities + receivables) / Current liabilities	Higher, better
	Cash ratio	(Cash + marketable securities) / Current liabilities	Higher, better

Source: own elaboration.

2.4.2 – ESG Indicators

In March 2008, the Society of Investment Professionals in Germany (DVFA) presented the paper called "Key Performance Indicators for Environmental, Social & Governance Issues", presented with the objective to identify the topical areas and key performance indicators (KPIs) for ESG, which would be reported by corporates, and which investors and financial analysts

could integrate into a classic quantitative investment analysis. In May of the same year, the framework received an unqualified endorsement of EFFAS, the European Federation of Financial Analysts Societies, and thus gained the status of an official EFFAS Standard. Furthermore, a partnership was formed with The European Alliance for Corporate Social Responsibility, more specifically, the CSR Lab on Valuation, endorsing the KPIs for ESG.

According to a most recent version of this document, where a joint effort was made by both DVFA and EFFAS to update and refine the paper (EFFAS, 2010), six essential criteria for usable KPIs for ESG were defined, as following:

1. They should depict a correlation to risk or success factors of corporate business
2. They should be significant and relevant for investment decisions
3. They should be firmly anchored in the corporate management system
4. They must be quantified, comparable, and benchmarkable from peer to peer
5. They should depict dynamics, i.e., from reporting period to reporting period
6. They should be manageable in dimension

Additionally, the document defines topical areas for the reporting of ESG issues, as well as Key Performance Indicators (KPIs) for use in financial analysis of corporate performance. A distinction is made between general and sector-specific topical areas, where “General ESGs apply to all industries and should, hence, be areas which should be reported in the format of a KPI by all corporates, and sector-specific ESG apply to specific industries only” (EFFAS, 2010). Concerning the first class, DVFA has identified 9 general topical areas:

1. **Energy Efficiency**: Energy efficiency was defined as "any change in energy use that results in an increase in net benefits per unit of energy". Energy efficiency has a direct effect on operational costs and exposure to fluctuations in energy supply and prices.
2. **GHG emissions:** Greenhouse gas emissions are the main cause of climate change. This indicator can be used to explain targets for regulations or trading systems at international or national levels. It also provides insights into the potential cost implications of taxation or trading systems for reporting companies.
3. **Staff turnover:** Employee retention delivers two important aspects of organization: from the angle of conserving the workforce and its inherent skills, knowledge etc. an organization's ability to retain a high percentage of its workforce is an asset for continuity and future development. Fluctuation typically puts companies under stress; effort and expenses to integrate and train new employees also puts a strain on

organizations as is generally known from start-up companies. However, retention may have a downside in so far as organizations must ensure taking on board new employees, especially young employees, in order to balance the maturity of workforce so that continuity of operation is not put at risk.

4. **Training & qualification:** Training and education provides an important aspect of the organization's commitment to sustaining excellency by investing in employees' skills and knowhow. When comparing this KPI within a peer group it helps to understand the organization's preparedness to improve process or product quality
5. **Maturity of workforce:** Understanding the maturity of a workforce is key for assessing the risk of over-aging of the workforce i.e., the phenomenon that a large proportion of the workforce is retiring in a relatively short span. Whilst it is desirable that corporates continuously recruit new staff members within a timeframe that allows transfer of knowledge and experience from mature parts of the workforce experience shows that often such provident action is far from being standard practice in many corporates.
6. **Absenteeism rate:** Absenteeism is a relatively effective indicator of workforce morale. Especially in industrial contexts accident is an indicator for workforce morale. Health Rate was added as an additional KPI, and it describes actual working hours in relation to contractual working hours total; thus, effects of overtime hours are adjusted.
7. **Litigation risks:** From an economic perspective, compliance reduces either directly in terms of fines or indirectly through impacts on reputation incurred financial risks. Additionally, an organization's compliance record may have an influence on its ability to expand operations or gain permits. Anti-competitive behavior both bears reputational risk and monetary effects through fines and legal sanctions. Recent incidents within the European Union e.g., show the negative impact on organizations' P&L.

Ultimately, an overview of all general topical areas and their respective most relevant KPI's is provided, depicted in Table 4:

Table 4: ESG general topical areas and respective KPIs.

ESG Topical Area	KPI
ESG 1 - Energy Efficiency	ESG 1-1 Energy consumption, total
	ESG 1-2 Energy consumption, specific (intensity); Options: per unit of revenue, per employee, per unit of production volume (tons of steel, for example)
ESG 2 - GHG Emissions	ESG 2-1 GHG emissions, total
	ESG 2-2 GHG emissions, specific; Options: per unit of revenue, per employee, per unit of production volume (tons of steel, for example)
ESG 3 - Staff Turnover	ESG 3-1 Employees leaving/Total employees (%)
ESG 4 - Training and Qualification	ESG 4-1 Trained employees/Total employees (%)
	ESG 4-1 Average expenses on training per employee
ESG 5 - Maturity of Workforce	ESG 5-1 Age structure/distribution (number of employees per age group, 10 year intervals)
	ESG 5-2 Percentage of workfoce to retire in next 5 years
ESG 6 - Absenteeism Rate	ESG 6-1 Number of mandays lost per employee
ESG 7 - Litigation Risks	ESG 7-1 Expenses and fines on fillings, law suits related to anti-competitive behaviour, anti-trust and monopoly practices
	ESG 7-2 Reserves on preventive measures against anti-competitive behaviour, anti-trust and monopoly practices
	ESG 7-3 (other) Litigation payments, total
	ESG 7-4 (other) Litigation payments, reserves
ESG 8 - Corruption	ESG 8-1 Percentage of revenues in regions with TI corruption index below 6.0
ESG 9 - Revenues from New Products	ESG 9-1 Percentage of revenues from products at end-of-life cycle
	ESG 9-2 Percentage of new products or modified products introduced less than 12 months ago

Source: EFFAS, 2010.

Although it is important to remark that this is a currently evolving theme, under constant changes, and that each company should be responsible for defining – selectively and after due consideration – their sector-specific ESGs and KPIs, this work provides a relevant guideline to the quantitative assessment of ESG factors.

2.4.3 – Market Value Indicators

Exploring market values, the market-to-book ratio measures how much value has been added for each dollar that shareholders have invested. Market-to-book ratio is usually calculated by dividing the market value of equity by the book value of equity but can also be obtained by dividing the stock price by the book value per share. As a rule of thumb, highly regarded firms have high market-book ratios which means they are low-risk and high-growth firms (TUGAS, 2012).

Market to book ratio is a great tool to quickly determine whether a company is under or overvalued. If the company has a low market to book ratio, it is most likely undervalued and could be considered a good investment opportunity (RIST; PIZZICA, 2015).

$$\text{Market-to-book ratio} = \frac{\text{market value of equity}}{\text{book value of equity}} \tag{25}$$

Another widely used parameter of share value is the Price-to-Earnings (P/E) ratio, which, differently from the Earnings-per-Share, is better suited for comparing one stock's value with another's, according to Fridson and Alvarez (2011). It can be calculated by simply dividing the share price of a company by its EPS figure, and the answer gives the number of year's purchase that the price bears to earnings (WALSH, 2006).

$$\text{Price-to-Earnings (P/E)} = \frac{\text{Stock price}}{\text{Earnings per Share}} \tag{26}$$

According to Walsh (2006), while the calculation of the ratio is based on figures from the past, its value is determined by investors whose focus is on the future, as they are primarily interested in the prospects for earnings growth. It is important to notice that the company has no direct control over the P/E ratio. Although it may influence it over the short-term by a good public relations exercise, in the long-term it must deliver a good return to the shareholder's equity to secure a continued high rating.

The advantages of a high price to earnings ratio value are considerable, as the wealth of the company's owners is increased in proportion and new funds can be raised at a favorable price. The possibility of a successful hostile takeover bid is much reduced, and most importantly, the company has the means to make acquisitions on more favorable terms by using its 'paper' (shares), as opposed to cash (WALSH, 2006).

CHAPTER 3 – DATA AND METHODOLOGY

The following chapter presents the sources and the sample space of data to be used in the study and the proposed methodological approach, sourcing existing methodologies from literature.

3.1 – Data Sources and Sample Space

To meet the objectives of this dissertation, the study of both macroeconomic and microeconomic data was required. To obtain macroeconomic data for the Brazilian context and the evolution of market prices for companies, the Bloomberg platform was used. To obtain the financial and economic data corresponding to the companies of B3 ("Brasil, Bolsa, Balcão"), the financial reports of each of the 6 corporations, for the years 2012 to 2020, were collected and analyzed. These 54 reports were read and interpreted, and based on the data from the financial statements and their respective explanatory notes, a harmonized set of new financial statements, which could be more easily compared among themselves and consolidated according the IFRS standards, was constructed. Additionally, to obtain ESG related information, sustainability reports and publicly available data in each companies' website was gathered for the period analyzed.

3.2 – Methodology Choice

Creswell (2018) suggests the segregation of research approaches in three different types: qualitative, quantitative, and mixed methods; highlighting that the first two should not be viewed as rigid, distinct categories, as instead, they represent different ends on a continuum.

Mixed methods research, in this context, is an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry is that the integration of qualitative and quantitative data yields additional insight beyond the information provided by either the quantitative or qualitative data alone (CRESWELL, 2018). Mentioning research designs (types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research study), Creswell focuses on three types for mixed methods:

1. **Convergent mixed methods**: a form of mixed methods design in which the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. In this design, the investigator typically collects both forms of data at roughly the same time and then integrates the

information in the interpretation of the overall results. Contradictions or incongruent findings are explained or further probed in this design.

2. Explanatory sequential mixed methods: one in which the researcher first conducts quantitative research, analyzes the results, and then builds on the results to explain them in more detail with qualitative research. It is considered explanatory because the initial quantitative data results are explained further with the qualitative data. It is considered sequential because the initial quantitative phase is followed by the qualitative phase. This type of design is popular in fields with a strong quantitative orientation (hence the project begins with quantitative research), but it presents challenges of identifying the quantitative results to further explore and the unequal sample sizes for each phase of the study.

3. Exploratory sequential mixed methods: the reverse sequence from the explanatory sequential design. In the exploratory sequential approach, the researcher first begins with a qualitative research phase and explores the views of participants. The data are then analyzed, and the information used to build into a second, quantitative phase. The qualitative phase may be used to build an instrument that best fits the sample under study, to identify appropriate instruments to use in the follow-up quantitative phase, to develop an intervention for an experiment, to design an app or website, or to specify variables that need to go into a follow-up quantitative study.

In this context, this project will use a convergent mixed method approach, based on a literature review, the collection of extra-accounting and qualitative information of companies' activity and the analysis of financial and economic data from public listed companies in Brazil, as this research design should provide a better basis to obtain and discuss the in the richest way both financial performance and ESG approaches here studied.

3.3 – Methodology Steps

The methodology can be divided into four main stages:

1. A literature review will be conducted in order to identify the main concepts and indicators related to the themes of financial performance, market valuation and the ESG concept. The prime platforms of research to be used will be Web of Knowledge (ISI Web of Science) and SCOPUS: the first for its global relevance and the second for being the largest database of peer-reviewed publications (HOMRICH et al, 2018).

2. The second stage will involve the collection of accounting and extra-accounting information, from 2013 to 2020, from each pair of public listed companies detailed below:

(i) Market segment of Healthcare Services: Grupo Fleury (FLRY) and Grupo Dasa (DASA);

(ii) Market segment of Food Distribution & Retail: Grupo Pão de Açúcar (PCAR) and Grupo Carrefour (CRFB);

(iii) Companies with divergent nature of activities in terms of sustainable development criteria: Natura & Co. *versus* Vale S.A.

3. Application of the obtained performance, market valuation and ESG indicators to each company detailed in item 2.

4. The fourth and last stage will involve consolidating the results obtained and carrying out an analysis involving two concomitant perspectives:

(i) Horizontal Analysis: comparative framework between the present and the past of the evaluated company itself.

(ii) Vertical Analysis: comparative framework between the evolution of the analyzed company and its selected competitor.

CHAPTER 4 – RESULTS PRESENTATION AND DISCUSSION

4.1 – Macroeconomic overview

To better perceive what drives Brazil in a macroeconomic level, this topic will succinctly approach the political, socio-demographic, and economic contexts in which the country is currently inserted, emphasizing some of the particularities that make risk management a necessary tool for companies and also investors.

Brazil is the fifth largest country in the world covering an area of 8.510.345 km², and its growing population accounts for more than 210 million inhabitants. Its GDP was BRL 7,4 trillion as of 2020, equivalent to roughly USD 1,4 trillion, considering the disclosed exchange rate of 5.19 R$/US$ in 12/31/2020 (IBGE, 2020).

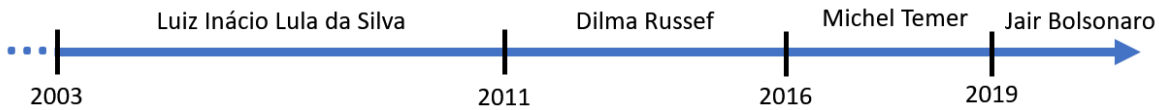
It is also the largest economy in South America and one of the top 20 economies in the world. Its main exports are soybeans, iron ore, raw sugar, crude oil and poultry meat; whereas its main imports include refined crude oil, chemical fertilizers, vehicle components and telecommunication equipments.

Under common circumstances, these characteristics turn Brazil attractive to both entrepreneurs and investors, providing multiple opportunities of expressive growth and high returns on investments. Nonetheless, the most recent unstable period, involving successive episodes of political and fiscal turbulences, partly decreased the attractivity of the country.

4.1.1 – Political context

This section will highlight some of the main facts of the recent political timeline showed in Figure 4, that are intertwined with the national macroeconomic context.

Figure 4: Brazilian political timeline.



Source: own elaboration.

In 2003, Luiz Inácio Lula da Silva (Lula) was elected president, which represented the democratic victory of the left-wing party “Partido dos Trabalhadores”, also known simply as “PT”. During that period, the international market was highly supportive to commodities’ prices and trade volume growth, making Brazilian exports and its economy enlarge, and enabling Lula to invest in social programs, as promised during his campaign. This large investment in social

causes helped millions of Brazilians in social and economic vulnerability, significantly reducing poverty and income inequality in the country during this timeframe.

As a result of this period of prosperity, Lula was reelected for another 4-year mandate and its party, “Partido dos Trabalhadores”, could also elect its successor candidate in the following elections of 2011 and 2015: Dilma Rousseff. During her office, a huge corruption scandal, involving bribes from large companies to the government, was unveiled, leading to the arrests of experienced politicians and executives. This federal investigative operation, known as “Operação Lava-Jato”, continued until 2021.

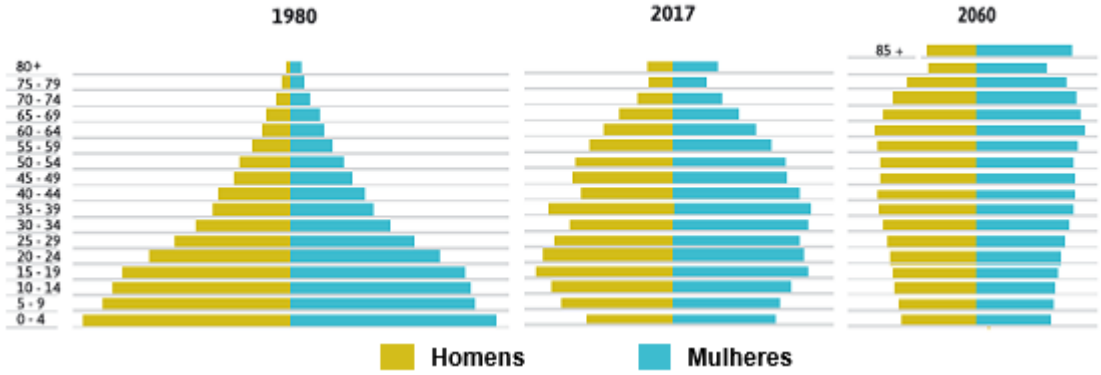
In 2016, Dilma Rousseff was impeached of congress for running afoul of federal fiscal responsibility laws. She broke the budget law, which is considered a crime of fiscal responsibility under the Brazilian constitution, and her vice-president Michel Temer took office. Temer’s short mandate was mostly focused on the modification of the national social security program, but since his government was not credible to the majority of the population, the proposed reform did not pass through all the bureaucratic processes required enforce it.

In 2018, Lula was arrested by the federal investigative operation called “Lava-Jato” and the extreme right-ring candidate Jair Bolsonaro was elected, officially taking office in 2019. During the beginning of Bolsonaro’s mandate, in November 2019, the government was finally able to finish the social security reform, also known as “Nova Previdência”, and implemented it through the Constitutional Amendment Nº 103.

4.1.2 – Socio-demographic context

As most emerging countries, Brazil is passing through a period of demographic shift and the average age of its population is gradually getting higher. According to the Brazilian Institute of Geography and Statistics (IBGE, 2017), in 2017, 9% of the total population had more than 65 years old, while in 2050 this number is expected to be around 22%. This demographic shift is illustrated in Figure 5.

Figure 5: Brazilian age-sex pyramid



Source: IBGE, 2017; Adapted.

In 2019, women corresponded to 52.2% (109.4 million) of the resident population in Brazil, in addition to being the majority among the elderly population (56.7%), according to 2019' National Health Survey (PNS), released by the Brazilian Institute of Geography and Statistics (IBGE).

Also, according to the formal employment registration data, provided by the federal government through the system "Novo CAGED" (*Novo Cadastro Geral de Empregados e Desempregados)*, the amount of formal employed people in Brazil reached the value of 39 million people in November 2020, only 39% of the approximately 100 million people inserted in the national workforce.

With a lower percentage of economically active population contributing to the national social security accounts through tax payments, and a larger stake of residents applying for social security programs, policy makers started discussing the development of a fiscal reform. This controversial measure would both help the country to reorganize its financial situation and signal better future stability to investors.

According to economists, a fiscal reform was necessary when considering the increasing Brazilian public debt while the country also faced a primary deficit and social insurance expenditures corresponding to a high percentage of the overall public disbursement. It was proposed as a measure required by international investors and credit rating agencies to promote investments in the country and reduce the national indebtedness.

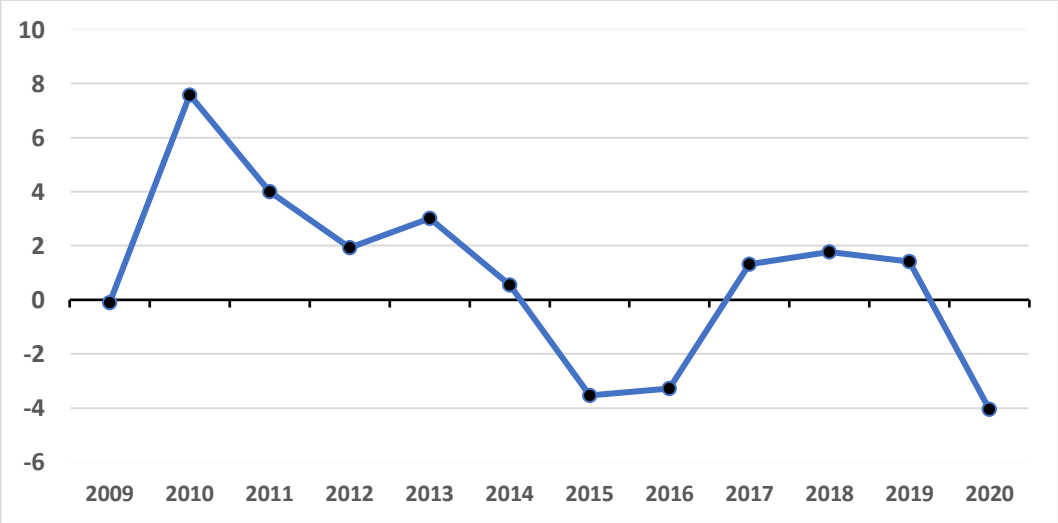
4.1.3 – Economic context

In 2014, Brazil was closing out nearly a decade of continuous economic growth. Per capita GDP had grown by 400% in just 10 years and economic inequality was falling to record

lows in a country that long had the world's largest gap between rich and poor. Between 2004 and 2014, some 35 million Brazilians joined the ranks of the middle class. (RICHARDS, 2021)

As portrayed in Figure 6, in 2015 Brazil entered a severe recession, also known as the Brazilian Financial Crisis, derived from the political turmoil and the rise of the social insurance question. Even large companies such as Petrobras and Odebrecht, respectively the biggest national enterprise and the largest construction company in Latin America, suffered severe losses due to their involvement in corruption schemes. The recession period made Brazilian's real GDP shrink for two consecutive years, with some slow recovery signals between 2017 and 2019, but followed by an acute downside in 2020 brough by Covid-19 Pandemic's consequences.

Figure 6: Real Gross Domestic Product of Brazil - Year-over-year percentage change.

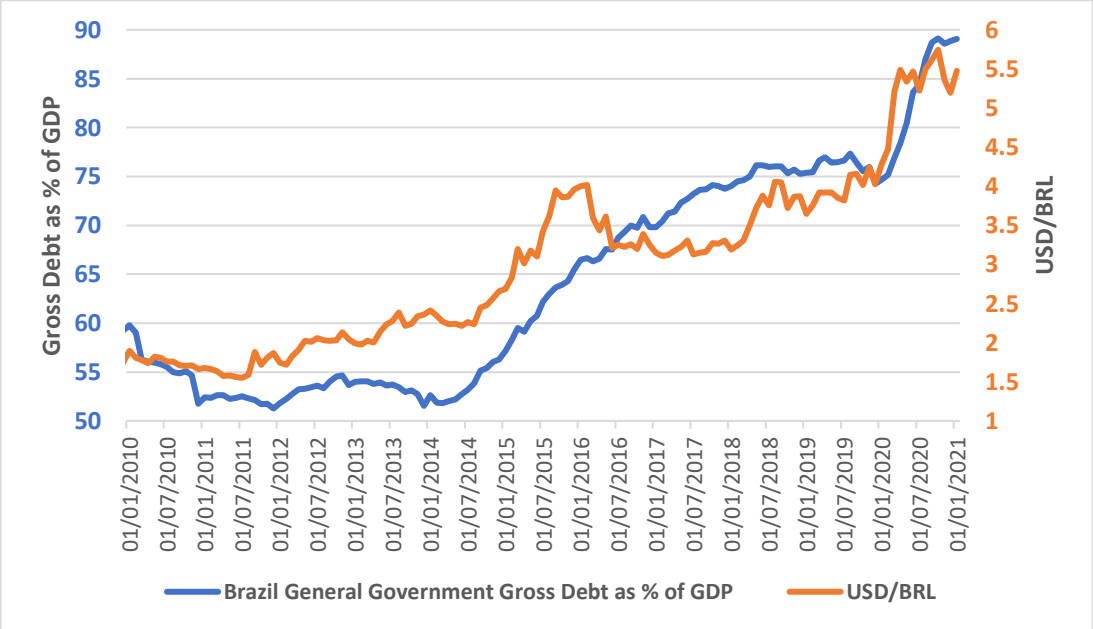


Source: IBGE, own elaboration.

In 2021, its sixth consecutive year of slow or even negative economic growth, the Brazilian economy remains beset by lower global commodity prices and a rising deficit. Poverty is rising and per capita GDP is currently about US$1,000 less per person than it was a decade ago (RICHARDS, 2021).

Meanwhile, Brazil became one of the worst hit countries by Covid-19, reaching 4,000 daily deaths on its worst days. The pandemic has prolonged and exacerbated the country's economic crisis. Nowadays, valued at about 18 U.S. cents, the Brazilian Real (BRL) sits at a record low, and its Government Gross Debt at a record high, as depicted in Figure 7.

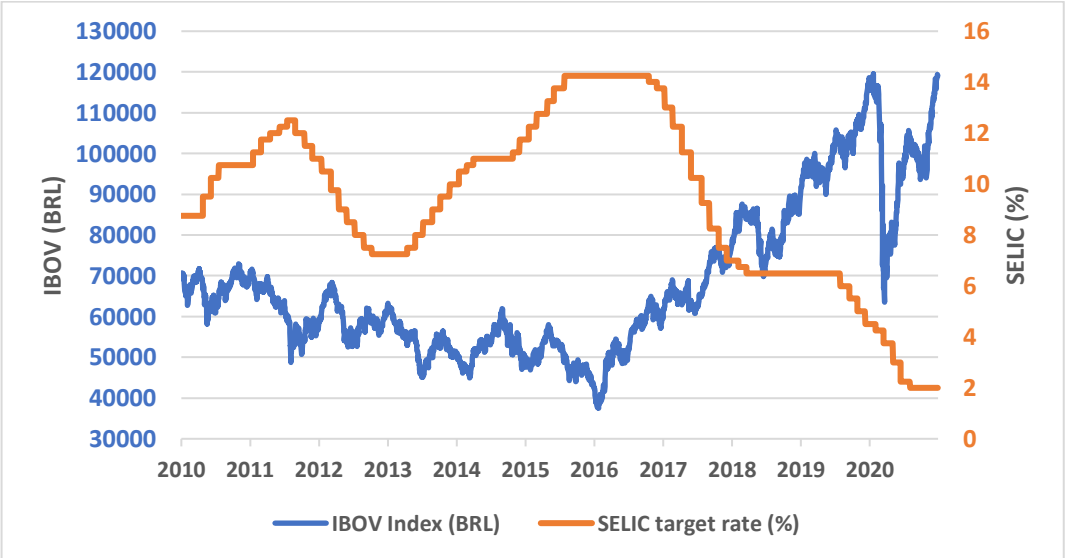
Figure 7: Brazil General Government Gross Debt as % of GDP and USD/BRL conversion



Source: IBGE; BLOOMBERG; own elaboration.

As illustrated in Figure 8, an apparently healthy rise of the most important national stock's index, Ibovespa, observed since 2016, can be directly related to the major reduction of the Brazilian Central Bank's interest rate, from 14,25% per year, in 2016, to 2% per year, in 2021, creating an inflow of funds from fixed-income to variable-income securities.

Figure 8: Ibovespa Index price evolution and Selic target rate.

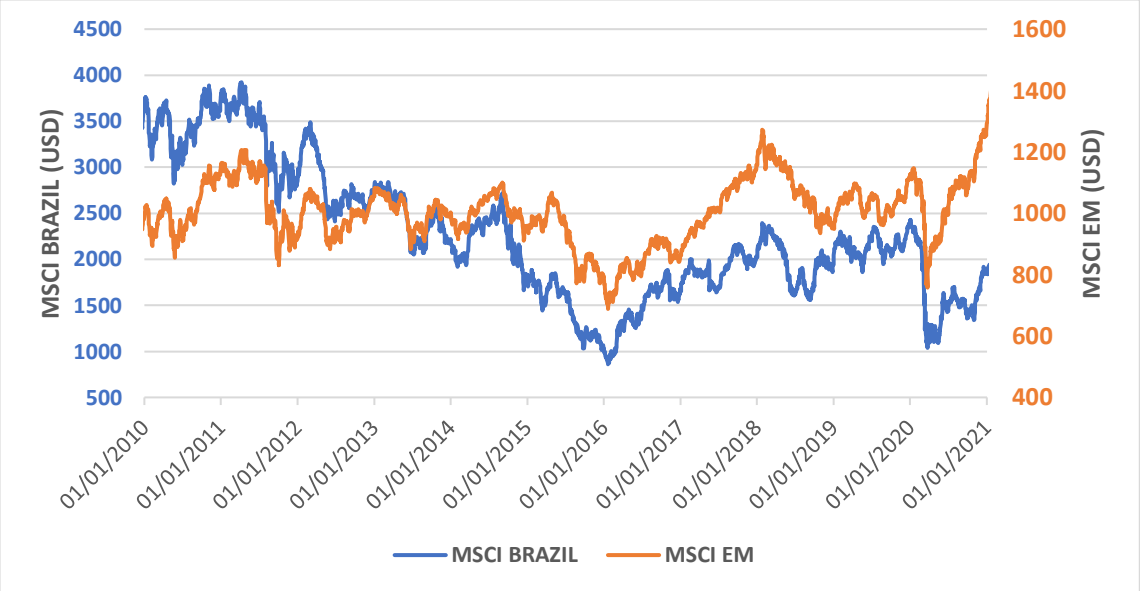


Source: BLOOMBERG; BANCO CENTRAL DO BRASIL; own elaboration.

A clearer framework is portrayed by Figure 9, comparing the evolution of MSCI Brazil Index with MSCI Emerging Markets Index. The first is designed to measure the performance of the large and mid-cap segments of the Brazilian market, and with 53 constituents, the index

covers about 85% of the Brazilian equity universe. The second captures large and mid-cap representation across 27 Emerging Markets (EM) countries, and with 1,417 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country. Here, a clear underperformance of Brazilian equities can be observed from 2015 forward.

Figure 9: MSCI Brazil and MSCI EM Indexes Net Returns in USD.



Source: BLOOMBERG, own elaboration.

4.2 – Grupo Fleury and Grupo Dasa

The first analysis will be conducted between two Brazilian public listed companies inside the Health Services segment, chosen based on the wider distinction possible in terms of ESG visibility and related practices implementation: Grupo Fleury and Grupo Dasa.

First, Fleury S.A., together with its subsidiaries, provides medical services in the diagnostic, treatment, and clinical analysis, health management, and medical care areas in Brazil. The company operates through five segments: Patient Service Centers (PSC), Operations in Hospitals, Reference Laboratory, Preventive Medicine and Dental diagnosis. It offers laboratory and image exam, diagnostic information, check-up and reference laboratory, dental imaging exam, dental radiology, and diagnostic imaging services. As of September 31, 2019, the company had 222 patient service centers and 25 operations in hospitals. Fleury S.A. was founded in 1926 and is headquartered in São Paulo, Brazil.

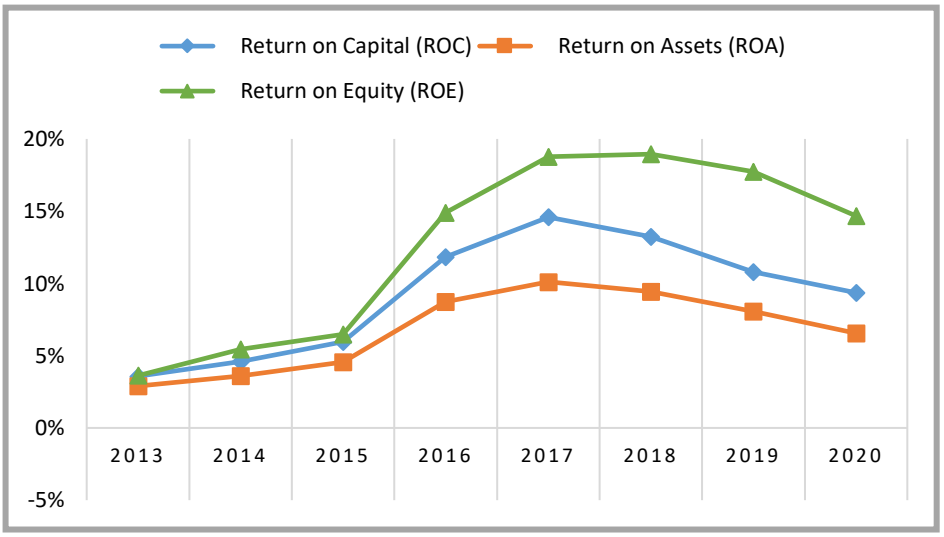
The company concluded its Initial Public Offering in 2009, on BM&FBovespa, and is listed in the “Novo Mercado” category, the highest level of governance in Brazilian stock exchange. Fleury has been part of B3’s sustainability Index (ISE) uninterruptedly since 2014, and in 2018, Fleury was integrated into Ibovespa Index.

Second, Diagnósticos da América S.A. (DASA) provides diagnostic test services in Latin America, offering approximately 3,000 types of examinations of clinical analyses and diagnostic imaging services. The company also provides support services to approximately 5,000 laboratories under the Alvaro brand, as well as operates for the public sector under the CientíficaLab brand. The company was formerly known as Laboratório Clínico Delboni Auriemo S.A. and changed its name to Diagnósticos da América S.A. in August 17, 2000. The company was founded in 1966 and it is based in Barueri, Brazil.

The company concluded its Initial Public Offering in 2004, on BM&FBovespa, being also listed in the “Novo Mercado” category.

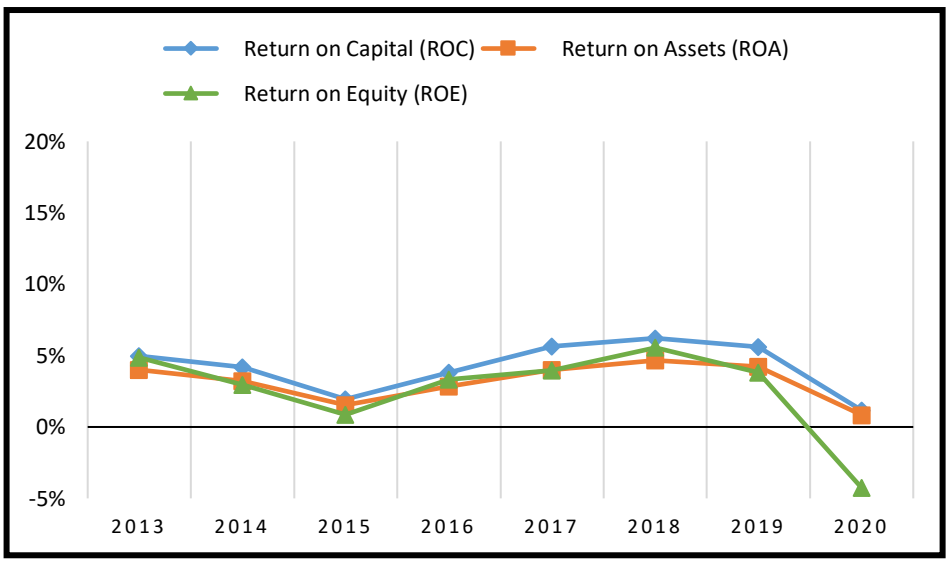
4.2.1 - Performance Indicators

Figure 10: ROA, ROC and ROE for Fleury (FLRY).



Source: annual reports, own elaboration

Figure 11: ROA, ROC and ROE for Dasa (DASA)

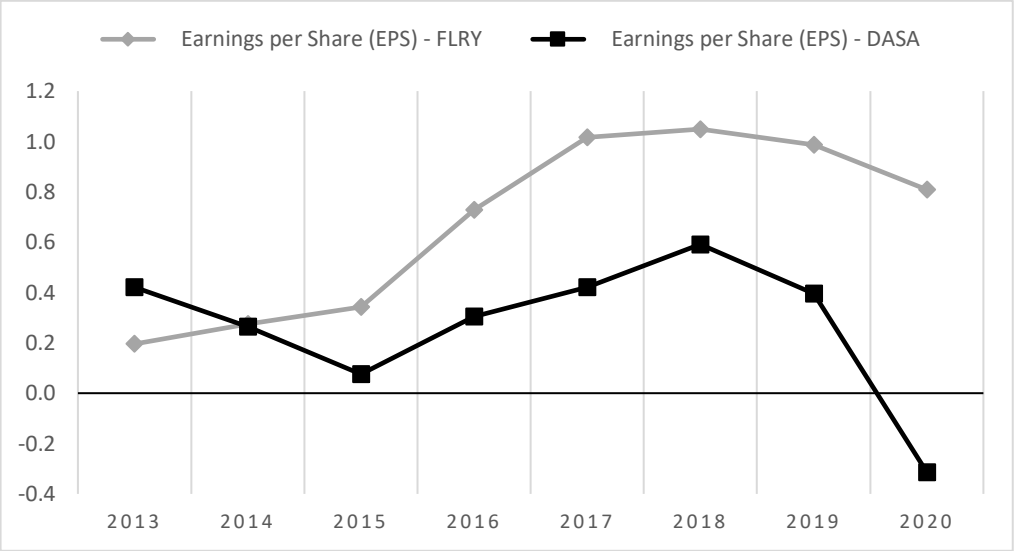


Source: annual reports, own elaboration.

While both Fleury (Figure 10) and Dasa (Figure 11) presented similar overall return ratios in the first year analyzed, a clear distinct path was traced in the following years. Fleury depicted a sensible increase in values until 2015, and reached almost double sized figures in 2016, maintaining significantly healthy numbers for the rest of the period analyzed. For Fleury's scenario, the first important point to note is that the company was able to present these values in a very positive way, as this increase is not related to any reduction in Equity or assets levels, but only to a significant raise in its operating and net incomes. The second relevant characteristic is the clear and consistent level difference between the three ratios, which depicts an especially positive return per reais invested, by ROE, to shareholders.

In the case of Dasa, the company was able to multiply its net revenue by almost three times, in a consistent manner, from 2013 to 2020. This apparently beneficial growth, however, is not reflected in its return ratios for two main reasons: a proportionally higher growth in operating expenses, related to an increase in general and administrative expenses and depreciation/amortization, and an also higher growth of costs of goods & services. This depicts, overall, a problem for the expansion of the business, as it was not able to grow with an efficient allocation of resources. Additionally, an interesting point to note is that while both ROC and ROA suffer a significant decrease in 2020, ROE is the only indicator that reaches a negative value. This happens as, while the two other ratios are based on NOPAT, ROE is directly related to Net Earnings, which represented a loss of about R$ 150 million in that year, mostly due to high Interest Expenses.

Figure 12: Earnings per Share - Dasa (DASA) and Fleury (FLRY).

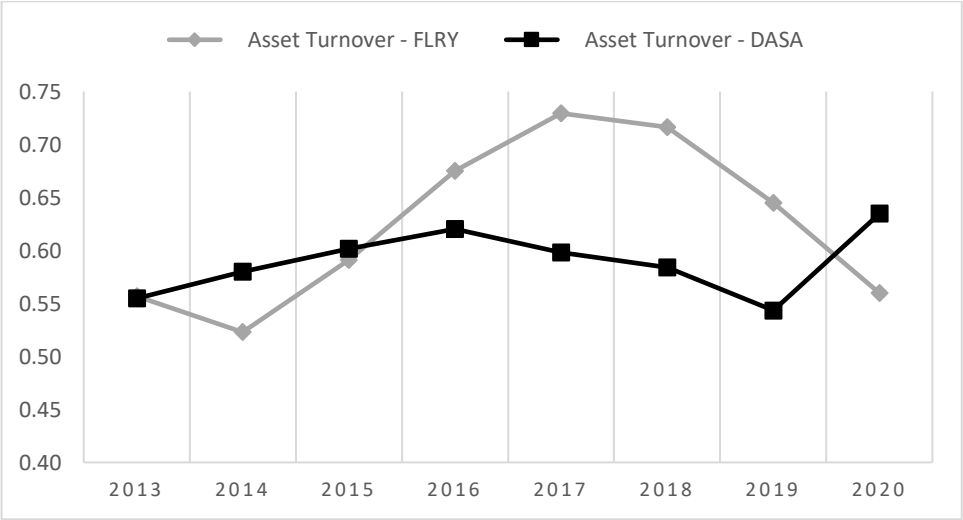


Source: annual reports, own elaboration.

Analyzing the EPS ratio evolution for both companies (Figure 12), the distinct growth paths shown by the return ratios are confirmed and contribute to a final overview of Performance disparities: not only Fleury portrayed a significantly better situation in terms of proportional resources management and income growth, for the period analyzed, but it showed an especially positive resilience and adaptation to Covid-19's crisis in 2020.

4.2.2 - Efficiency Indicators

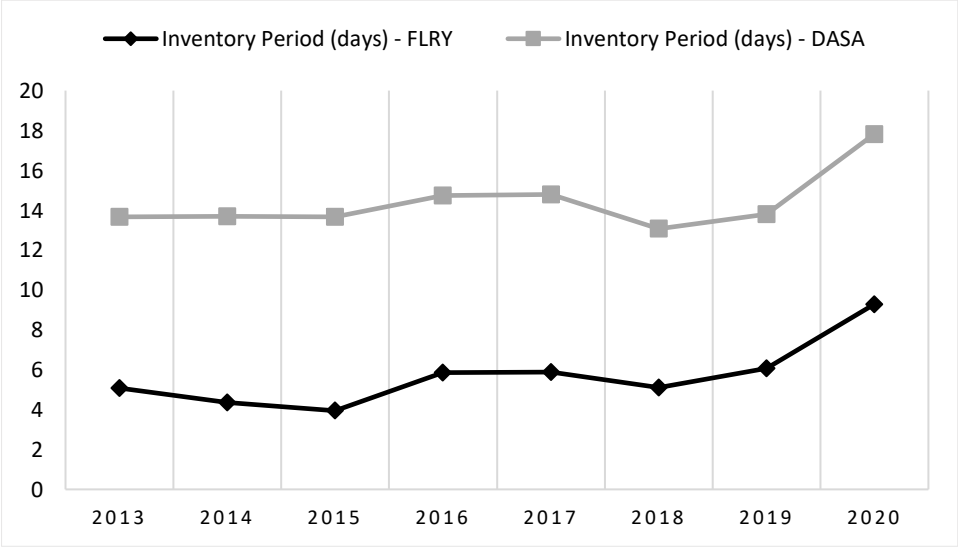
Figure 13 Asset Turnover - Dasa (DASA) and Fleury (FLRY)



Source: annual reports, own elaboration.

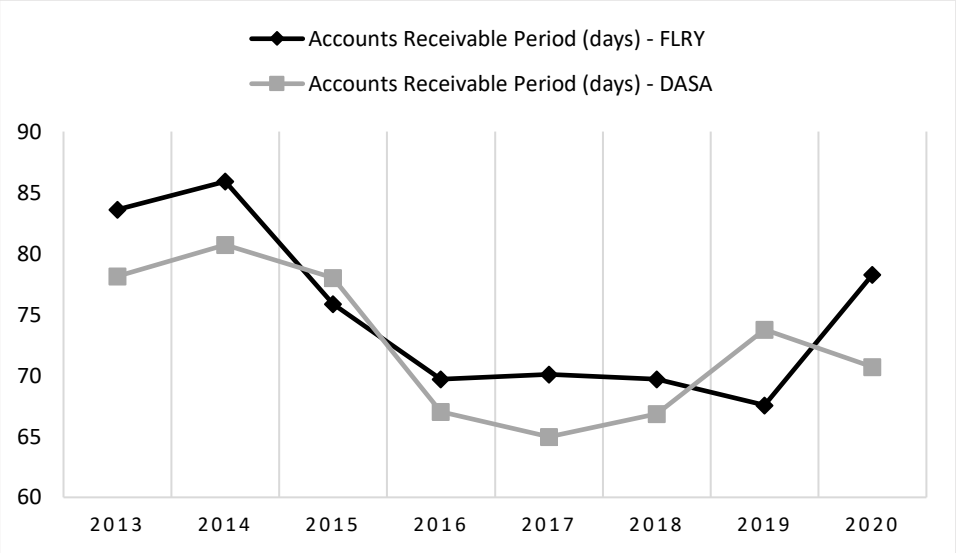
Although not being completely considered as asset-light companies, yet relying on significant amounts of properties and equipments, the high levels of Asset Turnover (Figure 13) are directly related to a proportionally reduced amount of assets of these service-oriented companies. Being a ratio that captures sectoral similarities, the distinction between both corporations is more subtle, but the overall evolution depicts a better management of assets carried out by Fleury.

Figure 14: Inventory Period for Fleury (FLRY) and Dasa (DASA)



Source: annual reports, own elaboration.

Figure 15: Accounts Receivable Period for Fleury (FLRY) and Dasa (DASA).



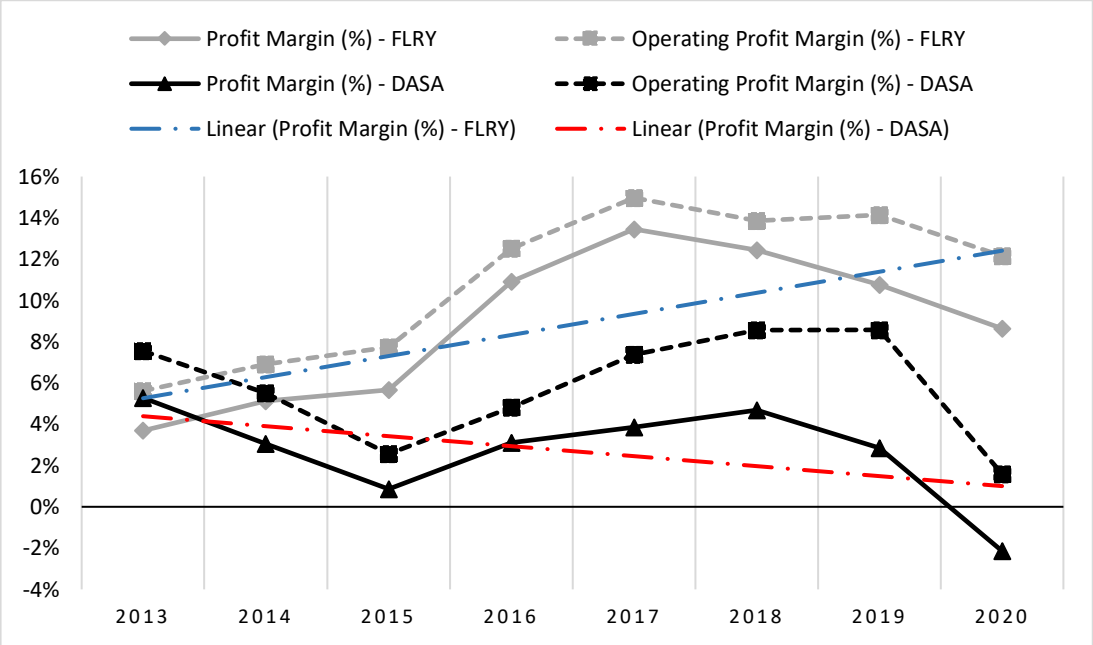
Source: annual reports, own elaboration.

The evolution of Accounts Receivable Period and Inventory period values (Figure 14 and Figure 15), allow the observation of two important points.

1) As the Inventory Period overall level is usually related to the structure and nature of activity of a company, a common threshold, of less than 30 days, is observed for both corporations. As constituents of the Tertiary sector, most of both companies' revenues are not dependent on the selling of products, but mainly on the provision of services instead. For that reason, even though Fleury exhibited lower inventory period values, on average, (indicating a tighter reserve of items, and therefore, lower storage risk and costs), both corporations presented relatively low figures.

2) The similar levels of Accounts Receivable Period may also be attributed to a shared context between both companies, that includes two main factors: the use of private healthcare plans by its clients, that usually utilize more distended periods of payment, and the commonly used method of installment payments in Brazil, through the widespread use of credit cards.

Figure 16: Profit margins for Fleury (FLRY) and Dasa (DASA)



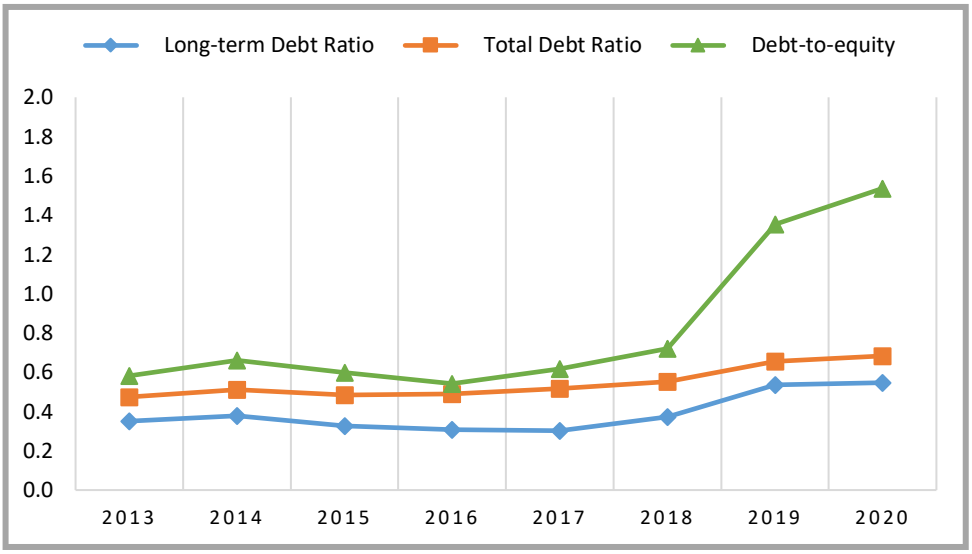
Source: annual reports, own elaboration.

Finally, concerning the profit margins of both companies (Figure 16), two important distinctions are relevant to be observed. First, since 2015, Fleury was able to sustain significant higher margins for both Operating Profit Margin and Profit Margin indicators, with average values about two times higher than Dasa's, and, therefore, presenting a relevantly better efficiency in terms of conversion of sales to profits. Secondly, while Fleury presents a slightly ascending trend for both ratios, also depicting a relevant resilience in Covid-19 pandemic's context, in 2020, Dasa's Profit Margin shows a moderately decreasing trendline, which does not corroborate to provide confidence to investor in terms of future results.

In conclusion, part of the Efficiency indicators depicts more subtle distinctions between both companies, which can mainly be attributed to the significant influence of both sectoral and geographical dimensions inside these ratios. Overall, however, Fleury presented itself in a better situation in terms of its Efficiency dimension.

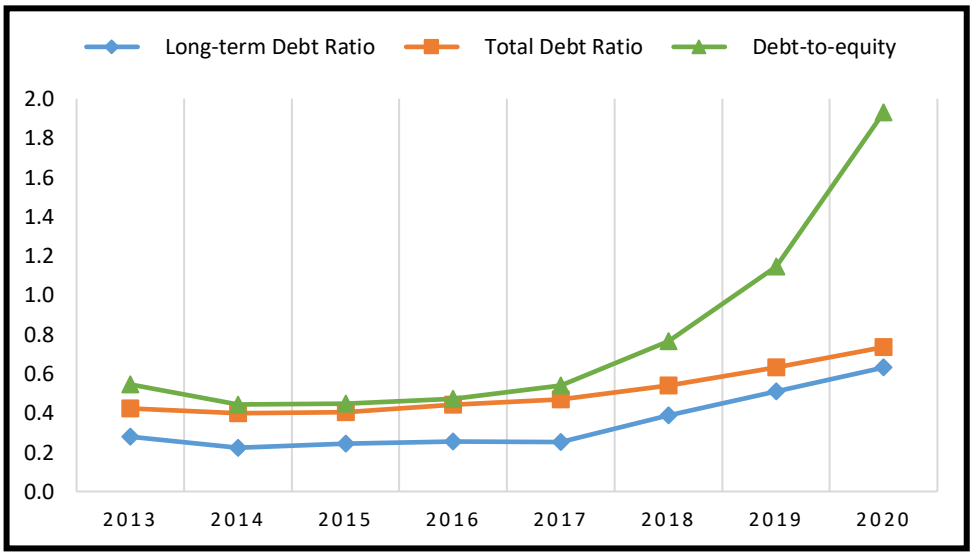
4.2.3 - Leverage Indicators

Figure 17: Debt ratios for Fleury (FLRY).



Source: annual reports, own elaboration.

Figure 18: Debt ratios for Dasa (DASA).

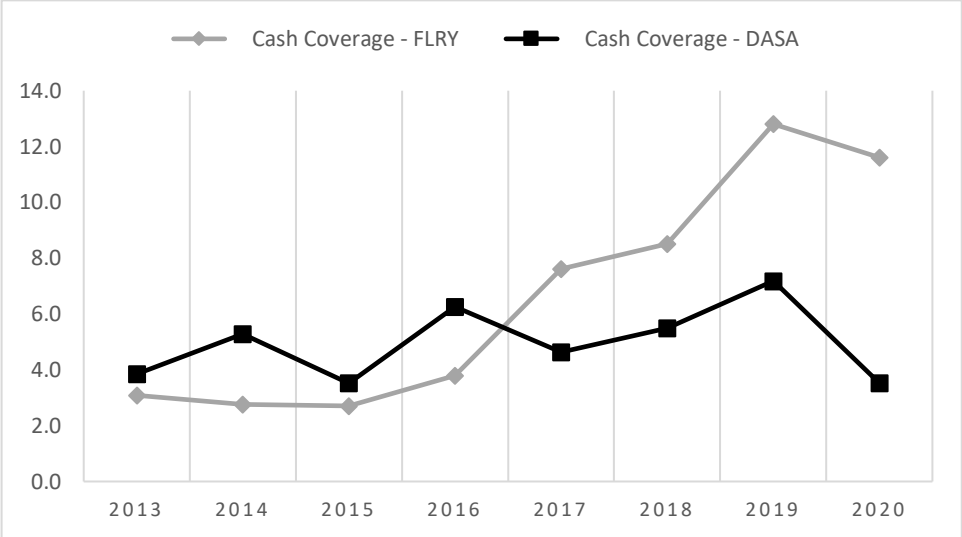


Source: annual reports, own elaboration.

Regarding the debt ratios evolution (Figure 17 and Figure 18), a reasonably similar behavior and overall levels can be observed of both companies, which present stable leverage levels until 2018, and suffer an increase in the last couple of years. This common hike may be directly related to the significant reduction of interest rates (Figure 8) in 2019 and 2020, which represent more attractive costs of debt and change the optimum proportion of capital composition.

Additionally, the final increase in debt levels is not only concentrated on the Debt-to-equity ratio, but a sharper deterioration can be perceived on Dasa's values: while its equity does not suffer significant changes, its long-term debt ends 2020 with a level almost three times higher than in 2018.

Figure 19: Cash Coverage - Dasa (DASA) and Fleury (FLRY).



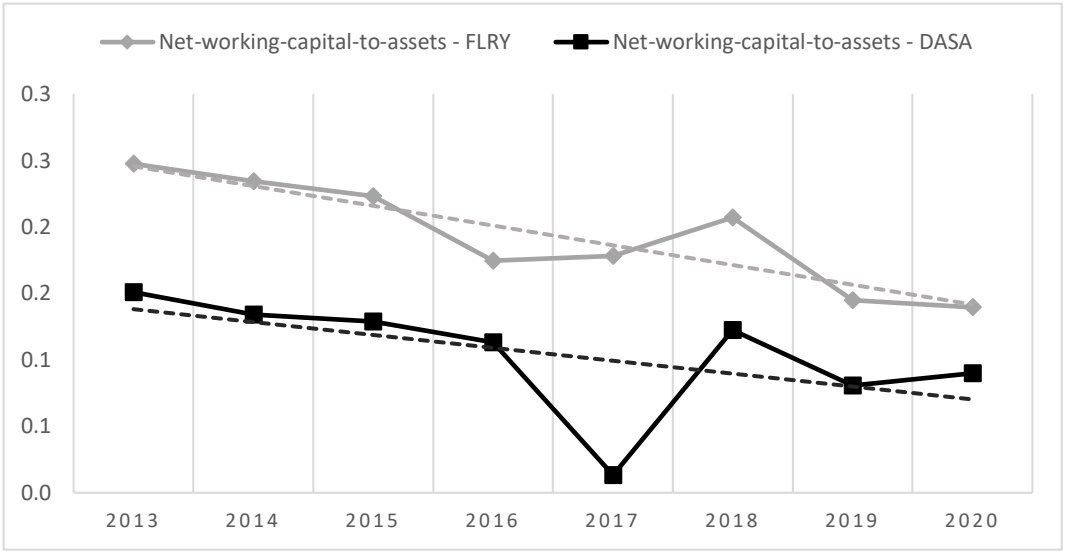
Source: annual reports, own elaboration.

Analyzing the Cash Coverage ratio (Figure 19), a clearer distinction can be observed between both companies' leverage situation, with a pronounced ascendance of Fleury's values in the last four years. While Dasa maintained overall constant coverage levels, with a relatively healthy minimum level of 3.5x EBITDA over Interest Expenses, Fleury was able to reach almost double sized values in the last years.

In summary, a relatively healthy leverage situation can be observed for both companies, but with a more favorable situation depicted by Fleury in the most recent years analyzed.

4.2.4 - Liquidity Indicators

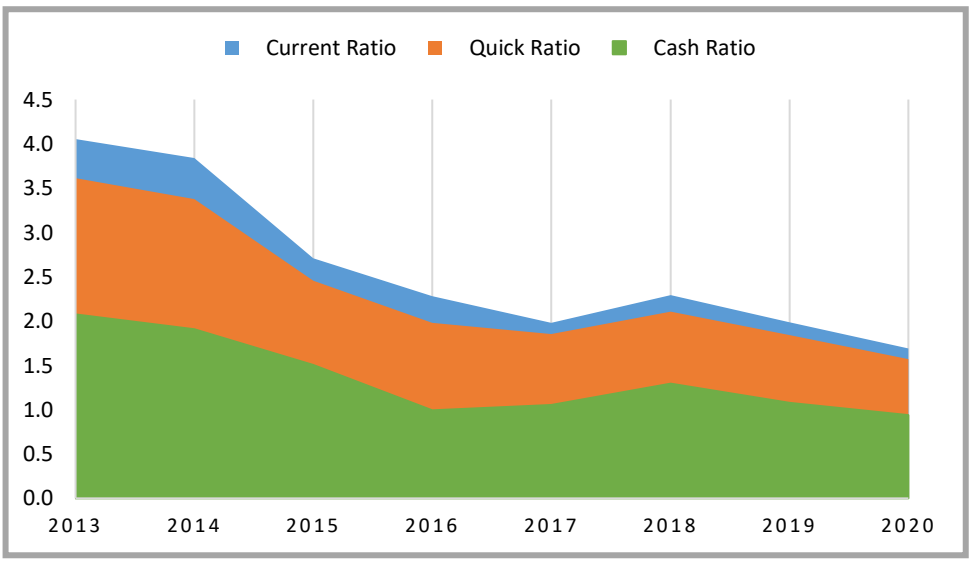
Figure 20: Net-working-capital-to-assets - Dasa (DASA) and Fleury (FLRY).



Source: annual reports, own elaboration.

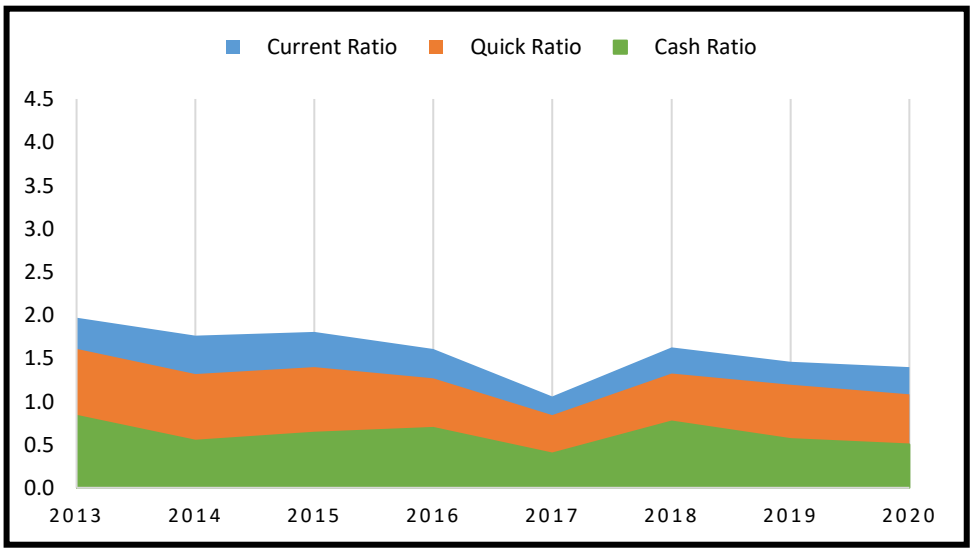
Relatively to both companies' Net-working-capital-to-assets ratio (Figure 20), a constant gap is sustained between Fleury and Dasa, depicting a lower amount of additional funds, in proportion to the size of the business, available to financing operations. A similar descending trend, however, can be observed for both corporations.

Figure 21: Cash, Current and Quick ratios for Fleury (FLRY).



Source: annual reports, own elaboration.

Figure 22: Cash, Current and Quick ratios for Dasa (DASA).



Source: annual reports, own elaboration.

The scenario portrayed by both companies' Cash, Current and Quick ratios (Figure 21 and Figure 22) deliver three important observations. The first is that, while Fleury was able to maintain overall better liquidity levels for the period analyzed, a clear convergency process, descending towards Dasa's levels, is present in the whole period analyzed. The second aspect is the better liquidity quality shown by Fleury, as its most liquid assets, including only cash and cash equivalents (Cash Ratio), correspond to more than half of its current assets. Finally, the third relevant characteristic is the narrow distance between both companies' Current and Quick

ratios, confirming the sectoral low inventory levels discussed previously with the Inventory Period indicator.

Overall, a better liquidity situation is exhibited by Fleury, with the important consideration of a deterioration process suffered in the most recent years. Dasa, in turn, presented a more stable situation for the whole period analyzed, but concentrated on lower and worse distributed levels of liquidity.

4.2.5 - ESG Initiatives and Indicators

Both companies present relatively significant differences in terms of ESG values' promotion and policies implementation. The first major distinction is that while Fleury has been part of B3's sustainability Index (ISE) uninterruptedly since 2014, Dasa was never included inside it. Secondly, while Fleury issues annual sustainability reports since 2009, including all three Environmental, Social and Governance policies and relative information, Dasa published its first sustainability report only in 2020.

Table 5: ESG Indicators of Grupo Fleury (FLRY).

Fleury SA (FLRY BZ)								
ESG Indicators 12 Months Ending	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Environmental								
Total GHG Emissions (kton)	8.08	9.51	8.43	7.65	8.23	10.34	8.44	7.50
GHG Intensity per Sales (ton/MR$)	4.88	5.66	4.45	3.65	3.45	3.88	2.91	2.52
GHG Intensity per Employee (ton/Person)	0.92	1.08	—	0.91	0.95	1.10	0.84	0.67
Total Waste (kton)	4.70	3.51	3.88	2.36	1.96	1.94	2.02	1.64
Waste Recycled (%)	19.25	25.34	22.06	11.76	14.71	14.92	14.47	16.17
Energy Efficiency Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emissions Reduction Initiatives	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Environmental Supply Chain Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Waste Reduction Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Climate Change Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Social								
Employee turnover (%)	31.10	29.30	22.10	17.94	20.80	21.48	20.90	9.20
Training Spending per Employee (R$)	659	741	585	512	402	458	430	195.69
Workforce Accidents (%)	—	—	—	—	3.13	2.11	3.37	2.13
Pct Women in Workforce (%)	46.00	46.20	41.00	41.00	42.00	42.00	41.64	42.00
Anti-Bribery Ethics Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health and Safety Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Rights Policy	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policy Against Child Labor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer Data Protection Policy	-	-	-	No	No	Yes	Yes	Yes
Governance								
Non-Executive Directors on Board (%)	100.00	100.00	90.00	100.00	100.00	100.00	100.00	100.00
Independent Directors (%)	33.33	25.00	30.00	30.00	37.50	10.00	30.00	30.00
Women on Board (%)	0.00	0.00	0.00	0.00	0.00	10.00	20.00	20.00
Board Average Age	—	65.38	52.60	53.30	58.13	57.10	58.10	60.30
Independent Directors on Audit Committee (%)	50.00	—	—	—	—	—	—	—

Source: BLOOMBERG; annual reports; own elaboration.

Analyzing Fleury's Environmental indicators (Table 5), a healthy evolution can be observed in the GHG Intensity per Sales over all the period analyzed (reduction of 48% from 2013 to 2020), and in the GHG Intensity per Employee (reduction of 22 percentage points from 2013 to 2020). Although the Total Waste generated was reduced, even with an increase in net sales over the period, the percentage of Waste Recycled remained limited to a reduced level. This aspect, however, may be related to the type of materials used in the company's activity, involving significant amounts of hazardous waste. Finally, the presence of environmental policies and practices is clear for all the period analyzed.

Table 6: ESG Indicators of Grupo Dasa (DASA).

Diagnósticos da América SA (DASA BZ)								
ESG Indicators 12 Months Ending	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Environmental								
Total GHG Emissions (kton)	—	—	—	—	—	—	—	29.75
GHG Intensity per Sales (ton/MR$)	—	—	—	—	—	—	—	4.23
GHG Intensity per Employee (ton/Person)	—	—	—	—	—	—	—	1.12
Total Waste (kton)	4.02	0.79	—	—	—	—	—	11.81
Waste Recycled (%)	20.35	7.22	—	—	—	—	—	—
Energy Efficiency Policy	No	No	No	No	No	No	No	No
Emissions Reduction Initiatives	Yes	No	No	No	No	No	No	Yes
Environmental Supply Chain Management	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Waste Reduction Policy	Yes	No	No	No	No	No	No	Yes
Climate Change Policy	Yes	No	No	No	No	No	No	No
Social								
Employee turnover (%)	—	—	—	—	—	—	—	16.00
Training Spending per Employee (R$)	—	—	—	—	—	—	—	—
Workforce Accidents (%)	—	—	—	—	—	—	—	—
Pct Women in Workforce (%)	79.10	79.08	—	—	—	—	—	—
Anti-Bribery Ethics Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health and Safety Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Rights Policy	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policy Against Child Labor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer Data Protection Policy	No	No	No	No	No	No	No	No
Governance								
Non-Executive Directors on Board (%)	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Independent Directors (%)	60.00	60.00	66.67	66.67	66.67	66.67	33.33	33.33
Women on Board (%)	0.00	0.00	0.00	0.00	0.00	0.00	16.67	16.67
Board Average Age	50.60	55.60	60.00	61.00	62.00	63.00	63.67	64.67
Independent Directors on Audit Committee (%)	—	—	—	—	—	—	—	—

Source: BLOOMBERG, annual reports; own elaboration.

Dasa's environmental scenario (Table 6), in turn, is much more unclear. Not only the detailed information has not been provided for most of the years analyzed, but the presence of environmental practices is diffused and with a more recent implementation. Inside the Social dimension, both companies' policies are somewhat similar. However, while Dasa's unavailability of quantitative measures depict a reduced concern related to the assessment of these policies, Fleury's numbers show a somewhat mixed framework. While it presents a

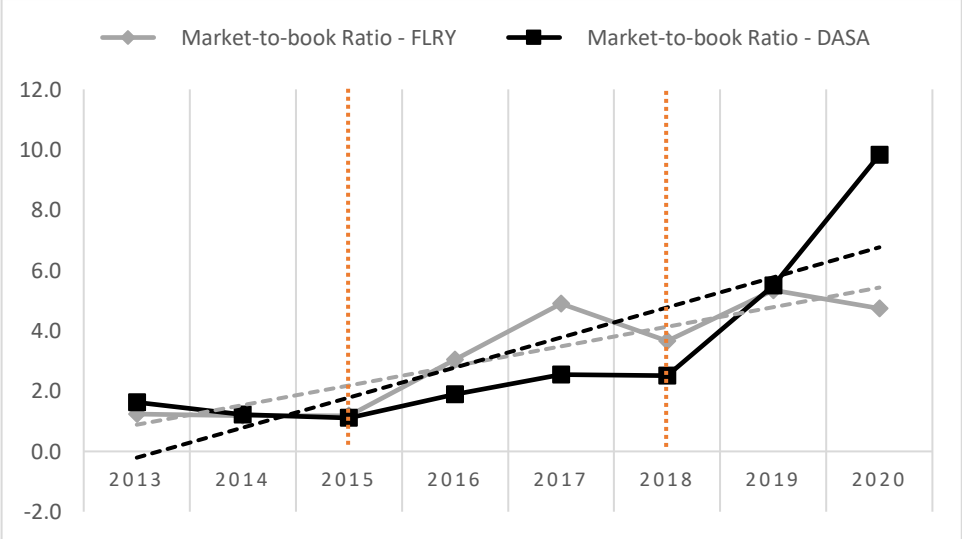
substantial positive decrease of Employee Turnover levels (reduced about 70% from 2013 to 2020), the Training Spending per Employee values suffer a negative reduction of almost 70% from 2013 to 2020. Additionally, it is also relevant to remark that the Percentage of Women in Workforce suffered a downsizing of 4 percentage points, from 2013 to 2020, remaining below the average level of national female residents (about 50%).

Finally, in terms of Governance aspects, the overall context of Fleury is better, with a higher percentage of Women on Board, a lower Board Average Age, and the same proportion of Independent Directors in most recent years.

Overall, Fleury presents a significantly earlier and more pronounced implementation of ESG practices and monitoring indicators, accompanied by a better evolution of these metrics. In the lens of ESG perspectives, Fleury presents itself as a significantly more attractive investment.

4.2.6 - Market Indicators

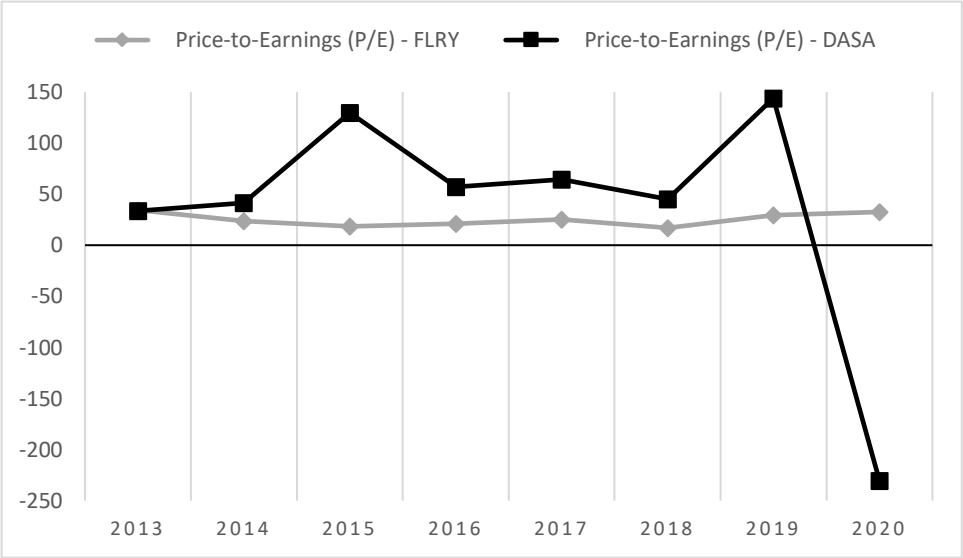
Figure 23: Market-to-book Ratio - Dasa (DASA) and Fleury (FLRY).



Source: annual reports, own elaboration.

Both companies' Market-to-book Ratio evolution (Figure 23) can be divided into three distinct periods. The first, between 2013 and 2015, depicts an extremely close level for both companies proportional market values. The second, from 2016 to 2018, is marked by a better attractivity of Fleury, being finally reverted in the third period, of 2019 and 2020. While in almost all financial ratios and ESG perspectives Fleury presents a better performance and attractivity in most recent years, its market values' evolution goes in the opposite direction.

Figure 24: Price-to-Earnings - Dasa (DASA) and Fleury (FLRY).



Source: annual reports, own elaboration.

Additionally, from the perspective of the Price-to-Earnings ratios (Figure 24), with the exception of Dasa's 2020 figure, due to its negative net earnings, a better proportional price level is obtained by Grupo Dasa for all period analyzed. This contributes to the divergence presented by the previous Market-to-book ratio evolution, in relation to the other both Financial and ratios and ESG practices.

4.2.7 - Disclosure

When compared to Dasa, Fleury presented an overall better situation in terms of all its financial dimensions, including Performance, Efficiency, Leverage and Liquidity indicators, for the period analyzed, depicting also an especially positive resilience to Covid-19's crisis in 2020. Furthermore, it presents a significantly earlier and more pronounced concern regarding ESG practices and the monitoring its impacts, inserting Fleury also in a significantly more prominent position in terms of the ESG narrative through the lens of the market. However, not only the company presented a lower positive trendline concerning is Market-to-Book values (especially in the last three years), but its stocks have been constantly traded inside lower P/E ratios, when compared to Dasa's figures.

The uncorrelation between the market indicators and both financial and ESG perspectives may be explained by two perspectives. First, stock prices often include the weight of future expectations in relation to the company's growth, visibility, and dividends distribution, being past performances only a partial influence inside the current corporation prices. Secondly, the relevance of ESG practices with regards to market prices, inside the segment of Health

Services in Brazil, may be limited as the innate environmental and social negative risks of these companies might be not considered so wide.

The overall scenario, however, is not successful to present clear positive impacts of the early and most incisive implementation of ESG practices and monitoring indicators in Fleury's market value, depicting some limitations of the gains related to these practices at least inside the Brazilian Healthcare Services sector.

4.3 – Grupo Pão de Açúcar and Grupo Carrefour Brasil

The second analysis will be conducted between two Brazilian public listed companies inside the Supermarkets segment, chosen based on the wider distinction possible in terms of ESG visibility and related practices implementation: Grupo Pão de Açúcar (GPA) and Grupo Carrefour Brasil.

First, Grupo Pão de Açúcar is a "Casino Group" company present in all regions of Brazil, in addition to concentrating operations in Colombia, Uruguay and Argentina with "Grupo Éxito". The company operates its supermarkets under the banners of Pão de Açúcar, Extra Supermercado, Mercado Extra, and Compre Bem; hypermarkets under the banner of Extra Hiper; and proximity stores under the banners of Mini Extra, Minuto Pão de Açúcar, Pão de Açúcar Adega, and Aliados Minimercado; and gas stations and drugstores under the banners of Extra and Pão de Açúcar. As of December 31, 2020, it operated 696 stores, 74 gas stations, and 103 drugstores, as well as 15 distribution centers and warehouses across Brazil. The company was founded in 1948 and is headquartered in São Paulo, Brazil.

In October 1995, Grupo Pão de Açúcar made its IPO on the São Paulo Stock Exchange, raising US$ 112 million, followed by a new issue in New York, two years later, which raised another US$172 million. The company has been part of the Brazilian stock market's sustainability index (ISE B3) since 2021.

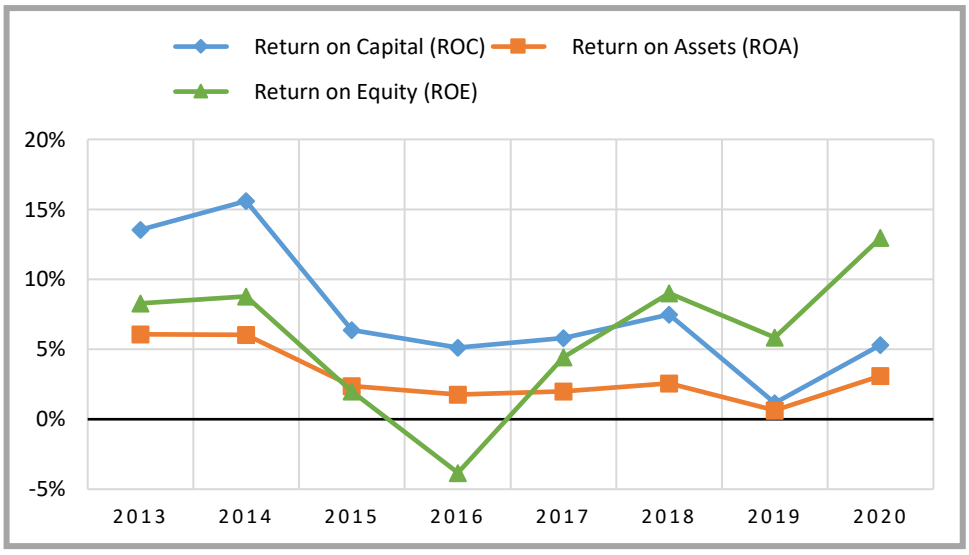
Second, Carrefour Brasil is a wholly owned subsidiary of the French Carrefour Group, with operations in more than 30 countries. Brazil is the second most relevant market in terms of sales for the Group, only behind the country of origin. It is headquartered in São Paulo, with more than 95 thousand employees in 2020, being one of the largest private employers in Brazil. The company offers its products through a chain of wholesale self-service and wholesale delivery stores, hypermarkets, supermarkets, convenience stores, gas stations, pharmacies, and

e-commerce under the “Carrefour” and “Atacadão” brands. As of December 2020, it operated 721 stores.

It has been publicly traded since July 2017 and shares are traded on the “Novo Mercado” segment of B3 under the code CRFB3.

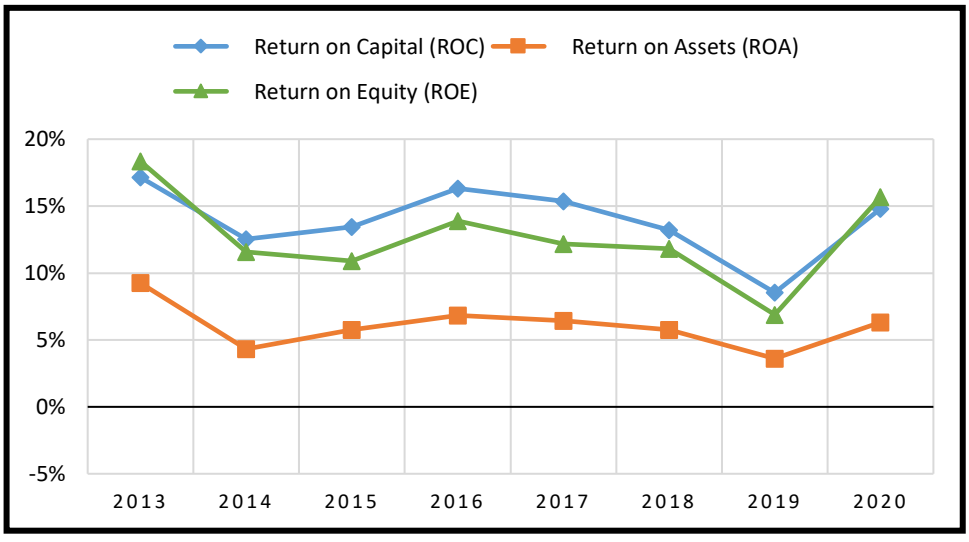
4.3.1 - Performance Indicators

Figure 25: ROA, ROC and ROE for Pão de Açúcar (PCAR).



Source: annual reports, own elaboration.

Figure 26: ROA, ROC and ROE for Carrefour Brasil (CRFB).



Source: annual reports, own elaboration.

In relation to the return ratios, two main comparison points are relevant to note.

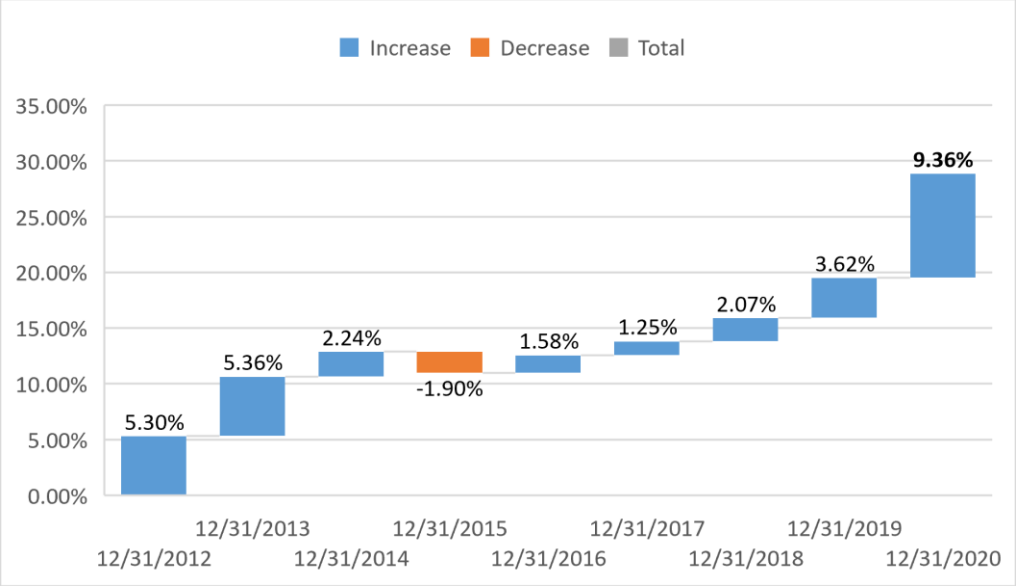
First, while Grupo Pão de Açúcar (GPA), in Figure 25, suffered a major drawdown in its Return on Equity ratio, in 2016, directly related to a decrease in its net income, Carrefour

Brasil (Figure 26) reached a local high of its ROE indicator, also directly due to changes in its net earnings (in this case, an increase of more than 50%). An interesting aspect to highlight is that the unusual uncorrelation observed between GPA's ROE and ROA/ROC, in 2016, is explained by a relevant increase of extraordinary losses related to discontinued operations. More specifically, they correspond to activities carried out by the company Via Varejo, due to a process of disposal of ownership interests by GPA in relation to this subsidiary.

On November 23, 2016, the Board of Directors approved a process to dispose of the GPA's interest in Via Varejo's capital stock, in line with its long-term strategy of focusing on the development of the food activity. As a consequence, Via Varejo (and it subsidiary Cnova Brasil) net results, after tax, were disclosed in statement of operations as a single line, and assets and liabilities balances were disclosed as held for sale and discontinued activities. Statement of operations and statement of value added on December 31, 2015, also disclosed the discontinued operations in single line. The net effects on discontinued operations were a loss of R$1,005 million in 2016 and a loss of R$891 million on December 31, 2015.

Secondly, while the country faced a relevant decrease in its real GDP in 2020 (Figure 6), facing an economic crisis brought by Covid-19's implications, both companies were not only able to maintain positive returns, but to grow, in relation to 2019. This counterintuitive behavior is explained by the specific nature of this crisis, that was responsible for a major shift of households' food consumption from restaurants and other outside home places to indoor cooking and consumption. This modification resulted in a real accumulated increase of 9.36% in Brazilian supermarkets' sales in 2020 (Figure 27), according to the monthly pool conducted by the Brazilian Association of Supermarkets (ABRAS), involving 60% of the sector's total sales.

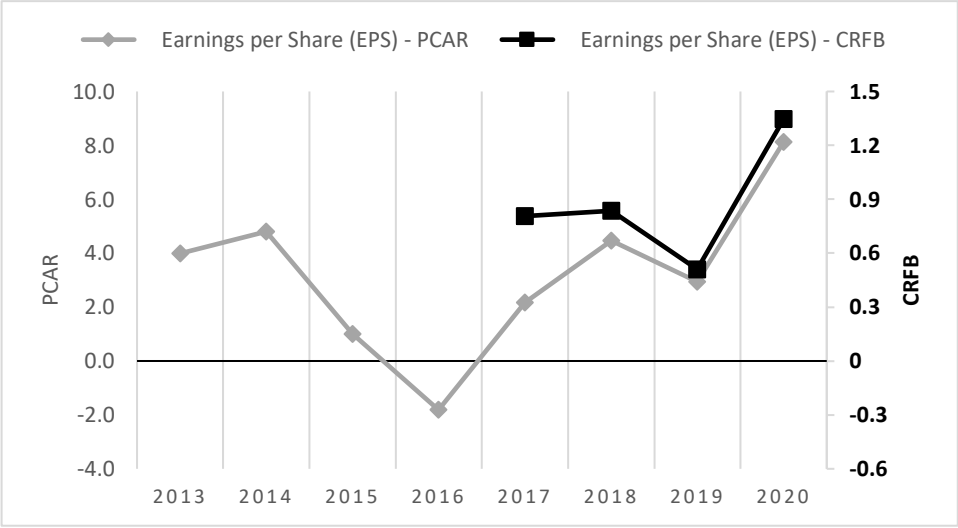
Figure 27: ABRAS National Sales Index – Real Accumulated YTD Growth (%).



Source: ABRAS, 2020; own elaboration.

Overall, Carrefour Brasil presents healthier overall return ratios for the timeframe analyzed. Not only its ROA and ROC ratios portrays higher proportional NOPAT values, but ROE indicates consistently positive net earnings amounts.

Figure 28: Earnings per Share – Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB).



Source: annual reports, own elaboration.

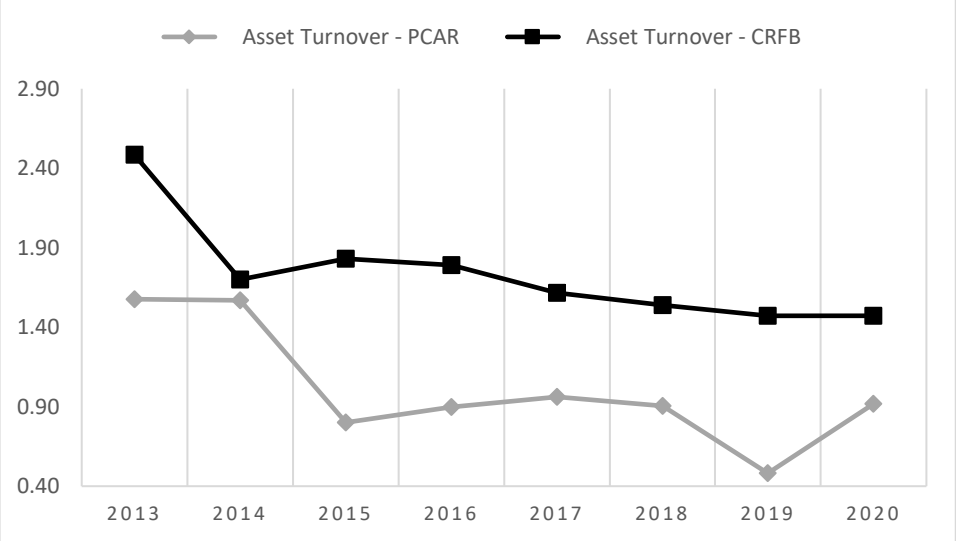
Relatively to the Earnings-per-Share perspective (Figure 28), the first important characteristic to highlight is that both companies' amount of shares outstanding did not suffer significant changes over the period analyzed. In that sense, all fluctuations of this ratio are related to changes in net earnings. Even though a directly comparison between values is irrelevant, since the denominator (number of shares) is arbitrarily elected by each company, the

evolution of this ratio is extremely relevant, and present a similar ascending situation for both corporations.

In summary, Carrefour Brasil is situated in a moderately better condition in terms of Performance evaluation.

4.3.2 - Efficiency Indicators

Figure 29: Asset Turnover – Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB)

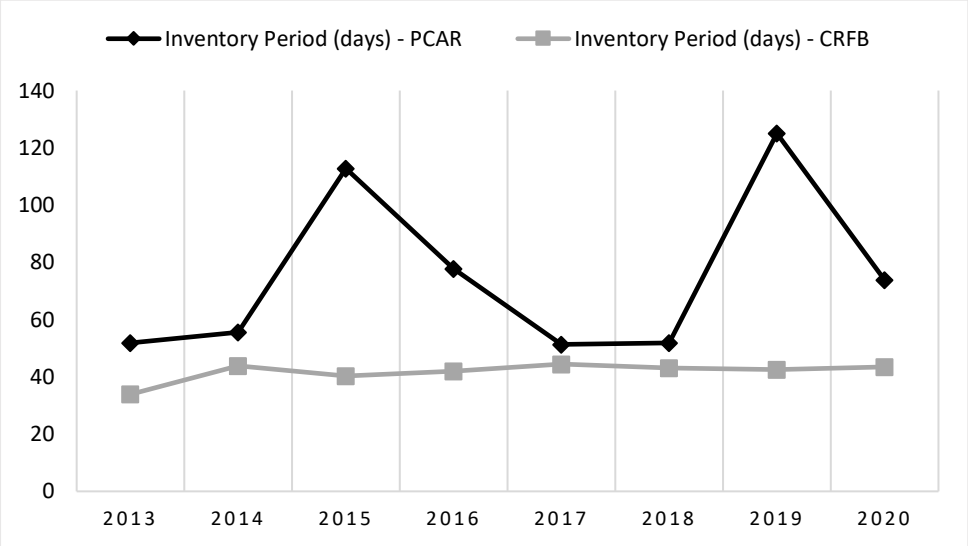


Source: annual reports, own elaboration.

In relation to the Asset Turnover ratios (Figure 29) of both companies, a relevant and consistent level distinction is observed, when considering the similar nature of their activities. Although both corporations rely on elevated levels of properties and equipment, as well as significant inventory levels, Grupo Pão de Açúcar possess an average amount of total assets almost 50% higher than Carrefour Brasil's, while presenting an average level of total sales 8% lower.

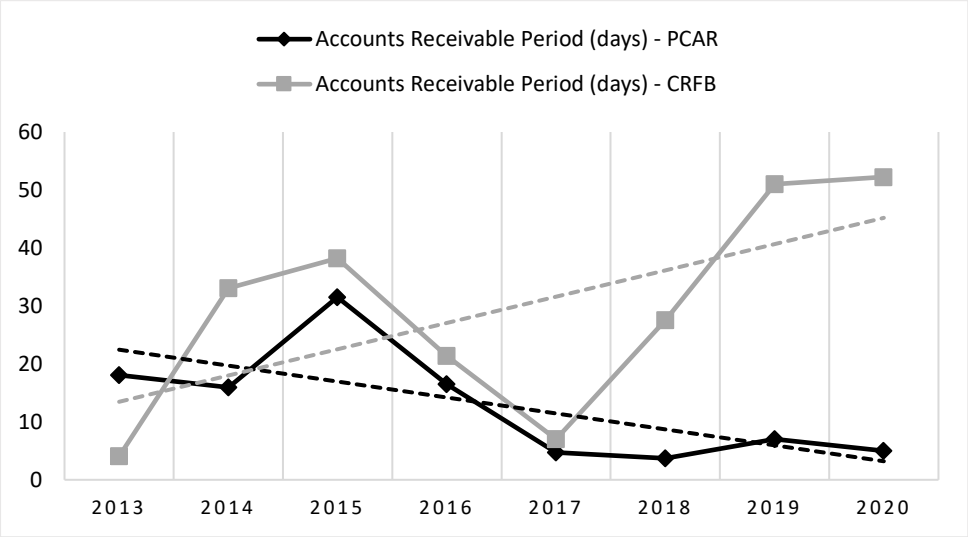
Overall, the indication is that Carrefour Brasil presents itself in a more efficient management situation of its assets, being able to generate more sales per each dollar of assets, in comparison to Pão de Açúcar.

Figure 30: Inventory Period for Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB).



Source: annual reports, own elaboration.

Figure 31: Accounts Receivable Period for Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB).



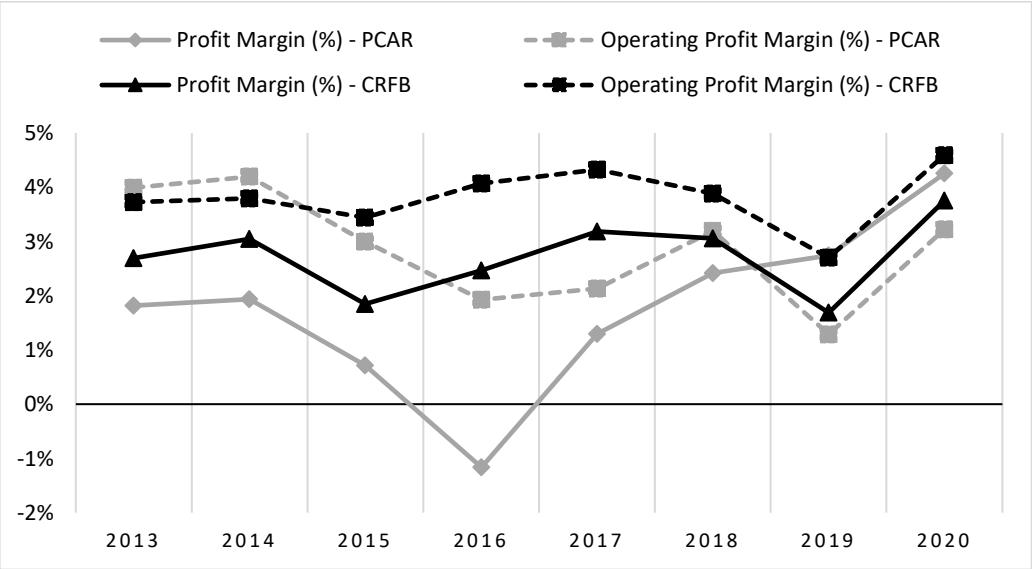
Source: annual reports, own elaboration.

Regarding the Accounts Receivable Period and Inventory Period ratios (Figure 30 and Figure 31), significant differences can be identified in both indicators. First, while Carrefour Brasil presents lower and surprisingly more stable levels of Inventory Period, depicting a more dynamic flow and efficient structure of inventories, Grupo Pão de Açúcar shows higher and more volatile figures, ending 2020 with a number two times higher than Carrefour's, and therefore depicting higher risks and costs related to storage.

Secondly, an opposite scenario is exhibited by the Accounts Receivable Period, where a clear descending behavior of Grupo Pão de Açúcar's numbers indicates a healthier payment

cycle, being mirrored by the ascending trend of Carrefour Brasil's figures, that reaches a delay period of receivables around 10 times higher in 2020. It is relevant to note that the enhancement of the first company's situation is directly related to a reduction in the amounts of accounts receivable, as its net sales remain somewhat constant over the timeframe, therefore depicting a healthy downsizing.

Figure 32: Profit margins for Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB).



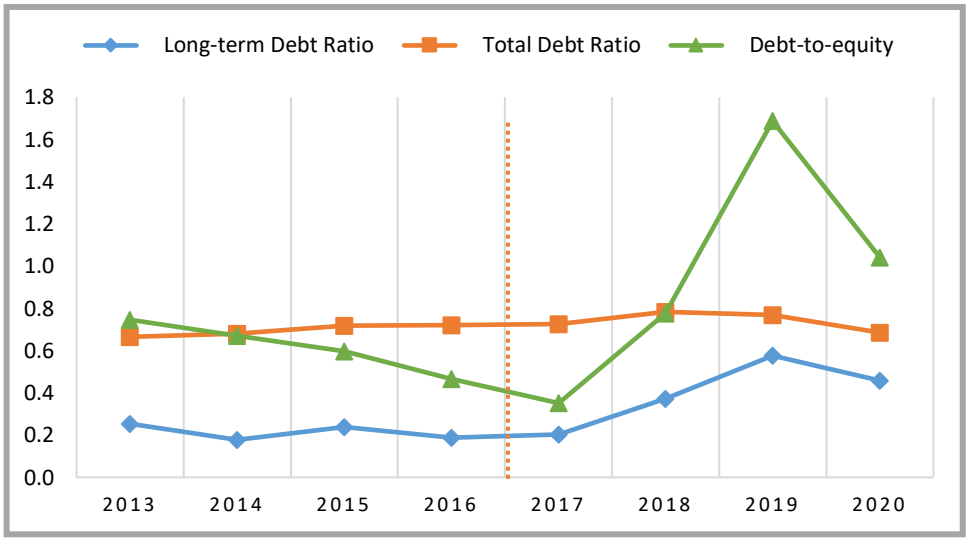
Source: annual reports, own elaboration.

Concerning both corporations' profit margins (Figure 32), two points are important to remark. First, a common threshold is shared by the two companies, with relatively low levels of profit margins, retained below the level of 5%, which is an expected situation for the supermarkets segment as they usually rely on already low gross margins (Net Sales minus Costs of Goods Sold). Secondly, although relatively close levels can be observed in the last three years of the timeframe, it is important to remark the consistent and substantial underperformance of Pão de Açúcar's Profit Margin from 2013 to 2017, which presents a relevant net loss in 2016 and opposes itself from the always above zero values of Carrefour Brasil.

Concisely, it is possible to state that both corporations presented a crossed situation in terms of Efficiency indicators, but, like observed in Performance's dimension, Carrefour Brasil was situated in a moderately better condition.

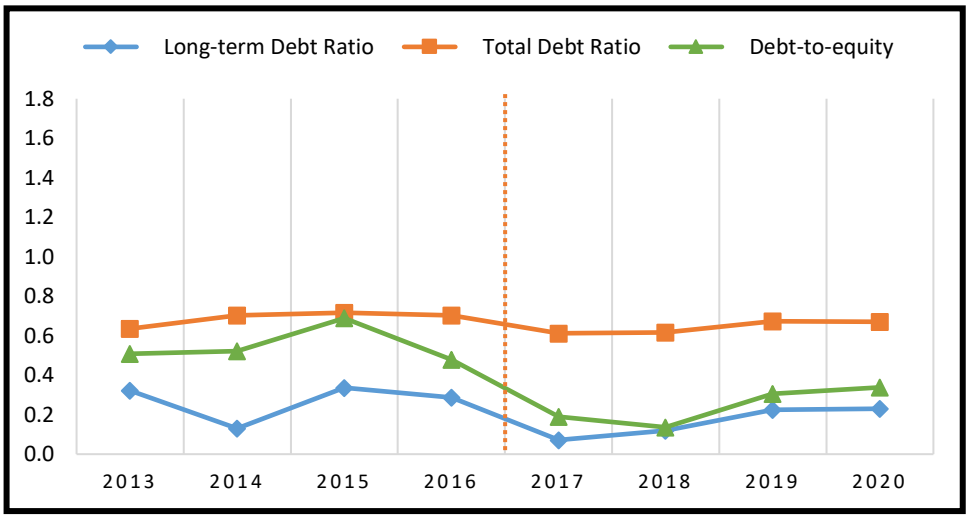
4.3.3 - Leverage Indicators

Figure 33: Debt ratios for Pão de Açúcar (PCAR).



Source: annual reports, own elaboration.

Figure 34: Debt ratios for Carrefour Brasil (CRFB)

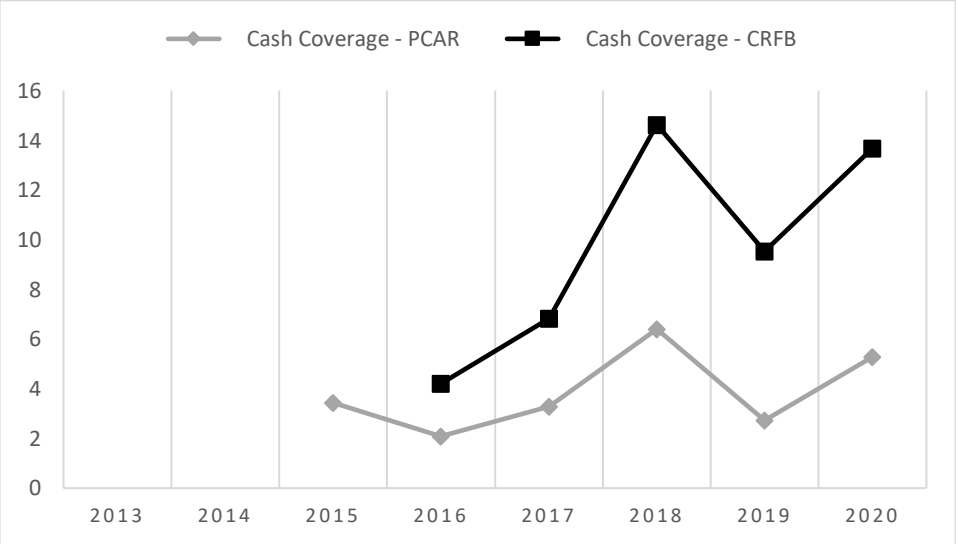


Source: annual reports, own elaboration.

Analyzing the debt ratios evolution for both companies (Figure 33 and Figure 34), a relevant distinction can be observed between the first and the last four years studied (2013-2016 *versus* 2017-2020). Although relatively similar levels of overall indebtment can be found in the first term, a more pronounced disparity is present in the second half. While Carrefour was able to reduce its Long-term Debt and Debt-to-equity ratios in a consistent manner, mostly related to a decrease of long-term borrowings, Pão de Açúcar's both indicators suffered a sharp deterioration. The company ended the fiscal year of 2020 with doubled sized Long-term Debt and Debt-to-equity values, in relation to 2016, mostly due to an enlargement of almost 400%

of its long-term debts – concentrated on long-term borrowings and long-term lease liabilities. Additionally, it is important to note that the company surpassed a relevant alarming point in 2019 and 2020, where the sum of short-term and long-term debts reached values higher than its total equity.

Figure 35: Cash Coverage – Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB).



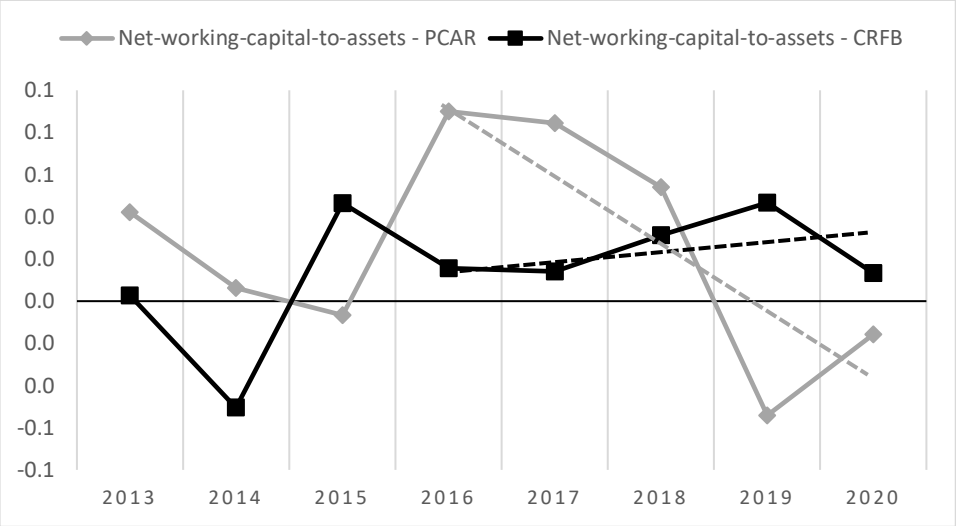
Source: annual reports, own elaboration.

Ultimately, the Cash Coverage evolution (Figure 35) contributes to outline a healthier leverage situation of Carrefour Brasil, while not only it was able to maintain considerable elevated levels of interest expenses' coverage, but also to present an ascending, and therefore healthier, trend.

Although different companies may possess distinct optimal capital structures, it is possible to say that Pão de Açúcar, recently, situates itself in a significantly more difficult Leverage circumstance, when considering both its past and a similar company's (Carrefour Brasil) situation.

4.3.4 - Liquidity Indicators

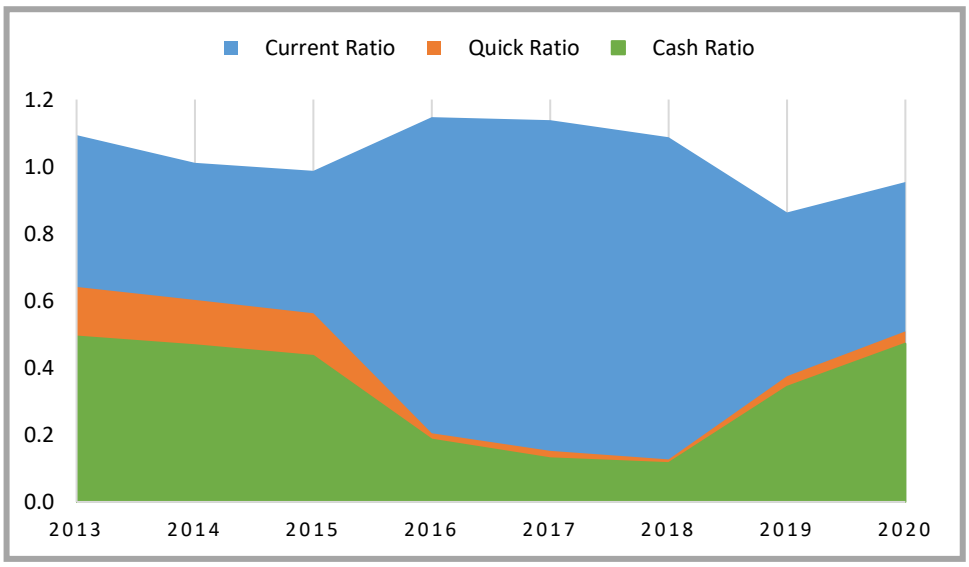
Figure 36: Net-working-capital-to-assets – Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB).



Source: annual reports, own elaboration.

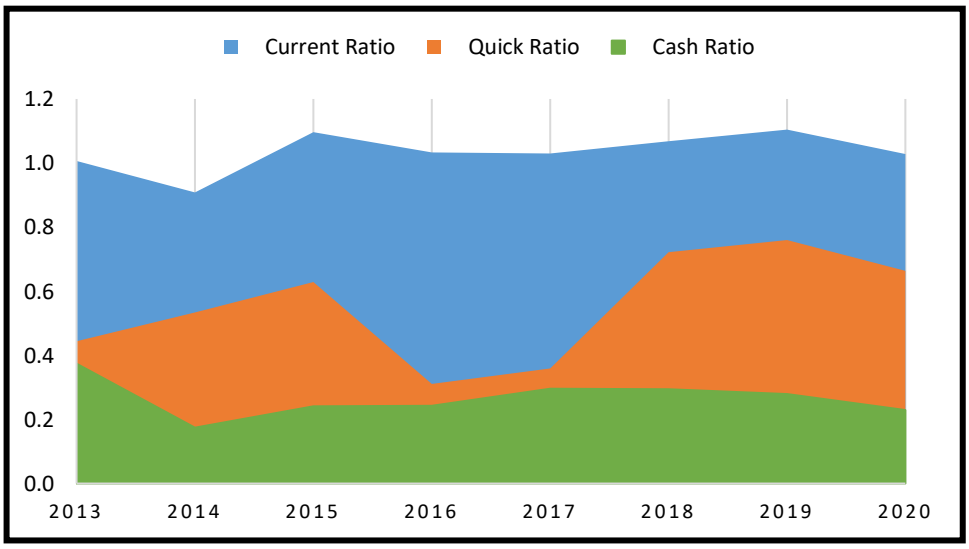
Relatively to both companies' Net-working-capital-to-assets ratio (Figure 36), a more subtle difference is observed, as not only the relative position between both corporations varies along the period analyzed, but their figures also remain inside very close value ranges. A reasonable distinction of trendlines is portrayed in the most recent year however, where Carrefour Brasil presented a more stable and a slightly healthier condition. Pão de Açúcar's numbers show a sharp decline from 2016 to 2020, reaching negative values in the last two years, that depict an insufficient coverage of short-term items related to the exploration cycle, while Carrefour Brasil presented a slightly crescent trend of its values, that remain positive over all this same period segment.

Figure 37: Cash, Current and Quick ratios for Pão de Açúcar (PCAR).



Source: annual reports, own elaboration.

Figure 38: Cash, Current and Quick ratios for Carrefour Brasil (CRFB).



Source: annual reports, own elaboration.

Finally, in relation to both companies' Current, Quick and Cash ratios (Figure 37 and Figure 38), two similarities can be observed. First, comparable levels of Current Ratio are depicted in all the timeframe, with average values slightly above one, related to the reduced figures of net-working-capital presented just before. Secondly, both corporations suffered a downsizing of its most liquid assets in 2016, mostly associated with the depletion of cash & cash equivalents and of accounts receivable, for the case of Pão de Açúcar, and the reduction only of accounts receivables, in the case of Carrefour Brasil. This occasion, specifically, can be

related to the economic and political crisis related to Dilma Rousseff's impeachment process and its repercussions in the national economic activity.

Additionally, a pertinent distinction can be pointed in the most recent years. Pão de Açúcar presented higher proportional levels of cash & cash equivalents in 2019 and 2020, indicating some supportive liquidity quality, but at the same time containing higher proportional amounts of inventories, that compromise this positive situation. Carrefour Brasil, in turn, depicted steadier values, with lower levels of inventory and concentrated liquidity in accounts receivables.

In summary, a slightly better Liquidity condition was depicted by Carrefour Brasil in most recent years, with a more mixed relation present over the rest of the timeframe analyzed.

4.3.5 - ESG Initiatives and Indicators

In terms of ESG policies and practices, different factors contribute to the segregation of both companies. First, while Grupo Pão de Açúcar depicts a significant earlier concern with this topic, publishing Annual Sustainability Reports since 2008, Carrefour Brasil only composed its first report in 2019. Secondly, Pão de Açúcar was inserted in the local stock market's sustainability index (ISE B3) in 2021, while Carrefour Brasil has never been part of it.

Additionally, some important events subsidized the construction of a worse image for Carrefour, in terms of effective ESG approaches, involving multiple racism episodes, aggressions, animals' poisoning, the dismissal of multiple employees as a form of retaliation for their claims of fair remuneration and, ultimately, the violent death of a black man, João Alberto, promoted by security guards of the company, in November 19 2020, inside one of its units (Brasil de Fato, 2020).

Table 7: ESG Indicators of Pão de Açúcar (PCAR)

Grupo Pão de Açúcar (PCAR BZ)								
ESG Indicators **12 Months Ending**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**
Environmental								
Total GHG Emissions (kton)	720.64	794.26	739.78	785.60	710.20	653.60	696.75	694.64
GHG Intensity per Sales (ton/MR$)	12.46	12.12	19.89	18.95	15.91	13.23	24.16	13.55
GHG Intensity per Employee (ton/Person)	4.24	4.57	4.62	7.63	6.90	6.15	6.07	5.04
Total Waste (kton)	835.75	232.63	237.70	177.55	53.95	220.68	174.19	208.77
Waste Recycled (%)	11.03	30.09	32.00	26.98	31.35	26.30	30.09	32.76
Energy Efficiency Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emissions Reduction Initiatives	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Environmental Supply Chain Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Waste Reduction Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Climate Change Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Social								
Employee turnover (%)	36.70	42.00	42.00	24.80	—	32.80	28.40	31.30
Training Spending per Employee (R$)	147	—	—	—	—	191	238	197.34
Workforce Accidents (%)	0.70	0.00	0.00	0.00	0.00	1.41	1.17	0.59
Pct Women in Workforce (%)	47.30	49.00	48.40	51.80	52.00	50.90	50.60	50.70
Anti-Bribery Ethics Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health and Safety Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Rights Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policy Against Child Labor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer Data Protection Policy	—	—	No	Yes	Yes	Yes	Yes	Yes
Governance								
Non-Executive Directors on Board (%)	100.00	100.00	90.91	90.91	90.91	100.00	100.00	100.00
Independent Directors (%)	41.67	55.56	36.36	36.36	36.36	33.33	33.33	37.50
Women on Board (%)	8.33	11.11	9.09	0.00	0.00	0.00	0.00	0.00
Board Average Age	56.00	56.11	56.00	56.18	57.18	59.00	60.78	61.13
Independent Directors on Audit Committee (%)	—	33.33	25.00	25.00	—	—	—	—

Source: BLOOMBERG, annual reports; own elaboration.

Concerning Pão de Açúcar's ESG indicators (Table 7), the broad and consistent data availability contributes to add credibility to the company's concern with the issue, besides de clear presence of Environmental and Social policies and initiatives over all the timeframe studied. Inside the environmental dimension, the measures show a mixed evolution, also not depicting any major deterioration. For instance, the company sustained the constant average Waste Recycling value of 30% since 2014. Additionally, Pão de Açúcar presented a slightly crescent trendline of its GHG Intensity per Sales, varying through significantly volatile values.

In relation to the company's social measurements, an apparent reduction of Employees Turnover was achieved, when comparing the first and the second half of the timeframe. One important point to remark is that the relatively high average Employee Turnover ratio, may be, in part, associated to a common trend inside this segment, as many of the positions are common among first-time job seekers (high school and college students working for extra money) and are not associated with high knowledge skills or major learning opportunities. Additionally,

Pão de Açúcar was able to increase the Percentage of Women in the Workforce by 3.4 percentage points, reaching the near-average value of the female population in Brazil.

Finally, its Governance measurements also depict a muddled scenario, were healthy constant rate of Non-Executive Directors on Board is maintained, but with some deterioration of directors' independence and the Board Average Age.

Table 8: ESG Indicators of Carrefour Brasil (CRFB).

Grupo Carrefour Brasil (CRFB BZ)								
ESG Indicators 12 Months Ending	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Environmental								
Total GHG Emissions (kton)	—	—	—	—	—	—	202.83	206.60
GHG Intensity per Sales (ton/MR$)	—	—	—	—	—	—	3.38	2.90
GHG Intensity per Employee (ton/Person)	—	—	—	—	—	—	2.29	2.16
Total Waste (kton)	—	—	—	—	—	138.22	146.32	169.40
Waste Recycled (%)	—	—	—	—	—	47.66	48.59	50.35
Energy Efficiency Policy	—	—	—	—	No	Yes	Yes	Yes
Emissions Reduction Initiatives	—	—	—	—	No	Yes	Yes	Yes
Environmental Supply Chain Management	—	—	—	—	No	Yes	Yes	Yes
Waste Reduction Policy	—	—	—	—	No	Yes	Yes	Yes
Climate Change Policy	—	—	—	—	No	No	No	No
Social								
Employee turnover (%)	—	—	—	—	—	34.40	40.63	37.28
Training Spending per Employee (R$)	—	—	—	—	—	—	—	—
Workforce Accidents (%)	—	—	—	—	—	—	1.01	0.66
Pct Women in Workforce (%)	—	—	—	—	—	—	47.34	54.50
Anti-Bribery Ethics Policy	—	—	—	—	—	No	Yes	Yes
Health and Safety Policy	—	—	—	—	—	No	Yes	Yes
Human Rights Policy	—	—	—	—	—	No	No	Yes
Policy Against Child Labor	—	—	—	—	—	No	Yes	Yes
Consumer Data Protection Policy	—	—	—	—	—	No	No	Yes
Governance								
Non-Executive Directors on Board (%)	—	—	—	—	—	90.00	88.89	90.00
Independent Directors (%)	—	—	—	—	—	20.00	22.22	20.00
Women on Board (%)	—	—	—	—	—	0.00	10.00	10.00
Board Average Age	—	—	—	—	—	55.70	56.89	56.60
Independent Directors on Audit Committee (%)	—	—	—	—	—	—	25.00	20.00

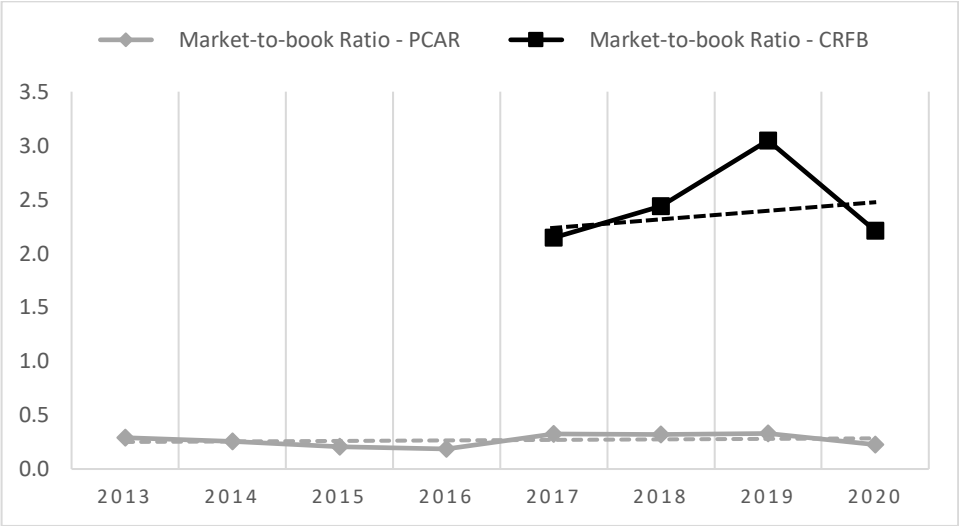
Source: BLOOMBERG, annual reports; own elaboration.

Relatively to Carrefour Brasil's ESG indicators (Table 8), the first main difference resides on data availability. Although it may be in part connected to the later Initial Public Offering of the company, yet only two years after more detailed information was measured and provided, through the Sustainability annual reports. The presence of official policies and initiatives also depict a later implementation, and the overall scenario does not contribute to provide credibility to the company, in terms of ESG practices, for almost all the period analyzed. It is important to remark, however, that since the measurements of its ESG key indicators, Carrefour Brasil was able to present lower GHG intensities, higher Waste Recycling

levels, a lower Board Average Age, and a higher percentage of Women on Board, when compared to Pão de Açúcar.

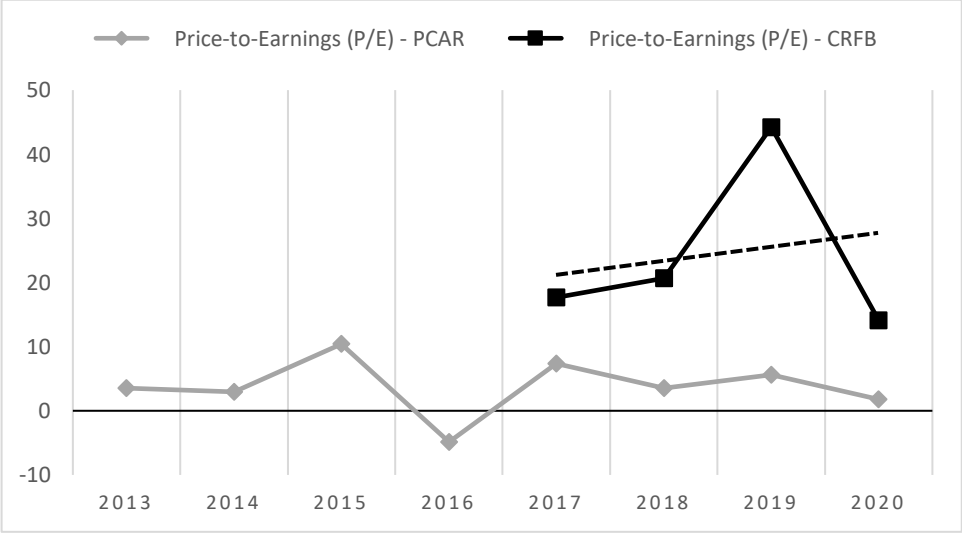
4.3.6 - Market Indicators

Figure 39: Market-to-book – Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB).



Source: annual reports, own elaboration.

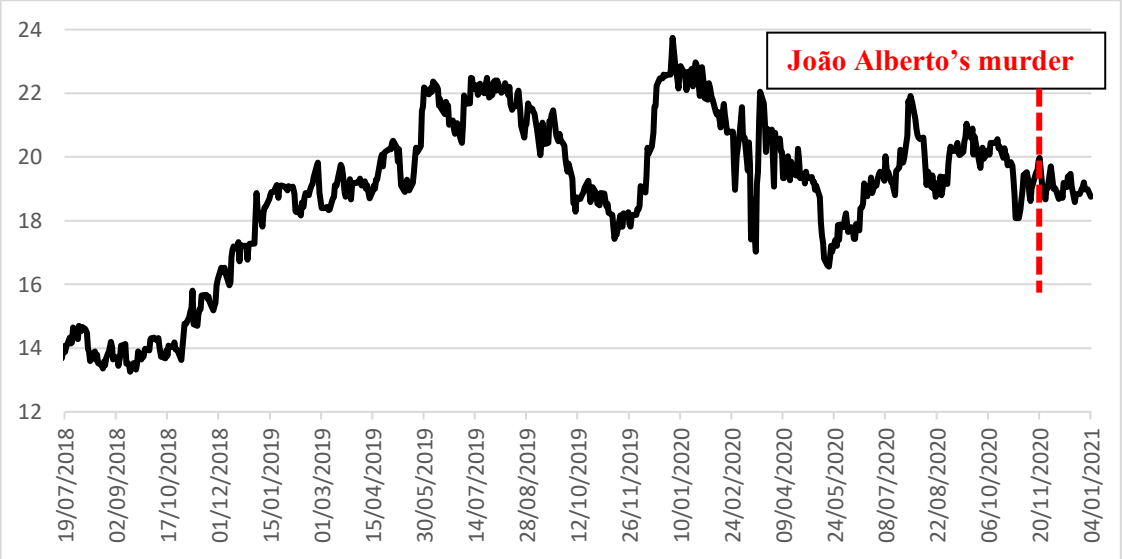
Figure 40: Price-to-Earnings – Pão de Açúcar (PCAR) and Carrefour Brasil (CRFB)



Source: annual reports, own elaboration.

Finally, both Market-to-book (Figure 39) and Price-to-Earnings (Figure 40) ratios place Carrefour Brasil in a better situation of market valuation in all last four years. While Pão de Açúcar presented lower and constant values over all the period analyzed, Carrefour Brasil depicted a crescent trendline with average figures approximately five times higher.

Figure 41: Carrefour Brasil (CRFB) daily closing price, in BRL, from July 2018 to January 2021.



Source: BLOOMBERG, own elaboration.

Conducting a more focused assessment of Carrefour Brasil's stock price evolution (Figure 41), a more immediate market value measure, it is not possible to observe any clear shifts in its behavior related to the major negative visibility of the company brought by João Alberto's murder, on November 19, 2020.

4.3.7 - Disclosure

Within the selected timeframe, Carrefour Brasil was situated in a better condition concerning all Performance, Efficiency, Leverage and Liquidity dimensions of its financial indicators. In terms of ESG practices, however, the company not only presented a significantly later concern when compared to Pão de Açúcar, but it was also inserted in multiple adverse situations in terms of ESG narratives, especially when considering the murder episode inside one of its units at the end of 2020. However, Carrefour was able to depict consistently better market indicators, maintaining a positive ascending trendline even with some deterioration of its market conditions (also presented by Pão de Açúcar) in 2020.

This situation, in summary, corroborates to the hypothesis that the ESG factors have not been yet sufficient to compensate financial dissimilarities, at least inside the Supermarkets segment in Brazil. Even though, in part, it may be associated with the not so significant potential negative environmental impacts of this sector, it corresponds to a market sector which covers a substantial amount of employees (and in specially low-income tasks), having, therefore, an important relevance in terms of social impacts. In December 2020, both companies, together,

were responsible for employing around 233 thousand people, which corresponded to approximately 0.6% of the total amount of formal jobs of the country in November 2020.

4.4 – Natura & Co. and Vale S.A.

The third and final analysis will be conducted between two Brazilian public listed companies inside different market segments: Natura & Co. (Personal Care & Cosmetic Products), and Vale S.A. (Mining). The purpose of this choice was to assess companies with the wider differences possible in terms of Sustainable Development and ESG criteria, related to their innate business models.

First, Natura & Co. S.A. develops, manufactures, distributes, and sells cosmetics, fragrances, as well as personal care products. It operates through Natura, Aesop, Avon, and The Body Shop brands through signature and department stores, e-commerce, direct selling, franchises, third-party online resellers, amenity accounts, and physical multibrand retailers primarily in Asia, North America, South America, Europe, the Middle East, Africa, and Oceania. Natura & Co S.A. was founded in 1969 and is headquartered in São Paulo, Brazil.

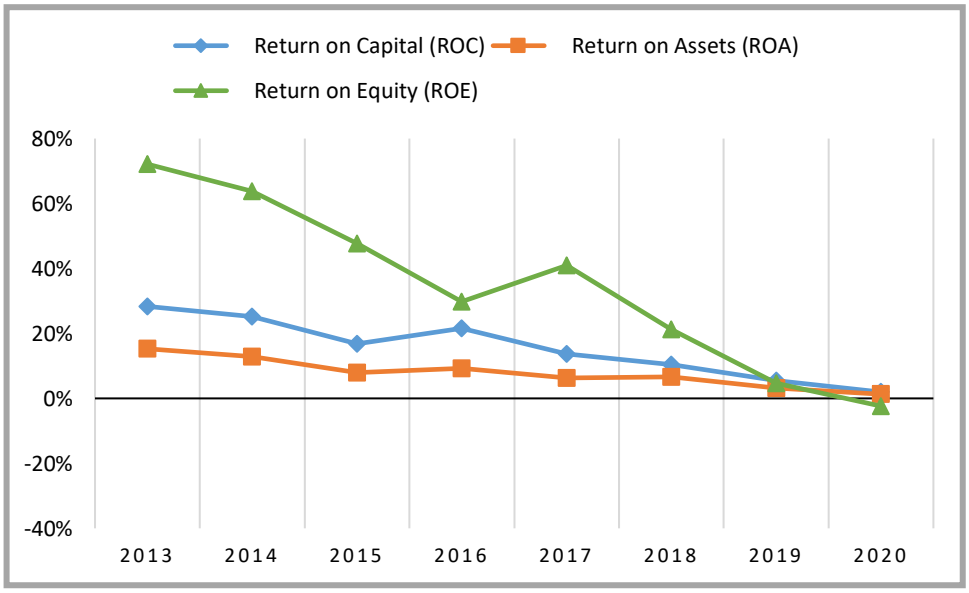
The company concluded its Initial Public Offering in 2004, on BM&FBovespa, also listed in the "Novo Mercado" category, the highest level of governance in Brazilian stock exchange. Natura has been part of B3's sustainability Index (ISE) uninterruptedly since its creation, in 2005, and it it's the world's largest B-Corporation, being global ecosystem of 35000 employees and associates in over 100 countries. Its main brand, Natura, has been carbon neutral since 2007, and is a signatory to Net Zero, a coalition of global corporations and world leaders dedicated to accelerating the world transition to a low carbon economy by 2050. In 2015, Natura received the UN's top environmental award, Champions of the Earth and in 2019 its Carbon Neutral Program won the UN Climate Global Action Award.

Second, Vale S.A., together with its subsidiaries, produces and sells iron ore and iron ore pellets for use as raw materials in steelmaking in Brazil and internationally. The company operates through Ferrous Minerals, Base Metals, and Coal segments. Originally established on June 1, 1942 as the state-owned "Companhia Vale do Rio Doce", the company changed its name to "Vale S.A." in May 2009, and became a private company ranking among the largest miners in the world.

The company complete its IPO in 2008, and it became famous, most recently, by the involvement in two major disasters on 2015 and 2019 that, together, were responsible for the death of at least 289 civilians and huge environmental damages.

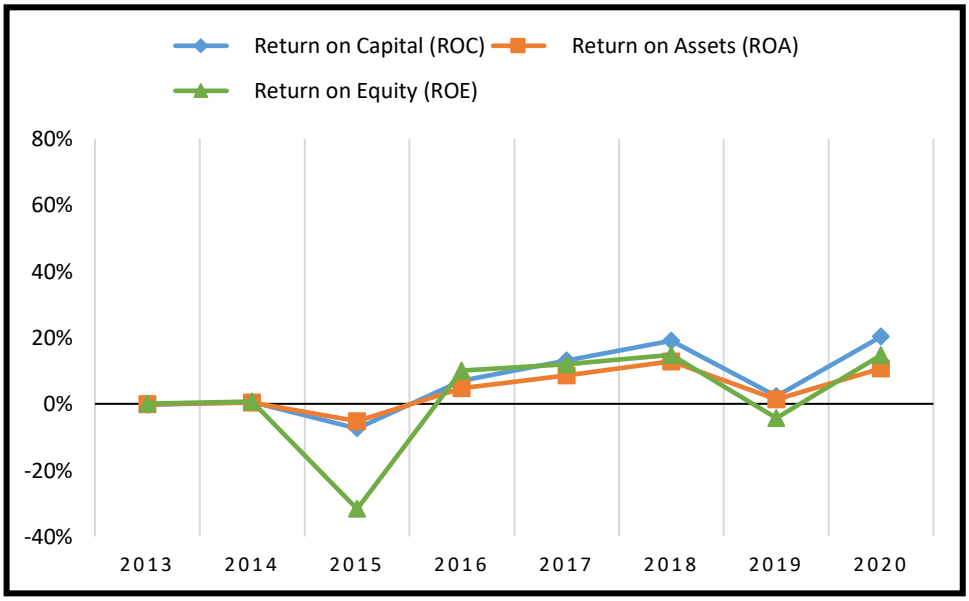
4.4.1 - Performance Indicators

Figure 42: ROA, ROC and ROE for Natura & Co (NTCO).



Source: annual reports, own elaboration.

Figure 43: ROA, ROC and ROE for Vale (VALE).



Source: annual reports, own elaboration.

In relation to the return ratios performance (Figure 42 and Figure 43), three aspects are important to note. First, the higher volatility presented by ROE, in comparison to both ROA

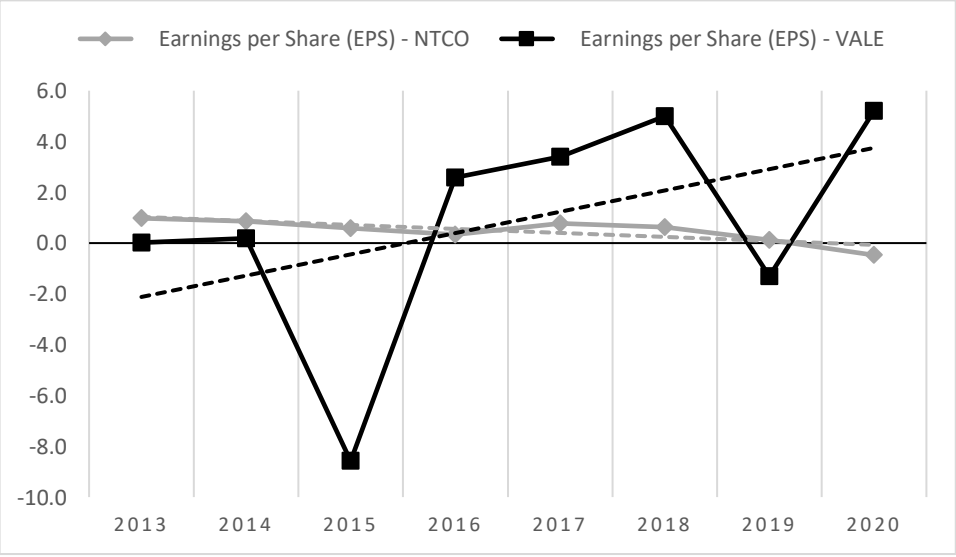
and ROC ratios, may be directly associated to the numerator used in these two groups: while ROA and ROC are based on NOPAT, ROE utilizes the Net Income figure, which involves interest expenses and other non-operating costs, besides extraordinary gains and losses. These additional influencing factors, therefore, contribute to also higher variations of this indicator.

Secondly, although both companies present opposite trends for the period analyzed, Natura's decline comes from significantly higher levels of return values, and its only negative number (Return on Equity), in 2020, is related to the acquisition of another cosmetics company (Avon), where its purchase was made knowing the adverse financial condition of the corporation and was presented as an investment opportunity, where the improvement of is future financial performance is expected to be achieved through the restructuring of activities.

Finally, the two relevant drawdowns suffered by Vale's return ratios, in 2015 and 2019, are directly connected to dam rupture episodes of "Mariana" and "Brumadinho", respectively. They not only influenced some deterioration of the company's net revenue but were also responsible for a surge of operating expenses (necessary to repair or mitigate the impacts of the accidents) and taxes, involving multiple government's fines.

Although it is possible to state that Natura presented more attractive figures, overall, for the period analyzed, its return ratios' evolution is worse when compared to the ascending trend of Vale. In this context, the next years will be highly relevant to evaluate the maintenance of Natura's return ratios trend.

Figure 44: Earnings per Share – Natura & Co (NTCO) and Vale (VALE)



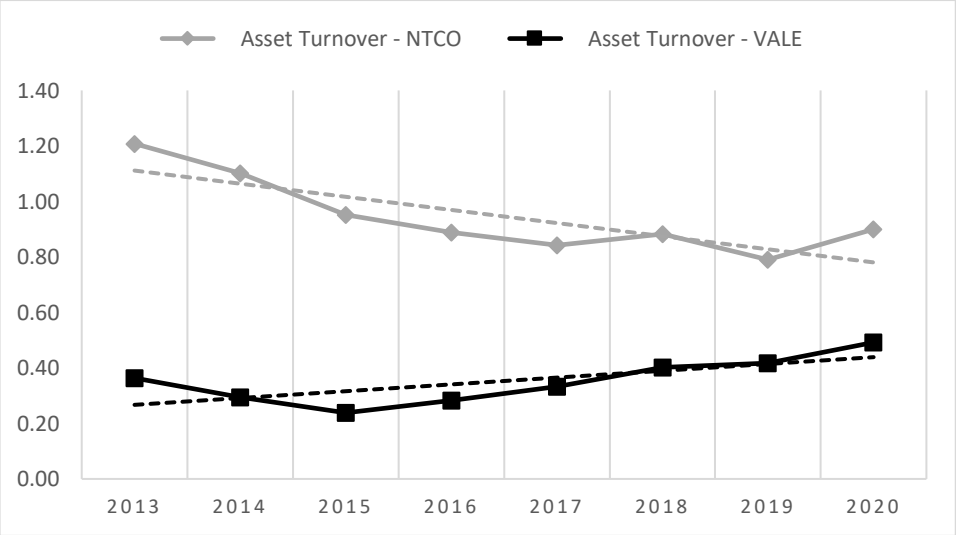
Source: annual reports, own elaboration.

A more conflicting situation, in terms of relative performance, is presented by the Earnings per Share ratio (Figure 44). While Natura presents significantly more stable values over the eight years analyzed, it suffers a slight declining trend of its values, reaching a negative value in 2020. On the other hand, while Vale presented two significant drawdowns, with more volatile values, a relevant increasing behavior is depicted by its Earnings per Share ratio.

In an overall consideration, it is possible to point that Natura presented a worse evolution of its Performance indicators over the timeframe analyzed, in comparison to Vale's. Although a better situation was presented by the first company in the first years, the constant declining trendline of Natura depicted a clear opposite evolution of its values.

4.4.2 - Efficiency Indicators

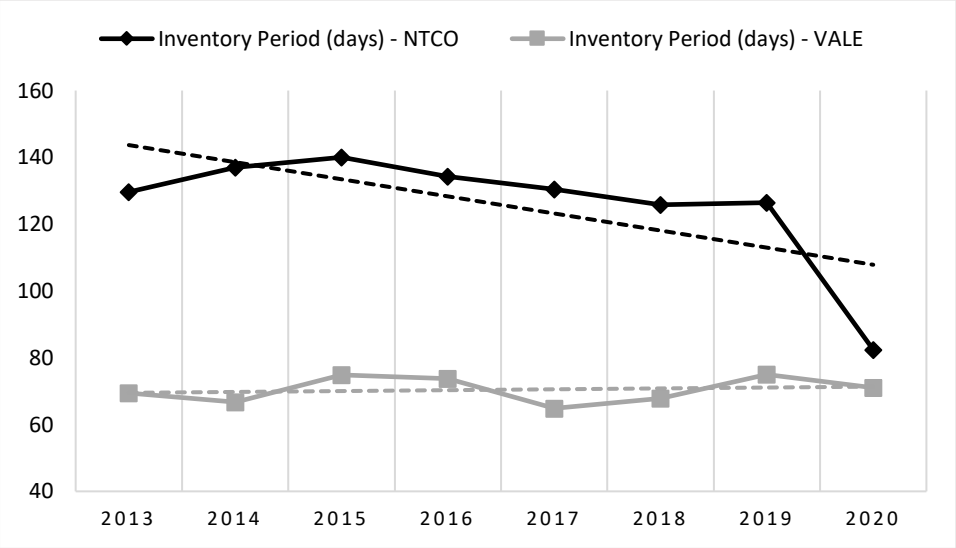
Figure 45: Asset Turnover – Natura & Co (NTCO) and Vale (VALE).



Source: annual reports, own elaboration.

Regarding the Asset Turnover ratio of both companies (Figure 45), it would be possible to say that Natura's assets are better managed, according to the general rule. However, an important point to note is that both companies' natures of activities, and therefore, asset structures, are significantly different, as Vale relies on substantially bigger proportions of properties and equipment. Additionally, it is also worthwhile to consider the opposite trends depicted over the eight years analyzed. These to factor suppress some of the theoretical relative advantage of Natura's position.

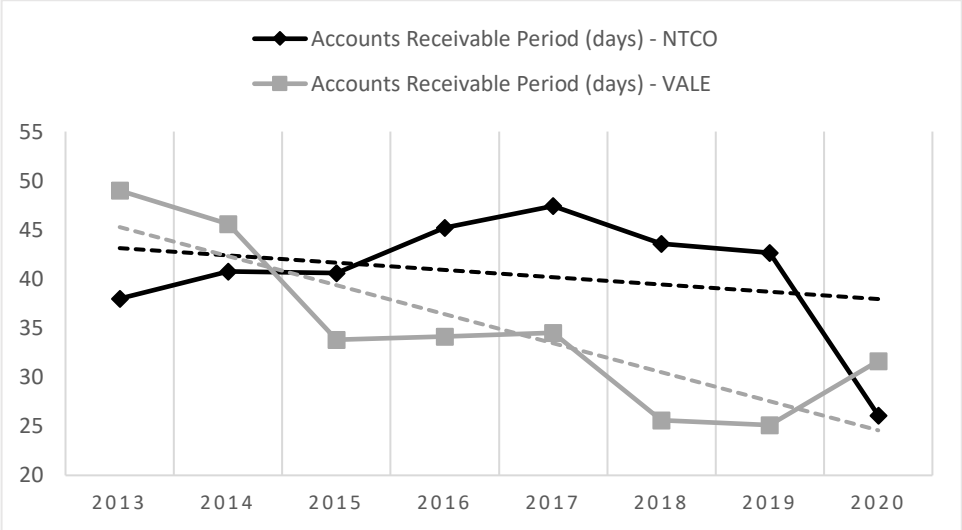
Figure 46: Inventory Period for Natura & Co (NTCO) and Vale (VALE).



Source: annual reports, own elaboration.

In relation to both companies' Inventory Period values (Figure 46), a reasonable distinction is observed trough almost all the timeframe studied, where Natura's figures indicates that the company holds its inventories for an average period two times longer before selling to customers, in comparison to Vale's context. As higher inventory levels are associated with greater tied up cash amounts, storage costs and risks, it would be possible to state that Natura situates itself in a worse condition, but it is important to consider that some of this difference may be related to the innate difference of activities carried out by both companies. In its turn, when considering only the trendline of each corporation, Vale presented a better evolution, being able to maintain a constant level of Inventory Period while Natura depicted a descending trend of its numbers.

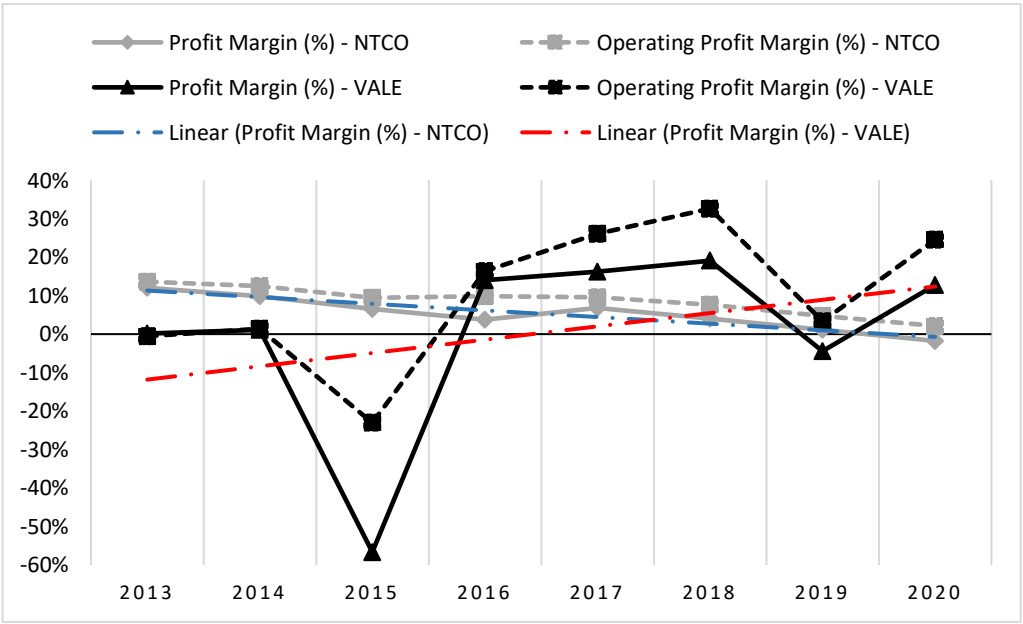
Figure 47: Accounts Receivable Period for Natura & Co (NTCO) and Vale (VALE).



Source: annual reports, own elaboration.

Concerning the Accounts Receivable Period indicator (Figure 47), Natura's values remained inside a more constant and overall higher level, exhibiting an increased risk of customers' default. Especially when considering that the abrupt decrease observed in 2020 is related to the previously mentioned acquisition of Avon by Natura, Vale's descending trend and lower magnitude numbers contribute to locate this second company in a relatively better circumstance.

Figure 48: Profit margins for Natura & Co (NTCO) and Vale (VALE).



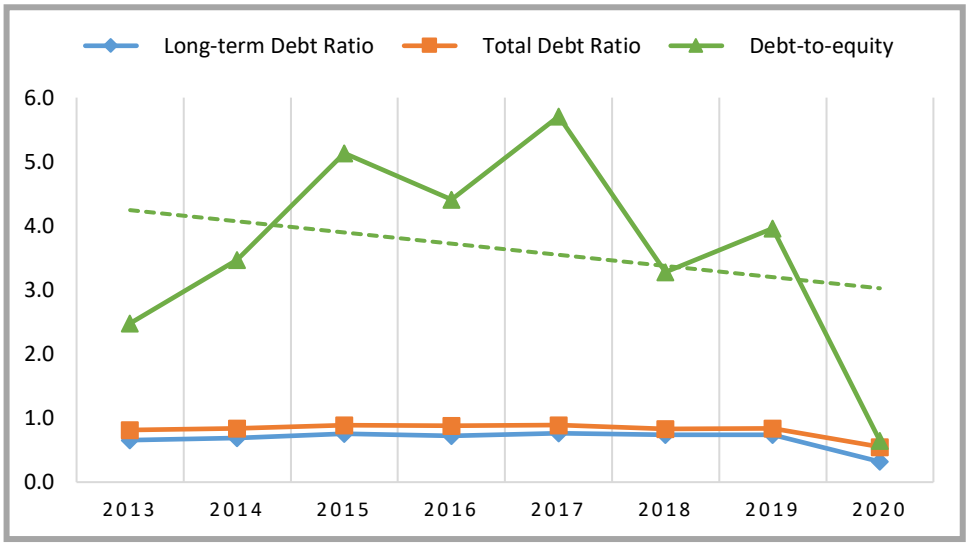
Source: annual reports, own elaboration.

Concerning both companies' profit margins (Figure 48), two points are important to remark. First, confirming the scenario observed within the previous return ratios assessment, the two substantial drawdowns suffered by Vale's profit margins, in 2015 and 2019, are directly connected to dam rupture episodes of "Mariana" and "Brumadinho", respectively, as they represented a surge of operating expenses (necessary to repair or mitigate the impacts of the accidents) and taxes, involving multiple government's fines. Secondly, despite these significant challenging periods, Vale was able to maintain a growing trend of its margins, while Natura remained inside a consistent declining trendline since the beginning of the timeframe, reaching a negative Profit Margin in 2020.

In summary, even when taking into account the distinct segment of activities carried out each company, it is possible to gather that Vale presented reasonably better Efficiency indicators.

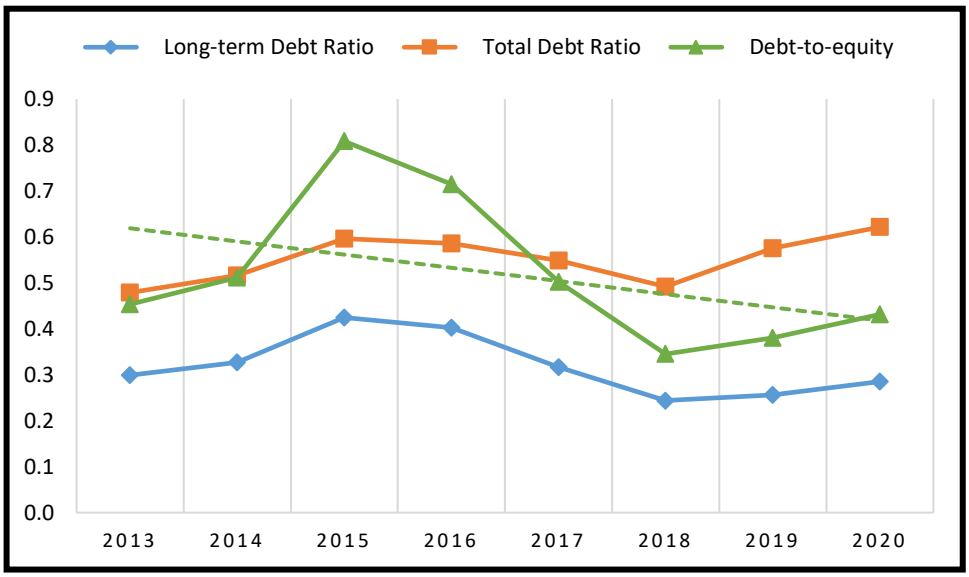
4.4.3 - Leverage Indicators

Figure 49: Debt ratios for Natura & Co (NTCO).



Source: annual reports, own elaboration.

Figure 50: Debt ratios for Vale (VALE).

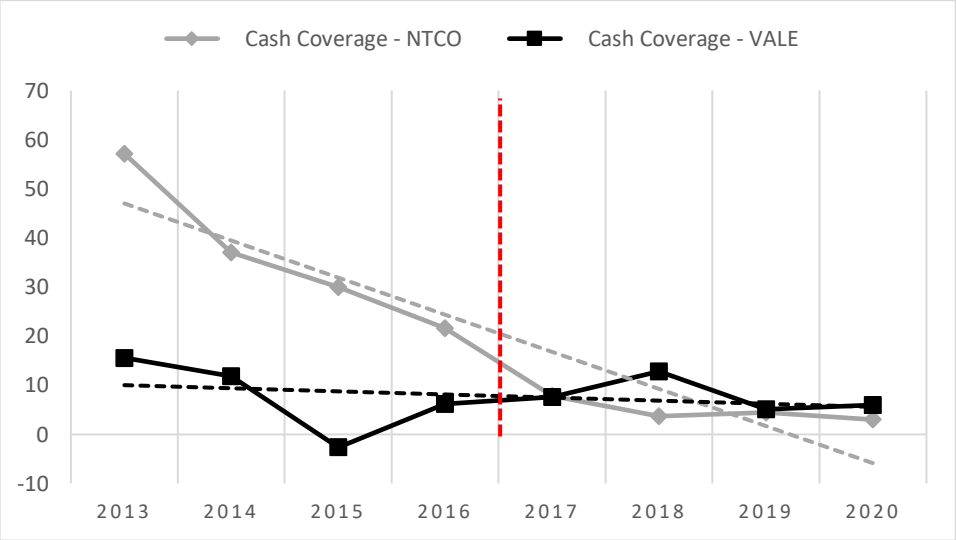


Source: annual reports, own elaboration.

With respect to the debt ratios (Figure 49 and Figure 50), two points are relevant to observe. First, regarding the Long-term Debt and the Total Debt Ratio, which take into account broader leverage components, both companies present similar constant values, being Natura's levels slightly higher than Vale's. Secondly, however, a much more variable behavior and expressive difference was brought by the Debt-to-equity indicator. While both companies present a declining trend, with very similar slopes, Natura's values remained inside an average range six times higher than Vale's, indicating a significantly riskier leverage context. Although

each company and segment of activity may have different risk profiles and optimal capital structures, it would be possible to state that Vale is situated in a more comfortable situation with respect to the debt ratios.

Figure 51: Cash Coverage – Natura & Co (NTCO) and Vale (VALE)



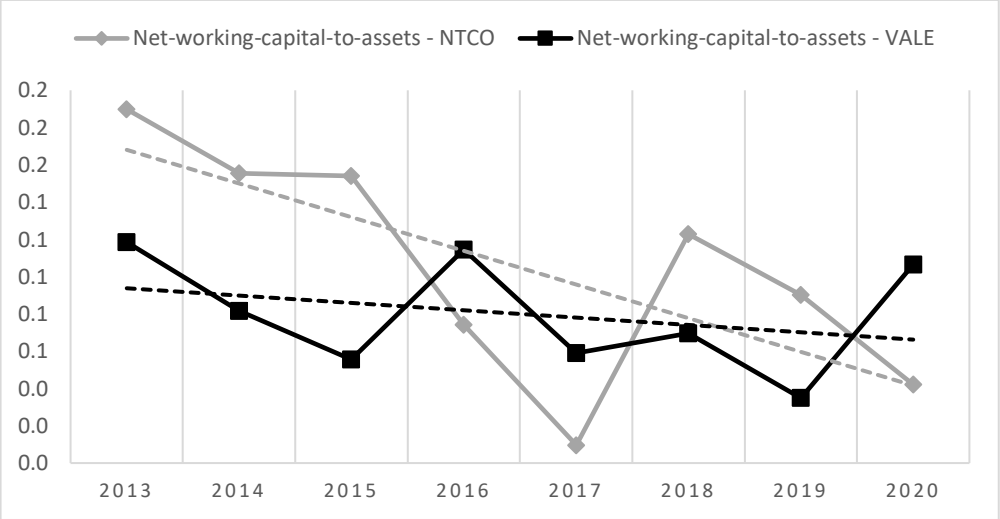
Source: annual reports, own elaboration.

Considering the Cash Coverage ratio (Figure 51), two distinctive periods can be identified. In the first half of the timeframe, Natura was able to sustain an expressive healthier coverage situation, while Vale reached a negative point in 2015, mostly due to its less-than-zero EBITDA figure. However, with a relevant increase of its interest expenses, accompanied by a reduction of its EBITDA, Natura achieved lower average coverage levels from 2017 forward. In that sense, considering, additionally, the opposite declining trend of Natura's values to the constant movement of Vale's, it is possible to gather that the second company presented a reasonably healthier coverage situation in most recent years.

Conclusively, Vale situated itself in a more favorable Leverage context inside the eight years analyzed, presenting also a better recent evolution.

4.4.4 - Liquidity Indicators

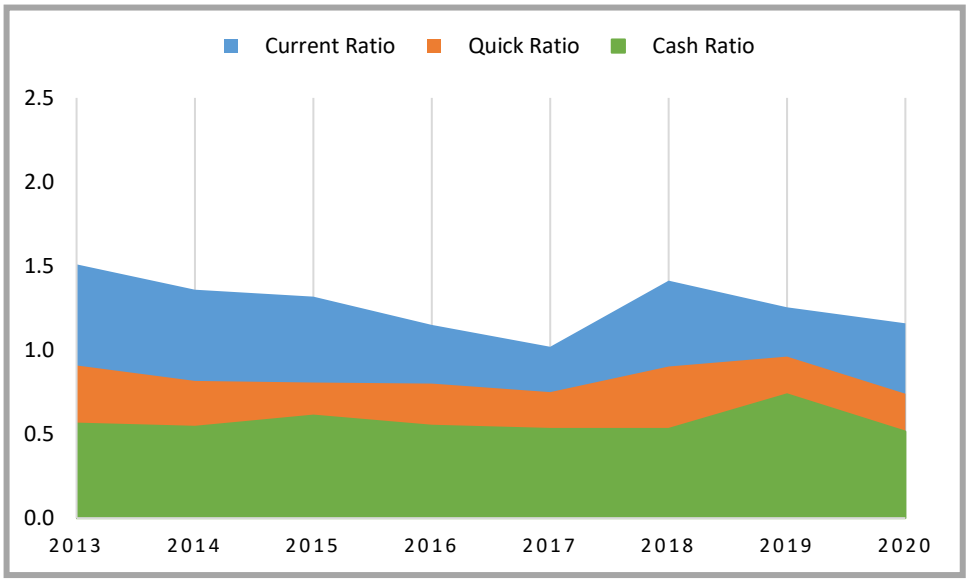
Figure 52: Net-working-capital-to-assets – Natura & Co (NTCO) and Vale (VALE).



Source: annual reports, own elaboration.

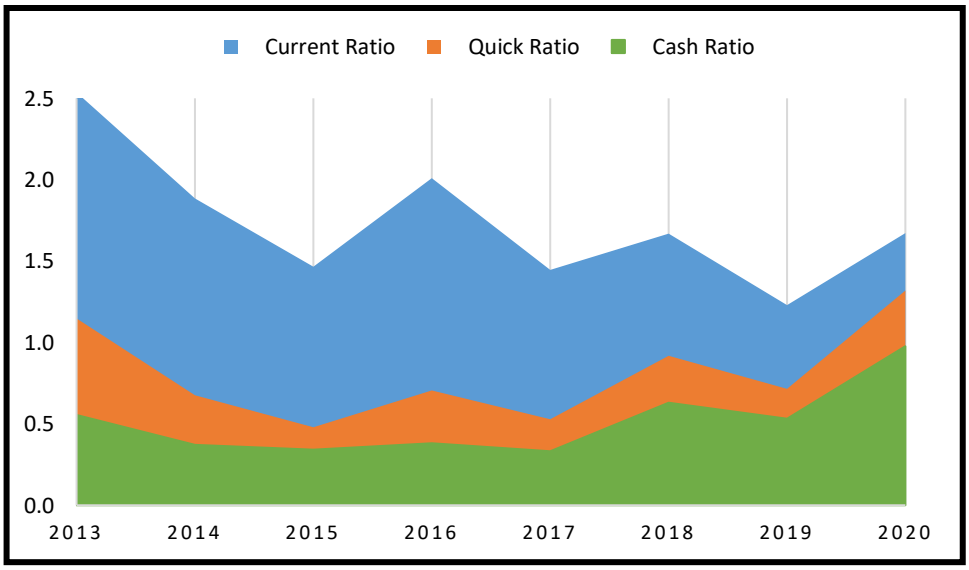
In relation to the Net-working-capital-to-assets' levels (Figure 52), both companies are able to sustain positive values over all the period analyzed, with somewhat close figures concentrated in the second half of the timeframe. The most expressive difference, in its turn, resides on the trend presented by each corporation. While Natura's values follow a clear descending behavior, Vale was able to maintain relatively constant numbers. This context, mostly, may depict a worse future liquidity expectation for Natura, as even the company was able to sustain constant net-working-capital values, its total assets were multiplied by nearly ten times from 2013 to 2020.

Figure 53: Cash, Current and Quick ratios for Natura & Co (NTCO).



Source: annual reports, own elaboration.

Figure 54: Cash, Current and Quick ratios for Vale (VALE).



Source: annual reports, own elaboration.

Concerning the Cash, Current and Quick ratios of the two corporations (Figure 53 and Figure 54), three main aspects are relevant to note. First, although Natura presented lower Current Ratio values over the selected time interval, the company was able to sustain consistently healthy levels of Cash Ratio, depicting that almost 50% percent of its liquidity is centered in cash and cash equivalents. Secondly, in opposition, Vale's numbers portrayed a lower liquidity quality, where the significant difference between its Current Ratio and Quick Ratio levels is related to expressive amounts of inventories and assets held-for-sale. Thirdly, however, it is relevant to consider the scenario inversion depicted in 2019 and 2020, where

Natura enters a trend of deterioration and Vale showed a relevant enhancement of its liquidity condition.

Overall, it is possible to state that Natura presented a worse Liquidity evolution over the eight years studied, with a significant enhancement of the relative position of Vale in the last two to three years.

4.4.5 - ESG Initiatives and Indicators

With respect to both companies ESG dimension, the most relevant disparity resides between each company's core activity. While Natura's business is centered in the creation, promotion and distribution of personal care cosmetic products, most importantly, it was the first public listed company in Latin America to obtain the certification of "B Corporation", in 2014, meaning it incorporates environmental and social positive impacts as direct foundations of its value creation process, inside its core business model. Vale's activities, in turn, are centered on the mining business. Mine exploration, construction, operation, and maintenance may result in land-use change, and are directly associated with negative impacts on environments, including deforestation, erosion, contamination and alteration of soil profiles, contamination of local streams and wetlands, and an increase in noise level, dust and significant GHG emissions (HADDAWAY, 2019).

In addition, Vale's recent history is stained by two major social and environmental disasters, detailed in sequence:

1. **"Mariana's dam rupture"**

   The disaster, which occurred in November 2015, released around 62 million cubic meters of mining tailings in the nearby region, after the collapse of two dams operated by Samarco (a joint-venture between Vale and BHP Billiton, each one holding 50% of the ownership). The failure killed 19 civilians and significantly damaged the environment, contaminating nearby rivers that were used as potable water sources by several cities. The sludge swept up people, cars and houses throughout its uncontrolled spread in the region of Mariana, in Minas Gerais state. As a consequence, Samarco was fined in BRL 656,5 million and the Brazilian government decided to suspend its activities (BBC, 2015).

2. "Brumadinho's dam rupture"

This second accident was similar to the first, depicting a reasonable lack of consideration about ESG issues by the company, after the first incident. In January 2019, the rupture of a different dam unleashed sludge into a town called Brumadinho, located also in Minas Gerais state, causing at least 270 deaths, destroying buildings and covering the city with a potentially toxic mud, which contains the traces of iron ore, silica and ammonia derivatives. Until today, investigations are running and there is no consensus on how to evaluate the total damage caused by it.

This time, Vale suffered more pronounced negative consequences, being charged in BRL 350 million in penalties. Eight executives were arrested and its former CEO, Fábio Schvartsman, was temporarily removed from its position.

Table 9: ESG Indicators of Natura & Co (NTCO).

Natura & Co Holding SA (NTCO BZ)								
ESG Indicators **12 Months Ending**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**
Environmental								
Total GHG Emissions (kton)	328.45	332.33	321.27	303.42	308.05	333.18	325.84	347.57
GHG Intensity per Sales (ton/MR$)	46.85	44.86	40.67	38.35	31.27	24.87	22.56	9.41
GHG Intensity per Employee (ton/Person)	49.35	50.42	48.74	47.43	48.81	50.32	47.78	50.23
Total Waste (kton)	13.92	14.43	13.71	11.89	12.01	14.68	17.87	17.29
Waste Recycled (%)	84.40	88.10	90.00	91.00	91.10	94.34	94.12	95.41
Energy Efficiency Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emissions Reduction Initiatives	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Environmental Supply Chain Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Waste Reduction Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Climate Change Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Social								
Employee turnover (%)	7.80	10.25	9.57	11.46	18.24	17.98	17.81	12.11
Training Spending per Employee (R$)	2,415	2,763	2,355	1,157	2,175	1,820	1,354	773.12
Workforce Accidents (%)	—	—	—	—	0.29	0.26	0.29	0.14
Pct Women in Workforce (%)	63.84	63.97	63.20	63.48	62.80	62.10	62.00	62.70
Anti-Bribery Ethics Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health and Safety Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Rights Policy	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policy Against Child Labor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer Data Protection Policy	-	-	No	No	No	No	Yes	Yes
Governance								
Non-Executive Directors on Board (%)	100.00	100.00	100.00	100.00	100.00	100.00	91.67	91.67
Independent Directors (%)	22.22	50.00	66.67	66.67	50.00	60.00	66.67	66.67
Women on Board (%)	0.00	12.50	11.11	22.22	25.00	30.00	25.00	25.00
Board Average Age	62.33	59.25	59.44	60.44	62.50	60.90	63.92	64.92
Independent Directors on Audit Committee (%)	—	—	—	—	—	—	—	—

Source: BLOOMBERG, annual reports; own elaboration.

In relation to Natura's ESG metrics and policies' evolution (Table 9), the Environmental indicators depict a substantially positive scenario. First, the company was able to reduce its

GHG Emission per Sales by more than half, from 2013 to 2019, with an even wider reduction in 2020. Also, Natura was able to consistently improve its already elevated ratios of Waste Recycling, reaching a level of more than 95% in 2020. Finally, the presence of official environmental policies and initiatives is clear for the whole period analyzed.

Additionally, concerning the social dimension, the presence of official social policies is also very clear, and the constant monitoring of each metric contribute to build credibility to the company's concern. Some mixed advances are relevant to be remarked, however. On the negative side, Employee Turnover increased by 4.3 percentage points between 2013 and 2020, and the Training Spending per Employee was reduced to only 42% of the amount reported in 2013. On the positive side, the company constantly reported incredible high percentages of Women in the Workforce, remaining above 60% during all the 8 years studied, and therefore, remaining about 10 percentage points above the average female population of Brazil.

Finally, in relation to the Governance indicators, a positive increase is observed within the percentage of Independent Directors, and Women on Bord, which comes from zero in 2013, to an average higher than 25% in the last four years analyzed.

Table 10: ESG Indicators of Vale (VALE).

Vale SA (VALE BZ)								
ESG Indicators 12 Months Ending	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Environmental								
Total GHG Emissions (kton)	242100	270900	274600	335300	577100	600500	574900	490800
GHG Intensity per Sales (ton/MR$)	2385.46	3068.83	3517.92	3543.15	5317.32	4465.24	3867.74	2353.63
GHG Intensity per Employee (ton/Person)	2906.85	3541.18	3705.80	4586.87	7841.03	8541.96	8080.23	6604.23
Total Waste (kton)	813007	753695	728966	771910	729976	689961	626598	528551
Waste Recycled (%)	0.04	—	0.06	0.08	0.07	0.05	0.06	0.08
Energy Efficiency Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emissions Reduction Initiatives	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Environmental Supply Chain Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Waste Reduction Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Climate Change Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Social								
Employee turnover (%)	6.60	8.10	8.70	7.20	10.00	14.10	8.70	10.70
Training Spending per Employee (R$)	414	758	321	285	607	—	197	—
Workforce Accidents (%)	—	—	—	—	—	—	—	—
Pct Women in Workforce (%)	13.00	12.90	12.30	12.00	12.30	12.70	13.00	16.30
Anti-Bribery Ethics Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health and Safety Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Rights Policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policy Against Child Labor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer Data Protection Policy	-	-	No	No	No	No	Yes	Yes
Governance								
Non-Executive Directors on Board (%)	90.91	90.91	90.91	90.00	100.00	100.00	100.00	100.00
Independent Directors (%)	—	—	—	—	18.18	18.18	23.08	23.08
Women on Board (%)	0.00	25.00	0.00	0.00	27.27	18.18	30.77	23.08
Board Average Age	55.36	60.80	57.55	57.20	56.36	59.00	61.23	61.69
Independent Directors on Audit Committee (%)	—	—	—	—	—	—	—	—

Source: BLOOMBERG, annual reports; own elaboration.

Concerning Vale's ESG indicators (Table 10), the broad availability of data contributes to support, to some extent, some worry regarding the assessment of its impacts. However, this surveillance is naturally more requested by its various stakeholders, exactly due to the known significant relevance and magnitude of the business' innate negative social and environmental impacts. An interesting point to note, inside the environmental dimension, is that Vale's GHG emission per sales correspond to average values about 100 times higher than Natura's, and its incredibly low Waste Recycling values are directly related to the nature of its rejects: about 90% of the company's waste corresponds to mining and metallurgical debris, which are deposited in dams such as those located in the cities of Mariana and Brumadinho.

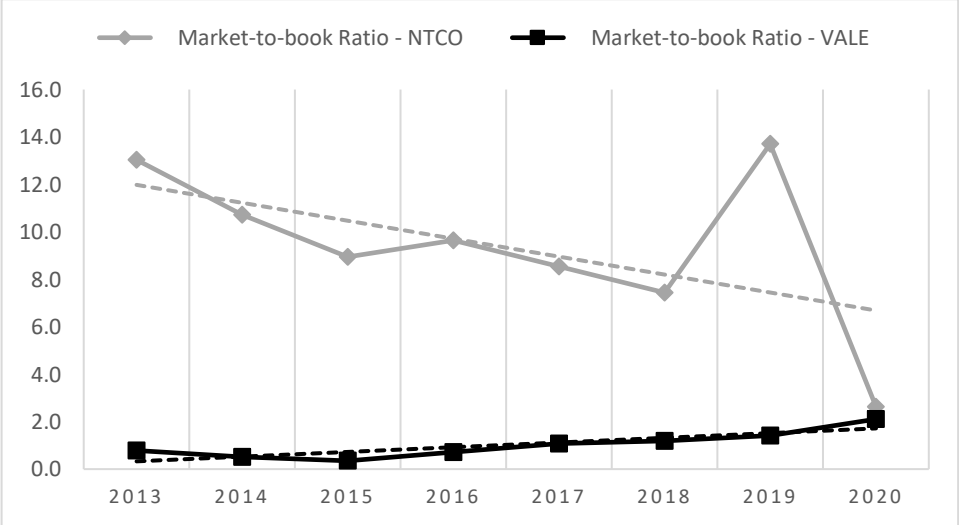
Although it is different to conduct direct comparisons between both companies, pertaining to substantially different segments, it is relevant to observe that Vale, from 2013 to 2020, was only able to present an insignificant reduction of its GHG Intensity per Sales, of 1.3%, and a minimal increase in its Waste Recycling values, of 4 basis points.

Concerning the Social indicators, an interesting point to note is Vale's significantly low percentage of women in the workforce, equivalent to a consistent average of less than 12%, depicting a substantial gap in relation to Brazil's average percentage of female population. Moreover, the company suffered an increase of 4 percentage points in its Employee Turnover, between 2013 and 2020.

Ultimately, regarding the Governance dimension, some positive evolution can be observed in the percentage of Independent Directors, and the percentage of Women on Board, which come from zero, in 2013, to an average of 25% in the last four years analyzed.

4.4.6 - Market Indicators

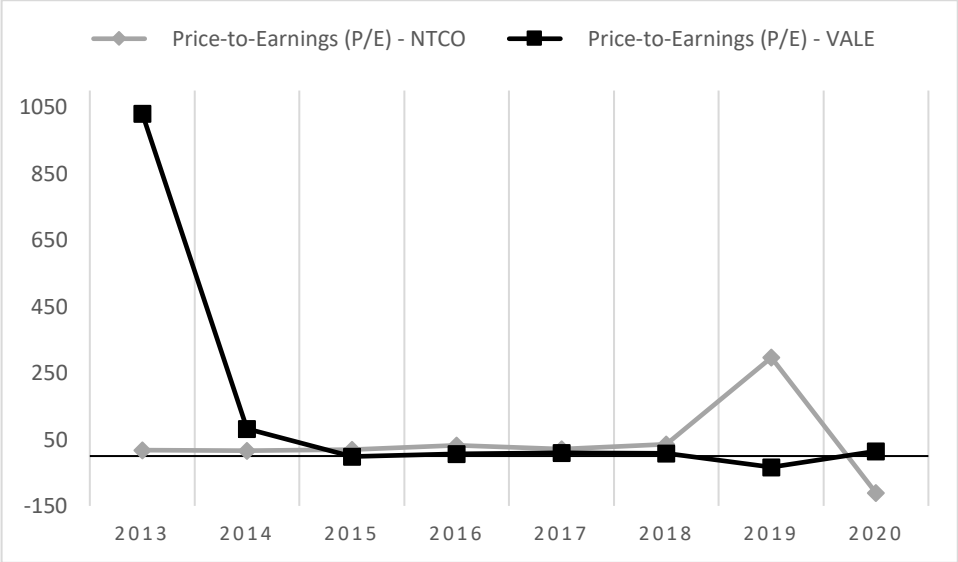
Figure 55: Market-to-book – Natura & Co (NTCO) and Vale (VALE).



Source: annual reports, own elaboration.

For almost all the timeframe analyzed, the difference of both companies' Market-to-book level (Figure 55) is clear, where Natura situates itself in a significantly higher average range and therefore in a better position. However, two aspects are important to remark. First, even though some deterioration of Vale's values is possible to be observed in 2015, probably related to the disaster of Mariana, no clear drawdown is exhibited in 2019, even with greater fines, related to the accident of Brumadinho, being requested by the government. Secondly, while Vale, even though with significantly lower values, was able to maintain an ascending trend, Natura presented a sharper and consistent deterioration of its levels.

Figure 56: Price-to-Earnings – Natura & Co (NTCO) and Vale (VALE).



Source: annual reports, own elaboration.

Concerning the Price-to-Earnings ratio (Figure 56), Natura was able to present consistently higher values for most of the timeframe, depicting a wider attractivity in terms of market valuation. It is relevant to observe that the substantially high value exhibited by Vale in 2013 is directly related to an expressive decrease of its net income, reduce in approximately 98% when compared to 2012. This distortion may be related to not only some of the market's expectations reflected in the price of stocks, but also to the delay between the stock price in December 31st and the disclosure of the final financial report, only published in February 2014.

4.4.7 - Disclosure

In summary, although some advantages were presented by Natura in the first years, Vale exhibited a better evolution in all Performance, Efficiency, Leverage and Liquidity dimensions, concerning the financial indicators.

In addition, the innate differences between both companies' activities, the implementation of ESG policies and the assessment and evolution of related indicators, as well as the major disasters involving Vale in 2015 and 2019, contributed to draw a significant distinction between both companies position in terms of ESG perspectives, placing Natura in a substantially more favorable position.

Finally, in opposition to its financial performance, Natura presented overall better Market Value indicators for the eight years studied.

As both companies belong to significantly distinct market segments, there are some limitations to outline a clear connection between the ESG's perspective performance and its market valuation evolution. Although Natura's more favorable pricing may be in part related to its substantially better situation in terms of environmental and social sustainability concern and practices, three aspects are relevant to observe.

First, while the major accidents related to Vale's activities were able to impact, at some extent, its market circumstances, they were still not able to break the enhancement trend of its market indicators. Second, although Natura presented overall better Market Value indicator, a clear deterioration of its values was presented, concentrated on the decline of its Market-to-Book ratio. Third, the abrupt deterioration of Natura's figures in 2020, mostly related to the acquisition of Avon and the impacts of Covid-19's unfolding, may demonstrate some predominance of financial perspectives and performance over positive ESG practices and policies.

CHAPTER 5 – CONCLUSIONS

5.1 – Main Conclusions

First, concerning the Health Services pair of companies analyzed, Grupo Fleury presented an overall better situation in terms of all its financial dimensions when compared to Grupo Dasa, including Performance, Efficiency, Leverage and Liquidity indicators, for the timeframe studied, depicting also an especially positive resilience to Covid-19's crisis in 2020. Furthermore, it presented a significantly earlier and more pronounced concern regarding ESG practices and the monitoring of its impacts, inserting Fleury also in a substantially more prominent position in terms of the ESG narrative through the lens of the market. However, not only the company presented a lower positive trendline concerning is Market-to-Book values (especially in the last three years), but its stocks have been constantly traded inside lower P/E ratios, when compared to Dasa's figures.

Although stock prices often include various other factors in consideration, as the weight of future expectations in relation to the company's growth, visibility, and dividends distribution, being past performances only a partial influence inside the current corporation prices, the overall scenario is not successful to present clear positive impacts of the early and most incisive implementation of ESG practices and monitoring indicators in Fleury's market value, depicting some limitations of the gains related to these practices at least inside the Brazilian Healthcare Services sector.

Secondly, regarding both Supermarkets companies studied, Carrefour Brasil not only presented a significantly later concern related to ESG practices, when compared to Pão de Açúcar, but it was also inserted in multiple adverse situations in terms of ESG narratives, especially when considering the murder episode inside one of its units at the end of 2020. However, Carrefour was situated in a better condition concerning all Performance, Efficiency, Leverage and Liquidity dimensions of its financial indicators, and the company was also able to depict consistently better market indicators, maintaining a positive ascending trendline even with some deterioration of its market conditions (also presented by Pão de Açúcar) in 2020.

This situation, in summary, corroborates to the hypothesis that the ESG factors have not been yet sufficient to compensate financial dissimilarities, at least inside the Supermarkets segment in Brazil. Even though, in part, it may be associated with the not so significant potential negative environmental impacts of this sector, it corresponds to a market sector which covers a

substantial amount of employees (and in specially low-income tasks), having, therefore, an important relevance in terms of social impacts.

Finally, concerning the third pair of companies, with vastly divergent nature of activities in terms of sustainable development criteria, Vale exhibited a better evolution in all Performance, Efficiency, Leverage and Liquidity dimensions, concerning the financial indicators. Inside the ESG perspectives, the innate differences between both companies' activities, the implementation of ESG policies and the assessment and evolution of related indicators, as well as the major disasters involving Vale in 2015 and 2019, contributed to draw a significant distinction between both companies position in terms of ESG perspectives, placing Natura in a substantially more favorable place. Ultimately, in opposition to its financial performance, Natura presented overall better Market Value indicators for the eight years studied. Although Natura's more favorable pricing may be in part related to its substantially better situation in terms of environmental and social sustainability concern and practices, three aspects are relevant to observe.

First, while the major accidents related to Vale's activities were able to impact, at some extent, its market circumstances, they were still not able to break the enhancement trend of its market indicators. Second, although Natura presented overall better Market Value indicators, a clear deterioration of its values was observed during the timeframe analyzed, concentrated on the decline of its Market-to-Book ratio. Third, the abrupt deterioration of Natura's figures in 2020, mostly related to the acquisition of Avon and the impacts of Covid-19's unfolding, may demonstrate some predominance of financial perspectives and performance over positive ESG practices and policies.

Considering all three case studies conducted, it is relevant to remark that the complete isolation of factors that influence a public listed company's market value is extremely complex, as this variable involves not only the rational assessment of the past performance of the corporation, but mostly many of the market agents' expectations in relation to the future of the company's revenues, net income and dividends distribution, or even only of its market price evolution (speculation). Additionally, market value is also highly dependable on macroeconomic factors, being important to mind that the subjective perceptions of investors have also impacts on the corporations' values.

In summary, inside its limitations, this work was not able to identify any clear positive influences of ESG practices and of a better ESG visibility in the evolution of the listed Brazilian

companies' market values analyzed, inside the timeframe between 2013 and 2020. For the case of Vale, while a sooner and better implementation of ESG policies could have contributed to reduce the risks of the disasters that occurred in 2015 and 2019, which affected, momentarily, its market value, as substantial fines were applied by the government, these two close episodes were not sufficient to break a positive trendline of its market indicators.

5.2 – Limitations

The first major limitation of this work is related to its substantially weak statistical significance. As inside each comparison study conducted only two companies were analyzed, the extrapolation for general conclusions about each market segment situation or the overall Brazilian market's context is not able to be drawn.

Second, all financial statements analyzed are subject to the process of Creative Accounting, which corresponds to the transformation of financial accounting figures from what they actually are to what the preparer desires, by taking advantage of the existing rules and/or ignoring some or all of them, and possibly compromising the reliability of these documents to some extent.

Third, the construction of harmonized financial statements was subject to the interpretation of each document, and although carried out aiming on the mitigation of any possible distortions, this process also constitutes a limitation of the study.

Finally, to exclude all the variables involved in a company's market value evolution, as to become able to draw a direct relation with an isolated factor (such as ESG related practices and positioning), is an extremely complex process, being the margin of error only able to be reduced, inside a scientific method of analysis.

5.3 – Further studies suggestions

Considering these documents' results, conclusion and main limitations, three different further studies were identified as relevant to be conducted, aiming at expanding or consolidating some of the outcomes obtained:

1. Conducting a comparative assessment between samples large enough to present better statistical significance, and within an extended timeframe;

2. Expand the comparison studies to pairs of companies situated in other countries, in order to identify geographical influences under the relevance of ESG practices in relation to corporations' market values;

3. Perform a deeper qualitative study, in direct contact with companies, to explore the existence of internal financial gains related to the implementation of ESG policies and practices in the medium and long term.

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