



**RELATIONSHIP BETWEEN PROFITABILITY AND THE CORPORATE SUSTAINABILITY INDEX**

**RELAÇÃO ENTRE RENTABILIDADE E O ÍNDICE DE SUSTENTABILIDADE CORPORATIVA**

**RELACIÓN ENTRE RENTABILIDAD Y EL ÍNDICE DE SOSTENIBILIDAD CORPORATIVA**

Paulo Alexandre de Souza<sup>1</sup>, Fabricio Bau Dalmas<sup>2</sup>, Gabriel Sousa de Freitas<sup>3</sup>, Márcio Magera Conceição<sup>4</sup>, Edna Ferreira Rosini<sup>5</sup>

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**ABSTRACT**

This article aims to demonstrate the relationship between the profitability of companies located in the Municipality of Guarulhos and listed on the B3 Stock Exchange (B3) in Brazil and their participation in the Corporate Sustainability Index (ISE). The ISE is an initiative of the B3 aimed at assessing the performance of the companies in terms of sustainability, considering economic, social, and environmental aspects. We adopted a bibliographic, exploratory, descriptive, quantitative/qualitative pure research methodology involving four companies from the city of Guarulhos – SP, an important corporate center. Our results indicate a positive relationship between the companies listed in the B3 and their financial profitability. Investing in activities linked to corporate social responsibility seems to be an advantage for publicly listed companies, either through internal practices or by supporting philanthropic entities in the field of sustainable development, seeking to be incorporated into the ISE by improving their image before stakeholders, thus attracting new investment, and adding value to the company, which is crucial to maintain corporate sustainability.

**KEYWORDS:** Sustainability. Profitability. Corporate Sustainability Index. Financial Performance.

**RESUMO**

Este artigo tem como objetivo demonstrar a relação entre a rentabilidade das empresas localizadas no Município de Guarulhos e que são listadas na Bolsa de Valores B3 (B3) do Brasil e sua participação no Índice de Sustentabilidade Empresarial (ISE). O ISE é uma iniciativa da B3 que visa avaliar o desempenho das empresas em termos de sustentabilidade, considerando aspectos econômicos, sociais e ambientais. Adotamos uma metodologia de pesquisa pura bibliográfica, exploratória, descritiva, quantitativa/qualitativa, envolvendo quatro empresas da cidade de Guarulhos – SP, importante centro empresarial. Nossos resultados indicam uma relação positiva entre as empresas listadas na B3 e sua rentabilidade financeira. Investir em atividades ligadas à responsabilidade social corporativa parece ser uma vantagem para as empresas de capital aberto, seja por meio de práticas internas, seja pelo apoio a entidades filantrópicas na área de desenvolvimento sustentável, que buscam incorporar-se ao ISE melhorando sua imagem perante os stakeholders, atraindo assim novos investimentos e agregar valor à empresa, o que é crucial para manter a sustentabilidade corporativa.

**PALAVRAS-CHAVE:** Sustentabilidade. Rentabilidade. Índice de Sustentabilidade Empresarial. Desempenho Financeiro.

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### RESUMEN

Este artículo tiene como objetivo demostrar la relación entre la rentabilidad de las empresas ubicadas en el Municipio de Guarulhos y que cotizan en la Bolsa de Valores B3 (B3) de Brasil y su participación en el Índice de Sostenibilidad Empresarial (ISE). El ISE es una iniciativa B3 que tiene como objetivo evaluar el desempeño de las empresas en términos de sostenibilidad, considerando aspectos económicos, sociales y ambientales. Adoptamos una metodología de investigación puramente bibliográfica, exploratoria, descriptiva, cuantitativa/cualitativa, involucrando cuatro empresas de la ciudad de Guarulhos – SP, importante centro de negocios. Nuestros resultados indican una relación positiva entre las empresas que cotizan en B3 y su rentabilidad financiera. Invertir en actividades vinculadas a la responsabilidad social empresarial parece ser una ventaja para las empresas que cotizan en bolsa, ya sea a través de prácticas internas o mediante el apoyo a entidades filantrópicas en el área de desarrollo sostenible, que buscan incorporarse al ISE, mejorando su imagen ante público, atrayendo así nuevas inversiones y añadiendo valor a la empresa, lo cual es crucial para mantener la sostenibilidad corporativa.

**PALABRAS CLAVE:** Sostenibilidad. Rentabilidad. Índice de Sostenibilidad Corporativa. Desempeño financiero.

### INTRODUCTION

Integrating sustainability into corporate practice has become a core concern over the past decades, triggered by an increasing awareness regarding the socioenvironmental impacts of corporate activities. In this context, B3, the main stock market in Brazil, has set the Corporate Sustainability Index (ISE) as a tool to identify and recognize companies committed to sustainability. However, the relationship between financial performance and participation in the ISE is yet to be further researched.

The literature highlights the growing role of sustainability for companies, arguing that sustainable practices can not only meet social and environmental demands but also deliver long-term economic value. Freire (2023), prior studies have addressed the relationship between sustainability and financial performance, but few have focused on the dynamics between profitability and inclusion in the ISE of the B3.

The Corporate Sustainability Index was created by the United Nations Organization (UNO) based on the need to build a positive convergence environment between investment and the objectives in Goal 9 of the 2030 Agenda for Sustainable Development. It is a tool for comparative analysis of the performance of the companies listed in Brazil's B3 Stock Exchange (B3) regarding the elements of sustainability, profitability, and corporate sustainability based on economic efficiency, environmental balance, social justice, and corporate governance.

Oliveira, Moraes and Prado (2025) developed a study to investigate the influence of the inclusion of electric power companies in the Corporate Sustainability Index (ISE) portfolio on their profitability indexes, where 47 companies in the sector were analyzed. The results show that the inclusion of companies in the electric power sector in the ISE portfolio had a positive influence on the Return on Investment and Return on Asset Indexes.



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The study of Bastos, Gomes and Coelho (2024) aimed to identify financial and non-financial determinants of organizational sustainable performance in the context of companies listed in the Corporate Sustainability Index (ISE). In conclusion, sustainable alignment within the corporate sphere is not just a demonstration of social and environmental responsibility but also a crucial measure for protecting companies' survival in a world that is increasingly aware and demanding of business practices.

Ferreira *et al.*, (2024) conducted a survey of 181 companies applying to receive the B3 Environmental Sustainability Index. The results of the survey indicate that less than half of these 181 companies presented reports with environmental expenditures. However, among the group of companies that are already part of the Environmental Sustainability Index, environmental expenditures tend to be very evident. Fourteen classes of environmental expenditures were identified, the most frequent being environmental provisions and processes, expenditures related to risks and environmental recovery.

There has been greater knowledge of companies and groups committed to sustainability, setting them apart in terms of quality, level of commitment to sustainable development, fairness, transparency, and accountability, the nature of the product, and the performance of companies in the economic-financial, social, environmental, and climate change spheres (Klabin, 2019). However, there is no consensus among researchers regarding the actual impact on the profitability of companies that invest in socially and environmentally sustainable activities. This article aims to examine the relationship between the profitability of companies based in the municipality of Guarulhos listed on the B3 and participating in the ISE.

The relevance of the scope of this research refers to recognizing that sustainable practice and social corporate responsibility can have a positive impact on the profitability of companies in the long term. Being incorporated into the ISE of B3 is a remarkable recognition of how committed a company is to sustainability. Such visibility might attract investors interested in socially and environmentally responsible companies, which, in turn, might have a positive impact on the profitability of the company.

The connection between profitability and participation in the ISE reflects the understanding that sustainability is not just a social responsibility, but also a business strategy that can boost long-term financial performance.

### BIBLIOGRAPHIC REVIEW

According to XP (2019), profitability is a key measure for assessing the efficiency and ability of a company to generate profit from invested resources. Profitability is a key concept in business administration for it measures the efficient use of available resources. For Moreno (2018), profitability might be understood as the ability of a company to generate profit from its investments. Many profitability measures have been employed, such as profit margin, return on net equity (ROE), and



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return on investment (ROI), among other indicators that provide a broad view of the financial performance of an organization.

### Profitability Calculation Methods

According to Vescovi (2022), the most common calculation methods for assessing profitability include margin calculations, return indices, and other analytical tools that allow for a comprehensive assessment of the financial performance of a company.

Based on Stumpf (2023), there are several methods for calculating the profitability of an investment or financial asset. In turn, according to Silva, Hernandez e Oliveira (2014), the importance of integrating the financial information of sustainability and governance in corporate reports is helping investors apply their resources to companies that keep harmony with the environment.

### B3 Stock Market

According to Exame Invest (2022), the São Paulo Stock Exchange, also known as B3 (Brazil, B3), is Brazil's main stock exchange. Before merging with BM&F ("Futures & Commodities Exchange") in 2008, it was known as the São Paulo Stock Exchange (Bovespa). Formerly known as BM&FBOVESPA, the São Paulo Stock Exchange changed names to B3 in 2017 after merging with the Clearing and Settlement House (CBLC) and the Derivatives Trading House (Cetip).

B3 is a major stock market in Latin America and an important financial center for the region, trading shares, securities, financial derivatives, and other financial instruments. The fusion allowed for consolidating different market operations in a single organization, such as future and options. For Pinheiro (2019), the stock market plays an important role in financing companies, allowing them to raise capital by issuing shares. It also provides investors with the opportunity to buy and sell securities in an organized and regulated market.

According to Exame Invest (2022), B3 operates electronically and features an advanced trading system that allows investors to carry out transactions efficiently. The most prominent indices of the B3 include the Ibovespa, which monitors the performance of the most net and representative stocks in the Brazilian market. Both national and international investors follow the B3 performance closely to gather information on the health and direction of the Brazilian economy.

It is worth mentioning that information from B3 and other stock exchanges may change over time due to economic events, regulations, and other market conditions. It is therefore advisable to consult up-to-date sources for the latest information.

### Business Sustainability Index

For Andrade (2021), the Corporate Sustainability Index – often referred to as ISE – is a measure that assesses the performance of companies concerning environmental, social, and governance criteria, known as ESG (Environmental, Social, and Governance). The index is aimed at highlighting the companies that have incorporated sustainable practices in their operations while



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becoming a reference for investors interested in investing in socially and environmentally responsible companies.

Still, for Andrade (2021), although the specific criteria assessed might vary according to the index methodology, the following elements are generally considered:

- a. Environmental: Greenhouse gas emissions, efficient use of natural resources; residue management, and air and water pollution.
- b. Social: Working practice and conditions for workers, diversity and inclusion, social corporate responsibility, community relationships, and governance.
- c. Corporate: governance structure: operational transparency; business ethics, and relationship with shareholders.

Different Corporate Sustainability indices are maintained by several financial organizations and institutions worldwide. Each index might have specific methodologies and criteria. The most well-known indices are the Dow Jones Sustainability Index (DJSI), the FTSE4Good Index, and the MSCI ESG Ratings.

### Relationship between Profitability and Sustainability in the B3

For Santos *et al.*, (2021), the relationship between profitability and participation in the ISE of B3 is significant for companies for different reasons. The ISE is an indicator that assesses the performance of companies in terms of sustainability based on economic, social, and environmental criteria. Profitability is linked directly to financial performance and the ability of the company to generate profit.

According to Barroso (2023), this is a key relationship based on the following elements:

- a. Sustainability as Competitive Advantage: Inclusion in the ISE can be seen as public recognition of the commitment of the company to sustainable practices. As investors and consumers are increasingly aware of environmental and social issues, this provides a competitive edge.
- b. Access to Sustainable Investors: Many investors, especially socially responsible funds and institutional investors, consider sustainable practices to be a key factor when making investment decisions. Participating in the ISE can increase the visibility of the company among these investors, broadening the chances of raising funds.
- c. Risk Management: Sustainability has become increasingly linked to corporate risk management. Sustainable companies tend to be better positioned to face challenges concerning environmental, social, and governance (ESG) issues, which can affect profitability directly in the long term.
- d. Brand Reputation: Companies that are concerned about sustainability generally have a more positive reputation. This can influence customer loyalty and the consumer's perception of the brand, impacting sales and hence profitability.
- e. Access to Cheaper Capital: Companies that adopt sustainable practices may have access to cheaper capital, since investors and financial institutions are willing to reward organizations committed to sustainability, often by offering more favorable financing conditions.



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f. Regulatory and Market Pressures: As environmental and social concerns grow; companies may face regulatory and market pressures to embrace more sustainable practices. Participation in the ISE can indicate compliance and commitment to these expectations.

Therefore, the relationship between profitability and participation in the ISE reflects the understanding that sustainable practices are not only socially responsible but also might have positive repercussions on the financial outcomes and competitive position of companies.

### Guarulhos Corporate Center

The choice of companies in the city of Guarulhos is motivated by its status as a major business hub in São Paulo. According to Loft (2023), the Guarulhos Corporate Center, located in the metropolitan region of São Paulo, stands out as one of the most significant industrial and commercial areas in Brazil. It is the leading air terminal in the country and ranks among the busiest in Latin America. In addition to the airport sector, the municipality is home to a diverse and highly developed business hub.

The Guarulhos Corporate Center plays a crucial role in the Brazilian economic scenario, being an important hub for companies seeking opportunities in the industrial, logistics, and commercial sectors.

### METHODOLOGY

We surveyed four companies (Americanas, CCR, Fleury, and Klabin) operating in the city of Guarulhos, in the state of São Paulo. Our choice was based on the significance of the business hub in the region. We assessed the relationship between the companies listed on the B3 and their financial profitability by applying the profitability indices (GA - Working Capital; RSA - Return on Assets; RSV - Return on Sales and RSPL - Return on Net Equity), whose concepts were covered in our theoretical framework, whose calculation formulas are shown below.

The GA index was calculated by equation 1.

$$GA = \frac{NS}{AA} \quad (1)$$

Where:

NS = Net Sale or Net Operating Revenue

AA = Average Assets => initial TA + final TA / 2

The RSA index is calculated by equation 2:

$$RSA = \frac{ANI}{AA} \times 100 \quad (2)$$

Where:





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LL = Annual Net Income

AA = Average Assets => initial TA + final TA / 2

The RSV index was calculated by equation 3:

$$RSV = \frac{ANI}{NS} \times 100 \quad (3)$$

Where:

ANI = Annual Net Income

SL = Net Sale or Net Operating Revenue

The RSPL indicator is calculated by equation 4:

$$PSPL = \frac{ANI}{mNE} \times 100 \quad (4)$$

Where:

ANI = Annual Net Income

mNE = Mean Net Equity.

Obs.: Mean Net Equity calculated by equation 5:

$$(\text{initial NI} + \text{final NI} - \text{Net Profit}) / 2 \quad (5)$$

The respective indices were applied to the financial statements reported to the Brazilian Securities and Exchange Commission by the companies CCR, Fleury, Klabin, and Lojas Americanas, for the three previous years and three following years concerning their inclusion in the Corporate Sustainability Index (ISE) list of B3, allowing for comparing their economic and financial performance in the periods before and after being incorporated in the ISE.

The companies mentioned above were selected for their inclusion in Brazil's B3 Stock Exchange (B3) Corporate Sustainability Index between 2012 and 2015, which allows the assessment of their performance within the ten years between 2009 and 2019, before the impacts of the new Coronavirus on the world economy, and according to the parameters set for the analysis. In addition, those companies have been included in the ISE portfolio without interruption until the current period (2020-2021).

The data were collected based on reports issued from 2009 to 2019, assessing periods that vary according to the entry of the company in the ISE of Brazil's B3 Stock Exchange (B3).

As the companies were listed on different dates (Americanas – 2015, CCR - 2012, Fleury – 2014, and Klabin – 2014), the periods are represented in the respective tables using Roman numerals, with I to III indicating the periods before the companies were listed, IV the listing period, and



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V to VII the periods after listing. As all the companies selected remain listed to this day, the indices were also calculated for the 2019 financial year, expressed literally as such in the tables, for monitoring their continued evolution.

For analysis, we also used the share trading value of the companies in the stock market by collecting the listing prices for the year immediately before the companies entered the ISE list, the last year (three years after entering the index) considered for analysis, and 2019.

For the fiscal year ending in 2019, we also calculated the Equity Value per Share (EVS) of the companies, which allowed us to compare the share price with their Net Equity, which represents the minimum amount to be paid for the assets of the companies. The Equity Value per Share (EVS) was calculated by equation 6 as follows:

$$EVS = \frac{NE}{TS} \quad (6)$$

Where:

NE = Net Equity

TS = Total Number of Shares Issued.

Once set the EVS, we compared the Equity Value per Share and the market price (the value through which stocks are traded in the stock market). This indicator was calculated by dividing the Stock Market Price by the Equity Value per Share aiming to determine the number of times that the price of that stock is being traded in the market concerning the EVS (equation 7).

$$\frac{P}{EVS} \times 100 \quad (7)$$

Where:

P = Stock Market Price

EVS = Equity Value per Share.

### RESULTS

The results were analyzed from 2009 to 2019 and divided into three periods: periods I to III before the companies were listed on B3, period IV of entry, and periods V to VII after the companies were listed on B3. Table 1 show the results of the Working Capital calculation for the companies analyzed, the behavior of this index points to a downward trend in profitability for most of the companies, probably due to the investments required to meet the conditions required for companies to be listed on the ISE.

It should be noted that the parameter used for comparing the investment in assets with the sales volume for each period is R\$1, i.e. for every R\$1.00 invested in the assets of Americanas in period I, the company sold R\$1.10 (index calculated according to the table below).





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Table 1 Working Capital for the companies Americanas, CCR, Fleury, and Klabin analyzed between 2009 and 2019

	I	II	III	IV	V	VI	VII	2019
Americanas	1.10	1.06	1.04	0.96	0.88	0.68	0.63	0.62
CCR	0.43	0.40	0.40	0.40	0.45	0.47	0.44	0.33
Fleury	0.54	0.54	0.56	0.53	0.60	0.68	0.73	0.65
Klabin	0.31	0.31	0.33	0.27	0.24	0.26	0.28	0.32

Source: Americanas (2019); CCR (2019); Fleury (2019); Klabin (2019).

The index for the companies analyzed showed a negative variation between the first analysis period and the moment of inclusion in the ISE list of 1.85% for Fleury, 6.98% for CCR, 12.73% for Lojas Americanas, and 12.9% for Klabin. Between the inclusion and final dates, for analysis purposes, Fleury showed a marked positive variation of 37.74%, CCR, 10%, and Klabin, 3.7%. Americanas was the only company to have a decrease in the index for the period, with a negative variation of 34.38%.

In general, the index (GA) analyzed points to an upward trend for Fleury, CCR, and Klabin after entering the ISE of Brazil's B3 Stock Exchange (B3) for the following period compared with the write-offs in the previous period. The total variation of the index assessed between the starting and ending periods analyzed was 2.33% positive for CCR and 35.19% for Fleury. In turn, negative variations were found for Klabin, and Lojas Americanas, being 9.68% and 42.73%, respectively.

Between the last analysis period and 2019, the index remained stable for Americanas. In turn, CCR and Fleury showed a decrease, with a negative variation of 25% for CCR and 10.96% for Fleury, while Klabin reached a positive variation of 14.29%.

### Return on sales

Table 2 present the results of the calculation of Return on Sales, also known as net margin, applied to set the percentage relationship between Annual Net Income and Net Operating Revenue. The higher the index the better for the company, since the higher its profitability (margin) on the number of sales reached by the company.

The parameter used for comparing the sales and profit reached per period is R\$ 100, that is, for every R\$ 100 in net sales by Americanas for period I, R\$ 3.06 remained (index calculated based on table 2 below = 3.06%), corresponding to the Net Profit of the company.

Table 2. Return on Sales for the companies Americanas, CCR, Fleury, and Klabin analyzed between 2009 and 2019)

	I	II	III	IV	V	VI	VII	2019
Americanas	3.06%	3.00%	2.20%	0.36%	0.15%	0.50%	1.29%	3.07%
CCR	18.82%	14.55%	17.74%	23.27%	22.74%	18.25%	9.28%	13.47%
Fleury	8.94%	7.10%	3.69%	5.11%	5.66%	10.91%	13.45%	10.75%



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Klabin	4.70%	18.06%	6.31%	14.92%	0.00%	35.00%	6.36%	6.96%
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Source: Americanas (2019); CCR (2019); Fleury (2019); Klabin (2019)

The index for the companies analyzed showed a negative variation between the first period and the moment of inclusion in the ISE list by 42.84% for Fleury and 88.24% for Lojas Americanas, and a positive variation of 23.65% for CCR and 217.45% for Klabin. Between the starting and ending dates, for analysis purposes, Fleury and Americanas showed marked 163.21% and 258.33% positive variations, respectively, while Klabin and CCR had 57.37% and 60.12% negative variations, respectively.

The total variation of the index assessed between the starting and ending dates was 35.32% positive for Klabin and 50.45% for Fleury. In turn, CCR showed a negative variation of 50.69% and Lojas Americanas, 57.84%. Between the last analysis period and 2019, the index presented a positive variation of 9.43% for Klabin, 45.15% for CCR, and 137.98% for Lojas Americanas. Fleury was the only company to have a decrease in the index, with a negative variation of 20.07%.

In general, in terms of the profitability margin on sales, considering the initial analysis period and the 2019 financial year, three of the four companies (Americanas, Fleury, and Klabin) achieved a rise in profits. CCR was the only company to show a reduction in profitability, although not significantly.

It is also worth stressing that Klabin showed considerable instability between the indices calculated, to the point where the index for period V could not be calculated, given the loss reported in its financial statements for the respective period. However, it reported a result well above average in the following period (VI), which compensated for the loss recorded in the previous financial year.

### Return on Asset

Table 3 show the results of the Return on Assets calculation, also known as Return on Average Assets or Return on Total Investment. This index assesses the earning power of the company, i.e. how much profit the company generates for every R\$100.00 invested in the assets of the company. For analysis purposes, the higher the index found, the better for the company, as it indicates greater profitability compared with the amount invested in its assets.

The parameter used for comparing the resources applied in the assets of the company and the profit reached per period is R\$100,00, that is, for every R\$100.00 invested in the asset of Americanas for period I, the return reached R\$3.37 (index calculated based on the table below = 3.37%) concerning the Net Profit assessed by the company.

Table 3. Return on Asset for the companies Americanas, CCR, Fleury, and Klabin analyzed between 2009 and 2019.

	I	II	III	IV	V	VI	VII	2019
Americanas	3.37%	3.19%	2.29%	0.35%	0.13%	0.34%	0.82%	1.89%



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CCR	8.09%	5.85%	7.11%	9.33%	10.23%	8.64%	4.04%	4.45%
Fleury	4.83%	3.82%	2.06%	2.73%	3.42%	7.37%	9.82%	6.93%
Klabin	1.46%	5.60%	2.00%	4.05%	0.00%	9.93%	1.78%	2.22%

Source: Americanas (2019); CCR (2019); Fleury (2019); Klabin (2019)

As to the rate of return on total investment, the assessment of the Return on Asset index for the companies analyzed showed a negative variation between the first analysis period and the moment of inclusion in the ISE list by 43.48% for Fleury and 89.61% for Lojas Americanas, while CCR and Klabin had a positive variation for the same period of 15.33% and 177.4%, respectively. Between the starting and ending dates, for analysis purposes, Lojas Americanas showed a positive variation of 134.29% and Fleury, 259,71%. For the same period, Klabin and CCR had a negative variation of 56.05% and 56.7%, respectively.

The index analyzed (RSA) points to a significant increase in the earning power of Americanas and Fleury after their listing on the ISE of Brazil's B3 Stock Exchange (B3). Meanwhile, CCR and Klabin showed a drop in their earning power over the same period; however, this trend is recovering, as shown by the figures for the following periods.

The total variation in the index assessed between the starting and ending dates was 21.92% positive for Klabin and 103.31% for Fleury. In turn, CCR had a 50.06% negative variation, and Lojas Americanas, 75.67%.

Between the last analysis period and 2019, the index showed a percentage increase of 10.15% for CCR, 24.72% for Klabin, and 130.49% for Lojas Americanas. Meanwhile, for the same period, Fleury had a decrease, with a negative variation of 29.43%.

Regarding this indicator, Klabin once again showed considerable instability between the indices calculated, to the point where the index for period V could not be calculated, given the loss shown in its financial statements for the respective period. However, it showed a result well above average in the following period (VI), which compensated for the loss recorded in the previous financial year.

### Return on net equity

Table 4 show the results of the calculation of the rate of Return on Net Equity used for quantifying the percentage of return over the investment by business owners and company shareholders. For analysis purposes, like the other indicators, the higher the index the better for the company, as it indicates that its company equity invested in the company is generating greater profits.

The parameter used for comparing the resources applied in the Net Equity of the company and the profit reached per period is R\$100,00, that is, for every R\$100,00 invested in the Net Equity (Company Equity) of Americanas for period I, there was a return of R\$35.03 (index calculated based on the table below = 35.03%) concerning the Net Profit assessed by the company.



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Table 4 Return on Net Equity for the companies Americanas, CCR, Fleury, and Klabin analyzed between 2009 and 2019.

	I	II	III	IV	V	VI	VII	2019
Americanas	35.03%	35.73%	16.99%	2.18%	0.92%	1.77%	3.74%	8.88%
CCR	31.08%	23.33%	33.46%	44.29%	49.92%	46.49%	23.19%	18.47%
Fleury	7.2%	6.60%	3.67%	5.40%	6.88%	15.44%	21.95%	18.54%
Klabin	3.74%	15.62%	5.51%	12.46%	0.00%	49.78%	7.71%	11.60%

Source: Americanas (2019); CCR (2019); Fleury (2019); Klabin (2019)

In terms of the analysis of the Return on Net Equity (RSPL) index, Fleury showed a negative variation between the first analysis period and the moment of inclusion in the ISE of around 31.82% and Lojas Americanas, 93.78%, while CCR and Klabin showed a positive variation in this same period of around 42.5% and 233.16%, respectively. Between the date of inclusion and the end date, for analysis purposes, Lojas Americanas showed a positive variation of 71.56% and Fleury a significant 306.48%. For the same period, Klabin and CCR showed a negative variation of 38.12% and 47.64%, respectively.

The analysis of the RSPL index points to an increase in the return on investment obtained by Americanas and Fleury after their listing on the ISE of Brazil's B3 Stock Exchange (B3). Like the RSA index, CCR and Klabin recorded a fall in their returns over the same period; however, the figures show a trend toward recovery, as can be seen from the following periods.

The total variation of the index assessed between the starting and ending periods analyzed was 106.15% positive for Klabin and 177.15% for Fleury. Meanwhile, CCR had a negative variation of 25.39% and Lojas Americanas, 89.32%.

Between the last analysis period and 2019, the index showed a positive variation of 50.45% for Klabin and 137.43% for Lojas Americanas. For Fleury and CCR, there was a negative variation of 10.98% and 20.35%, respectively, over the same period.

Regarding this parameter, once again Klabin showed considerable instability between the indices calculated, again hindering the calculation of the index for period V, given the loss shown in its financial statements for the respective period. However, it showed a result well above average in the following period (VI), which ended up compensating for the loss recorded in the previous financial year.

### Stock Trading Values at the Stock Market

Table 5 show that before listing on the ISE of Brazil's B3 Stock Exchange (B3), Lojas Americanas was trading at R\$14.32, CCR at R\$12.22, Fleury at R\$9.20, and Klabin at R\$2.45. After joining, Lojas Americanas shares were trading at R\$19.63, CCR at R\$12.55, Fleury at R\$29.61, and Klabin at R\$3.14. In the financial year ending in 2019, Lojas Americanas traded its shares at R\$25.91, CCR at R\$18.98, Fleury at R\$30.53, and Klabin at R\$3.55.



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Table 5. Share prices at the Stock Market for the companies Americanas, CCR, Fleury, and Klabin analyzed between 2009 and 2019. (I – year immediately before the companies entering the ISE list and II – three years after the companies entering the B3 list).

	I	II	2019
Americanas	14.32	19.63	25.91
CCR	12.22	12.55	18.98
Fleury	9.20	29.61	30.53
Klabin	2.45	3.14	3.55

Source: Elaborated by the authors

There is a marked valuation of shares between the initial share price (period I, before the companies entered the Corporate Sustainability Index da Brazil's B3 Stock Exchange) and the share price for 2019, accounting for 80.94% for Lojas Americanas, 55.32% for CCR, 231.85% for Fleury, and 44.9% for Klabin.

As to the financial year of 2019, we calculated the Equity Value per Share (EVS) of the companies, which allowed us to compare the share price and its equity value, reaching the minimum value to be paid for the equity of that company. The following values were found: Americanas = R\$4.59, CCR = R\$4.18, Fleury = R\$5.55, and Klabin = R\$1.17.

However, Equity Value per Share is different from market value (the value at which companies trade their shares on the stock exchange). This brings us to another point, which is to compare Equity Value per Share with market value. This indicator, calculated by dividing the Stock Market Price by the Equity Value per Share, measures how many times the price of that share is being traded on the market compared with its EVS.

This indicator pointed to a 564.49% valuation of the market value compared with the EVS for Lojas Americanas, 454.07% for CCR, 550.09% for Fleury, and 303.42% for Klabin.

## DISCUSSION

Our findings show a positive relationship between the profitability of companies listed on Brazil's B3 Stock Exchange (B3) and their participation in the ISE, based on the companies selected (Americanas, CCR, Fleury, and Klabin) by applying the profitability and sustainability indices. Americanas and Fleury showed an increase in these indicators following their entry into Brazil's B3 Stock Exchange (B3) on the Corporate Sustainability Index compared to the preceding period, while CCR and Klabin, although their indices fell over the same period, showed a trend towards recovery, as shown by the results achieved in the following periods.

Our results agree with Silva and Lucena (2019), Souza *et al.*, (2016), and Claro and Claro (2014). Silva and Lucena (2019) report that there is "a positive relationship between the participation of companies in the Corporate Sustainability Index and their return on assets", as also found here. Claro and Claro (2014) used a panel of 252 companies to show how they invested in sustainability



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and achieved better results compared with the period following the 2008 financial crisis. Souza *et al.*, (2016) argue that “there is a directly proportional relationship between environmental investments and the economic and financial performance of companies listed on the ISE”.

Also corroborating the above-mentioned studies, our analysis of the behavior of the trading value of the shares of the companies on the Stock Exchange found a marked valuation of their shares after entering the B3; in addition to a sharp increase in the values found by comparing the market value of those shares and the Equity Value per Share – EVS (minimum value to be paid for the equity of a company).

Romano *et al.*, (2016) argue that there is no relationship between adopting better sustainability practices and the valuation of companies listed on the ISE of B3. However, by assuming “that companies enter the ISE perhaps because they have excess cash, although the market seems to demand commitment from companies, given the negative unusual return due to the withdrawal of the company from the index”, the author misses the fact that the entry of companies on B3’s ISE list can act as a “marketing action”, improving their image among stakeholders, thus supporting the valuation of the shares traded on the Stock Exchange (market value) compared with the Equity Value per Share (minimum amount to be paid for the equity of a company – Net equity).

If a company invests in marketing, there would be a decrease in its EVS since it would increase costs. However, this new marketing campaign, if it is done well, would add more value to the brand (intangible), hence increasing the price of its shares.

Thus, by agreeing with the authors who found a positive relationship between adopting better sustainability practices and the valuation of the companies listed in the ISE, our findings might support new research on the advantages of applying sustainable practices as part of the other companies listed in the BM&F Bovespa.

### CONCLUSION

Thus, it is believed to be advantageous for listed companies to invest in activities involving corporate social responsibility, both through internal practices and by sponsoring philanthropic organizations in the field of sustainable development, aiming to join the ISE. By doing so, they will improve their image among stakeholders, thereby attracting new investments and adding value to the company, which are key factors in maintaining corporate sustainability.

The relationship between profitability and participation in the ISE of B3 reflects the increasing interconnection between sustainable practices and financial performance. Companies that integrate environmental, social, and governance ESG criteria into their strategies often seek advantages that transcend mere compliance.

Participation in B3’s ISE indicates a commitment to sustainability and could deliver advantages such as attracting socially responsible investors and improving corporate reputation. Proactive management of sustainability-related risks and opportunities, combined with efficient operating practices and innovation, may have a positive influence on long-term profitability.





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In addition, complying with environmental and social regulations might not only reduce legal risks but also provide companies with a more resilient position in a corporate environment increasingly driven by sustainability.

It is worth acknowledging that direct financial impacts can vary between sectors and companies, and the balance between profitability and sustainability is a challenge that demands careful consideration. Participation in the ISE, therefore, represents not only a seal of approval in terms of sustainable practices, but also a strategy that, if well executed, can contribute to creating long-term value for the company, shareholders, and society.

Thus, our initial objective was achieved by showing the relationship between the profitability of companies listed on the B3 stock exchange and their participation in the ISE. The research question was also solved along the same lines.

Considering the relevance of this theme and the different possible approaches, we suggest some topics for further research, such as: Sector Comparison: Profitability and Sustainability; Assessment of Sustainability Investments; Incorporating ESG Criteria in Investment Analysis; and Sustainability as an Early Indicator of Financial Performance.

These suggestions propose different approaches to address the relationship between profitability and participation in the Corporate Sustainability Index of B3. For future research, it is suggested that studies be carried out with other companies from other regions of Brazil, to verify whether there are discrepancies resulting from geographic and political factors.

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