POLITECNICO DI MILANO

School of Industrial and Information Engineering

Master of Science in Management Engineering

WHY ESG INVESTING SEEMS TO BE AN ATTRACTIVE APPROACH TO INVESTMENTS IN BRAZIL

Supervisor: Prof. Giancarlo Giudici

Master Thesis of:

PEDRO KENZO JUKEMURA

ID NUMBER: 897608

MILANO

Academic Year 2018/2019

PEDRO KENZO JUKEMURA

ID NUMBER: 897608

WHY ESG INVESTING SEEMS TO BE AN ATTRACTIVE APPROACH TO INVESTMENTS IN BRAZIL

Thesis presented to the examination board
of Politecnico di Milano as a requirement
for obtaining a Master of Science degree

Supervisor: Prof. Giancarlo Giudici

MILANO

Academic Year 2018/2019

I dedicate this thesis to my parents, who

always supported my decisions.

Acknowledgements

The following document was developed with the assistance of many people and institutions. Particularly, I would like to express my deepest gratitude:

To my mother, Maria Fernanda Molla Jukemura, and my father, José Jukemura, who not only gave me the best education available in Brazil, but also backed my decision to study abroad. It has been a long and expensive journey.

To those who somehow contributed to make my exchange period the time of my life. Thanks for all the advice, for receiving me, for helping me and for sharing amazing experiences. Our memories will certainly last forever.

To my closest friends. To those who I first met in *Colégio Santa Cruz* more than a decade ago and after all these years are still by my side. And to those who I became intimate during my graduation and redefined my previous concepts of intelligence and kindness.

To the University of São Paulo and Politecnico di Milano, which represent my academic formation. I am thankful for being part of the double degree exchange program, which not only gave me international experience, but also complemented the regular management engineering course with a different perspective and focus on financial topics.

To Vox Capital and *MOV Investimentos*, which provided helpful information through interviews and conversations.

And to professor Giancarlo Giudici, for introducing me to the concept of ESG Investment and for coping with the logistics of supervising this thesis, which was written far from Milan.

Summary

Table of Figures

List of Tables

Abstract

Given the actual context of environmental degradation, social tension and the increasing awareness of international institutions towards the sustainable development, it is important to understand how governments, executives, investors and consumers will behave in the next decades.

This report is intended to provide an overview on ESG Investing in Brazil as an unconventional investment approach that considers non-financial information when assessing investment targets. Besides financial projections, ESG investors consider how firms position themselves in environmental (E), social (S) and governance (G) matters.

ESG Investing seems to be an attractive alternative to traditional investment techniques since it might generate additional value to its adopters, because firms with good ESG practices exploit sources of competitive advantage, such as:

a) Better Operational Cost-Efficiency
b) Enhanced Brand Image and Reputation
c) Lower Risk Exposure
d) Less Compliance Risk to Future Regulations
e) Higher Valuations

In Brazil those advantages are likely to be intensified due to the national instability and higher exposure to country-specific risks. By considering ESG investment strategies when stock picking and portfolio managing in the Brazilian market, investors may enjoy better risk-adjusted long-term returns, as historical data is already showing that ESG friendly companies outperformed the market.

Furthermore, current expectations point out that, in the following years, companies with good ESG practices will benefit from an even more favorable environment, which will create better opportunities for ESG Investing.

Keywords: (i) ESG Investing; (ii) Impact Investing; (iii) Green Bonds

1- Introduction

In the end of the twentieth century the world started to experience some of the negative consequences of its previous Industrial Revolution and the establishment of capitalism as the most adopted economic system. While companies and governments were worried about mass production, scale economies, stimulating demand and sustaining high profits, some natural resources became exhaustible, disrupting the environmental and social equilibria.

Nowadays, people are getting used to read headlines about melting ice caps, extreme weather conditions, deforestation, wildfires, newly endangered species, droughts, rising seas, intensified social inequality and political tension.

The environment is suffering from overproduction because it is directly affected by all phases of the production cycle: scarce natural resources are used as raw materials, while production and consumption are responsible for pollution and improper waste management contaminates soils and affects wildlife.

One example of how overconsumption is changing the environment is the recent formation of marine plastic islands, such as the Great Pacific Garbage Patch, which contains roughly 80.000 tons of plastic and covers an area three times bigger than France[1]. These artificial islands modify not only the ecological ecosystem, but also weather conditions and commercial routes.

The alarming speed of climate change and the scarcity of strategic natural resources made world leaders and policy makers look for solutions. However, since these cross-border problems affect everyone and cannot be solved by just a single country, global cooperation and collaboration are required.

Therefore, different governments gathered to discuss general issues, propose alternative solutions and commit themselves to raise awareness and take measures inside their borders, decelerating the effects of climate change.

The following subsections will briefly describe some of the most important conferences and achievements towards the sustainable development, which are likely to drive decision-making in the next decades.

[1] ABC News. [Online] 2018. [Access: April 03, 2019]. https://abcnews.go.com/International/great-pacific-garbage-patch-massive-floating-island-plastic/story?id=539

1.1 - Roots of the Sustainable Development: from Stockholm 1972 to Rio 92

Given the context of environmental degradation, social tension and increasing sustainability awareness, Stockholm 1972 was the first world conference in which industrialized countries discussed about the negative externalities of overproduction, the impact caused by humankind over the environment and how governments should act in order to sustain the adopted economic system while guaranteeing environmental and social stability for the future.

The results of this meeting were the *Stockholm Declaration*, a document through which nations agreed to take responsibility for environmental consequences of their actions, and an action plan composed by 109 recommendations.[2]

The acknowledgment at that time was that industrial production was the main cause of environmental degradation. However, since the global population was expected to continue growing, policy makers did not know exactly how to manage their domestic industrial output, which should attend to the increasing demand but could not have the same impact as before on the environment.

As an alternative to tackle this challenge, in 1987 the concept of sustainable development was firstly introduced in a document called *Our Common Future*. It meant the conciliation between economic development with environmental responsibility in order to guarantee the access of future generations to important natural resources such as lands, potable water, forests and clean air.

Sustainable development is defined in the report as: development that meets the "needs of the present without compromising the ability of future generations to meet their own needs"[3].

Then, 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.

---

[2] Declaration of the United Nations Conference. [Online] 1972. [Access: April 03, 2019]. http://webarchive.loc.gov/all/20150314024203/http%3A//www.unep.org/Documents.Multilingual/Default.asp?documentid%3D97%26articleid%3D1503

[3] Report of the World Commission on Environment and Development. [Online] 1987. [Access: April 03, 2019]. https://www.un.org/documents/ga/res/42/ares42-187.htm

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 that were backed by the capitalism.

Therefore, the *Agenda 21* 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.

1.2 - First Enforcements: from The Kyoto Protocol to Rio+20

In order to ensure that the guidelines stated in the *Agenda 21* would be followed by its signatories, the United Nations created in 1992 an exclusive monitoring commission. This commission was responsible for frequently organizing events to review, evaluate and make recommendations about the implementation and progress of the ongoing sustainable action plan.

On the 90's, the United Nations Framework Convention on Climate Change (UNFCCC), with the objective of controlling the effects of global warming, developed some goals for reducing the level of greenhouse gases on Earth and organized summits to promote them, monitor their progress and debate general trends.

One of these conferences resulted in the creation of the Kyoto Protocol (1997), which established goals to reduce emissions. The protocol was signed by 55 countries, which accounted for 55% of all air pollution. Nevertheless, some important countries restrained from signing it, justifying that the agreement might affect negatively their economies.

The main country that rejected the Kyoto Protocol was the United States of America, which not only was the biggest polluter at that time, being responsible for 25% of the global carbon dioxide emissions, but also had influential power over other nations due to its size, level of economic development and social welfare.[4]

From that period on, the United Nations kept promoting frequent international meetings to ratify the signed commitment of each country, monitor the implementation of the established goals, discuss new challenges and orientate countries to the sustainable direction.

---

[4] BBC Brazil. [Online] 2001. [Access: April 04, 2019]
https://www.bbc.com/portuguese/noticias/2001/010329_usaclimate.shtml

Amongst the reunions responsible for checking the progress of all *Agenda 21* measures, the most important were Rio+10 and Rio+20, the former was in Johannesburg (2002) and the latter back in Rio de Janeiro (2012).

1.3 - Turning Point: 17 Sustainable Development Goals and the Paris Agreement

In September 2015, the United Nations organized a meeting in its headquarters in New York to let its member states define the Sustainable Development Goals (SDGs) that would guide the 2030 Agenda for the sustainable development. The simplified goals are available in Figure 1[5].

Figure 1 - United Nations' 17 Sustainable Development Goals

These SDGs represent an urgent call for action by all United Nations Member States in global partnership to promote prosperity to humankind aligned with social and environmental constraints.

5 United Nations. [Online] 2015. [Access: April 03, 2019] https://sustainabledevelopment.un.org/sdgs

In the same year the Paris Climate Change Agreement[6], signed by 196 countries, set the objective of limiting the rise in global temperature in the twenty-first century from 1,5 to 2 degrees Celsius above the pre-industrial level, which is considered to be the threshold beyond which global warming becomes hazardous for humans.

The agreement requires that each signatory puts its best efforts to combat climate change, while it lets countries keep their national sovereignty to take whatever measures they consider appropriate through nationally determined contributions (NDCs). Nevertheless, each signatory must report regularly on its emissions and on the progress achieved for further assessment and track record.

According to analysts, to achieve Paris' ambitious goal, by 2050 the world must reach and maintain net zero greenhouse gas emissions, hence countries need to promote a low-carbon, climate-resilient economy as soon as possible.

To sum up, the high number of conferences and the frequent ratification of agreements signal a trend of increasing awareness of governments and international institutions towards climate change and the sustainable development.

Since this trend might be able to influence diverse segments of the economy, it is important to understand how governments, executives, investors and consumers will behave given the new background.

1.4 - Impacts Over the Financial Markets

With the increasing sustainability awareness, executives started to question what would be the future regulatory framework adopted by their market authorities in order to search for new opportunities, hedge potential risks and soften their own adaptation process to the new guidelines.

At the same time, there is an unprecedent technological revolution ongoing that creates a diverse range of options for firms to innovate, seeking for higher market shares and more attractive margins. This revolution contributes to the transformation of sustainable practices, such as the employment of renewable power technologies, into more accessible alternatives.

[6] United Nations Framework Convention on Climate Change. [Online] 2018. [Access: April 04, 2019]. https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

Therefore, firms must decide how to position themselves in this dynamic environment considering not only regulatory trends, but also opportunities derived from new technological developments and possible modifications on consumer's preferences.

Consequently, some investors might consider changing their investment approaches when valuing stocks or assessing investment projects to incorporate potential gains of sustainable measures taken by some corporations.

1.5 - From Traditional to ESG Investment Approaches

Traditionally, investors analyzed possible investment targets taking basically the following criteria into account:

1- An external analysis to determine the level of attractiveness of the industry as a whole, which is directly linked to incumbents' performance. This analysis is intended to uncover opportunities and threats faced by all players operating in the industry.

2- An internal analysis, which evaluates the ability of each specific target company to create and sustain competitive advantage over its competitors, based on its strengths, weaknesses and corporate strategy.

3- Historical financial results, economic trends and capacity of the management team to generate returns in the following years, given the context in which the company is inserted and what differentiates the firm from its competitors.

Therefore, the investment decision was made based on expectations about future financial results of the prospective business and the overall financial market. Under this approach, environmental, social and governance issues were seen by companies and investors as a necessary expense in order to appear ethical to the community or to comply with regulation, compromising stronger financial performances.

However, in the 60's, under the name of Socially Responsible Integration (SRI) some 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 hitherto was the creation of social consciousness through investment decisions while financial returns were put aside.

From that period on, the interest on evaluating other non-financial aspects increased significantly and SRI was gradually transformed into ESG Investing, which considers all environmental, social and governance issues when evaluating companies and making investment decisions. According to the Global Sustainable Investment Alliance, in 2016 SRI accounted for 26,3% of the sum of all assets managed globally.[7]

1.6 - What is ESG Investing

Given that ESG Investing is historically an evolution of SRI, there is a general misconception that the former is linked to philanthropy or to the development of social consciousness. However, it is important to notice that the concept of ESG Investing should not be linked to altruism or to promoting investments to environmental-friendly companies in order to be better perceived by the society.

ESG Investing is defined as an investment strategy which considers not only the macroeconomic background, corporate strategy and financial reports, but also non-financial data and how the company is positioned according to sustainable development issues, when evaluating potential targets for a long-term investment.

As any other investment strategy, ESG investing is mainly concerned about the financial returns derived from the performance of the target company and market expectations of its future cash flows. The difference is that, when searching for investment targets that will outperform the market, ESG investors evaluate also non-traditional aspects that may generate value.

Some of the non-traditional aspects incorporated in this analysis are Environmental, Social and Governance (ESG), which can represent long-term competitive advantage of a determined company over its competitors, creating substantial value and enhancing risk-adjusted returns. A sample of possible issues taken into account is illustrated in Figure 2.

[7] Global Sustainable Alliance, 2016, *Global Sustainable Investment Review*.

Environmental (E)	Climate change risks Raw materials and water supply Pollution and waste management Cleantech and renewable energy
Social (S)	Workers safety and welfare Product liability, including cyber security Controversial sourcing and trade partners Social impact initiatives
Governance (G)	Executives' remuneration methodology Shareholders rights and business ethics Workforce diversity Transparency on disclosed reports

Figure 2 - Examples of ESG issues

Assuming that ESG awareness represents a source of competitive advantage, the ability of a certain company to generate positive environmental and social impacts is not the main driver to be considered when deciding where to invest, but a desirable consequence.

In the early twenty-first century ESG friendly companies can exploit competitive advantage that stems from:

a) Better Operational Cost-Efficiency
b) Enhanced Brand Image and Reputation
c) Lower Risk Exposure
d) Less Compliance Risk to Future Regulations
e) Higher Valuations

Each of these value streams will be further explained, detailed and deeply analyzed in a further section of this document.

It is noticeable, however, that there is still a debate in the academic literature between those who think that ESG practices create value for shareholders and those who argue that ESG friendly companies incur in higher costs that reduce their potential margins. But since the existing literature is overly focused on developed countries, it generally does not consider some particularities faced by emerging markets, such as Brazil, which is the focus of this report.

By analyzing Brazilian recent political issues, social demographics and macroeconomic trends, this document supports that ESG friendly practices create and sustain additional competitive advantages to its adopters in this particular geography, which should be translated into value generation and consequently stronger stock upsides. Consequently, investors who adopt ESG investment strategies are more likely to experience higher risk-adjusted returns.

2 - The Brazilian Context

To better understand what drives Brazil in a macroeconomic level, this section will briefly explain the political, socio-demographic and economic scenarios in which the country is currently inserted, highlighting some of the particularities that make risk management a necessary tool for investors.

The most important conclusion to be taken from this section is that despite the overall systematic and country-related risks, ESG investors avoid some additional uncertainty by betting on companies which are less exposed to industry or firm-specific risks, which will be better described on subsection 3.3 of this report.

Brazil is the fifth largest country in the world covering an area of 8.516.000 km^2, its growing population accounts for more than 200 million inhabitants and its GDP was BRL 6,8 trillion as of 2018, which is equivalent to roughly USD 1,8 trillion considering the disclosed exchange rate of 31/12/2018[8].

It is also the biggest economy in South America and one of the top 20 economies in the world. Its main exports are soybeans, iron, sugarcane, crude oil and poultry meat; whereas its main imports are refined crude oil, vehicles and auto parts.

Under the natural circumstances, these characteristics turn Brazil very attractive to investors, because they represent the possibility of earning high returns. However, the recent unstable period made some investors refrain from betting on that specific market.

[8] Brazilian Institute of Geography and Statistics (IBGE). [Online] 2019. [Access: April 05, 2019]. https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/23886-pib-cresce-1-1-em-2018-e-fecha-ano-em-r-6-8-trilhoes

2.1 - Political Context

In the political sphere, the main driver is that Brazil is currently facing a turbulent period that raises uncertainty about its future, which is translated into higher risks for long-term investments.

Since the focus of this report is not political, it will not discuss the political context assuming any standpoint, but this subsection will highlight some of the main facts of the recent political timeline showed in Figure 3 that are intertwined with the macroeconomic context.

Figure 3 - Brazilian Presidential Timeline

In 2003, Luiz Inácio Lula da Silva (Lula) started a 4-year mandate that represented the democratic victory of the “Worker’s Party” (*PT - Partido dos Trabalhadores*), which is linked to the left-wing. In that period, the international market was favorable to commodities, making Brazilian exports and economy grow, enabling Lula to invest in social programs, as promised during his campaign. This high investment in social causes helped millions of Brazilians in need, significantly reducing poverty and income inequality in the country.

Due to this period of prosperity, Lula was reelected for another 4-year mandate and the “Worker’s Party” could also elect its candidate in the following elections of 2011 and 2015, Dilma Rouseff. However, a huge corruption scandal involving bribes from large companies to the government was unveiled, leading to the arrests of experienced politicians and executives. This operation, known as “Car Wash Operation” (*Operação Lava-Jato*), is still running and finding more people involved in the scheme.

In 2016, Dilma Rouseff suffered an impeachment process due to the disclosure of not realistic budget information, and her vice-president Michel Temer assumed. Temer’s short mandate was mainly focused on the revision of the social insurance program, but since his government was not credible to the whole population, the proposed reform did not pass by all the bureaucratic process that exists to make it official.

In 2018, Lula was arrested by the “Car Wash Operation” and the right-wing took advantage to elect Jair Bolsonaro, who assumed in 2019. Bolsonaro is an authoritarian with a past military formation, whose ideas represent some additional risks to the democratic regime, to minorities, to the environment, to international relations and to the sustainable development.

Regarding the sustainable development, which is the focus of this report, Jair Bolsonaro threatened to abandon the Paris Agreement during his campaign[9]. However, after being elected, his environment minister confirmed that for now the country will continue respecting the deal[10].

2.2 - Socio-Demographic Context

As any emerging country, 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), 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 4[11].

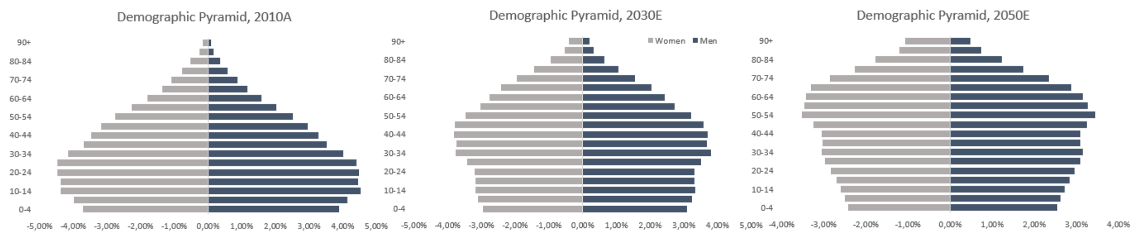


Figure 4 - Brazilian Actual and Expected Demographic Pyramids

With a lower percentage of economically active population contributing to the government by means of tax payments and a larger stake applying for social insurance transfers, policy makers are currently discussing the approval of a fiscal reform. This unpopular measure would both help the country to put its financials in order and signal future stability to investors.

Michel Temer's quick mandate was mainly focused on writing and trying to approve the fiscal reform, as it is a measure required by international investors and credit rating agencies to promote investments in the country and reduce the national indebtedness.

[9] Climate Change News. [Online] 2018. [Access: April 13, 2019]. https://www.climatechangenews.com/2018/10/08/bolsonaro-made-grim-threats-amazon-people/
[10] O Globo. [Online] 2019. [Access: April 13, 2019]. https://oglobo.globo.com/brasil/salles-diz-que-brasil-permanece-no-acordo-de-paris-23371858
[11] Brazilian Institute of Geography and Statistics (IBGE).

However, the revision proposed under Temer's government was postponed by the majority of the elected members of the legislative power, whose interests were mainly focused on 2018 general elections at that time.

According to most of the economists, this reform is necessary, because Brazilian public debt is increasing whereas the country faces a primary deficit and social insurance expenditures accounts for a high percentage of the overall public expenditure.

As of 2017, social insurance expenditures represented 70% of all public primary expenditures and 77,5% of total government's tax revenues[12]. The recent historical data is available in Figure 5.

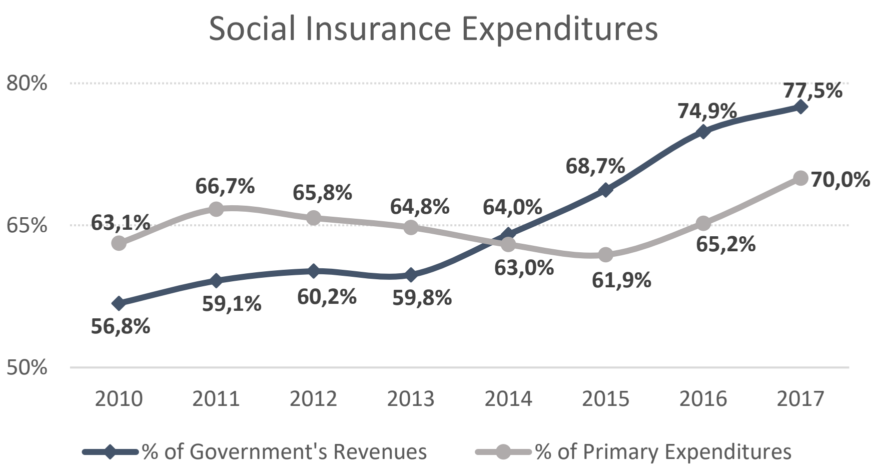


Figure 5 - Social Insurance Expenditures

2.3 - Economic Context

During the past decade Brazil was immersed in a financial crisis derived from the political turmoil and the rise of the social insurance question. This period was characterized by a high level of economic uncertainty, which made risk-seeking investors speculate, while risk-averse investors avoided bullish positions.

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.

[12] IPEA, 2018, *O Crescimento Insustentável dos Gastos com Previdência e Pessoal*.

Therefore, rating agencies downgraded the country from the investment category (BBB/Baa2) to the speculation category (BB-/Ba2), making the level of investments and its conditions deteriorate from 2013 to 2018[13].

As illustrated in Figure 6, the country went from a period of high economic growth and prosperity to a severe recession when the corruption scandal was unveiled. The recession period was transformed into a financial crisis that made Brazilian's real GDP shrink for two consecutive years, but the country already showed some recovery signals in the 2017 and 2018.

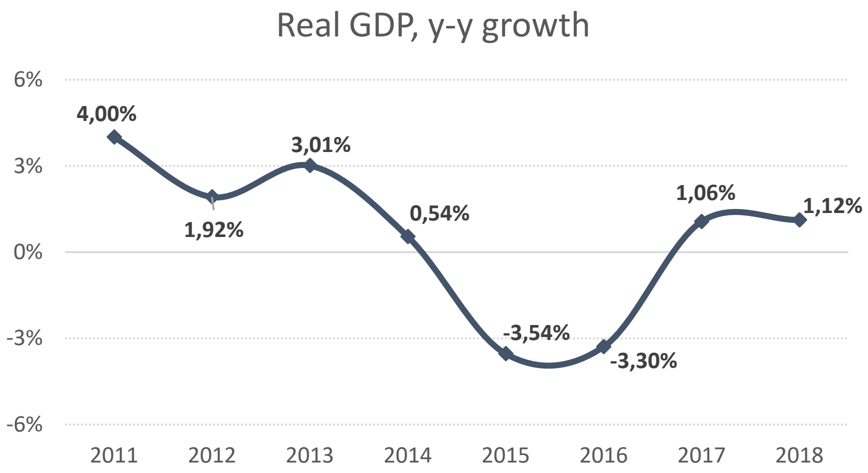


Figure 6 - Brazilian Real GDP Growth

In order to recover from the financial crisis, policy makers tried different solutions to foster economic growth and stability. The initial idea was to promote government's expenditures to stimulate the economy and solve infrastructure problems such as the bad quality of roads, which are still largely used for the transportation of goods from their origins to consumption sites or exporting harbors.

However, this measure was not effective to stimulate consumption and also contributed to an increase in inflation and in the public debt. As showed in Figure 7, public debt levels rose approximately 20 percentage points since 2015, when inflation levels became unstable.

[13] Globo. [Online] 2018. [Access: April 13, 2019]. https://g1.globo.com/economia/noticia/veja-historico-das-notas-de-credito-do-brasil.ghtml

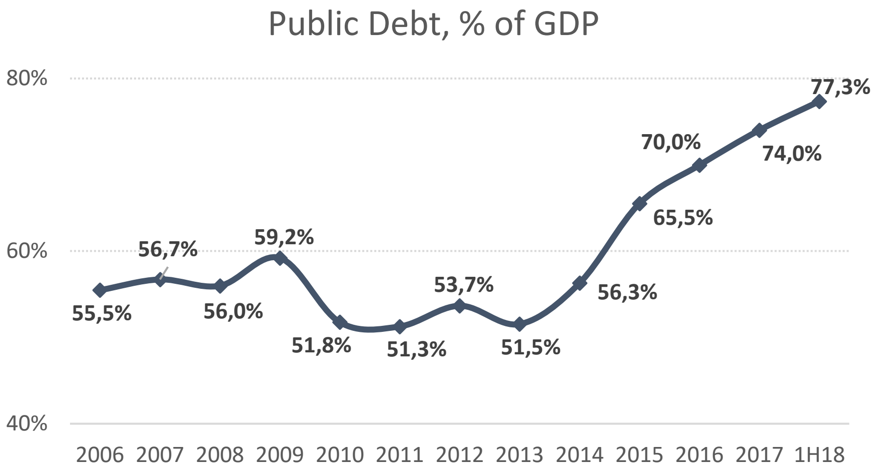


Figure 7 - Brazilian Public Debt as a Percentage of the GDP

In order to decelerate the inflation peak reached in 2015 of more than 10% yearly, the Central Bank had to raise interest rates, which contributed to the increase in public debt levels. However, in 2017, when some of the previous confidence was restored, the Central Bank started to decrease interest rates to stimulate consumption.

Recently the Central Bank kept its annual interest rates constant as 6,5% to signal stability of the market and promote foreign investments. The most adopted inflation index (*IPCA*) and the annual interest rates (*Selic*) are available in Figure 8.

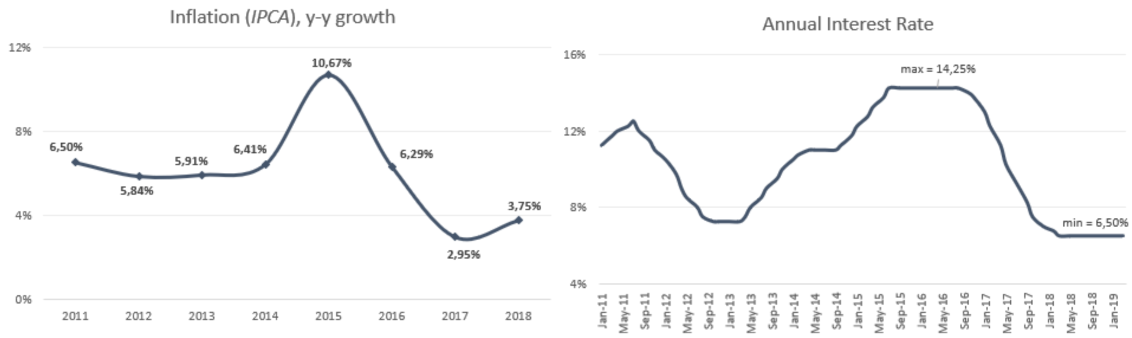


Figure 8 - Inflation (IPCA) and Annual Interest Rates (Selic)

To sum up, Brazilian economy is currently passing through a period of turbulence caused by its political turmoil derived from the discovery of a massive corruption scheme that involved important corporations and politicians. The financial crisis was also catalyzed by the initial mismanagement of the fiscal policy, but it is finally showing recovery signals that might encourage more investors in the upcoming years.

3 – ESG Additional Value Streams

As mentioned earlier, ESG investors believe that companies concerned about environmental, social and corporate governance issues might exploit sources of long-term competitive advantage that create value to their owners and shareholders.

This section is intended to better describe how the adoption of good ESG practices can represent a source of competitive advantage that will be translated into higher profitability and stock upsides. It will analyze each of the following ESG additional value streams, based on the existing academic literature, insights from the author and illustrative examples.

a) Better Operational Cost-Efficiency
b) Enhanced Brand Image and Reputation
c) Lower Risk Exposure
d) Less Compliance Risk to Future Regulations
e) Higher Valuations

3.1 – Better Operational Cost-Efficiency

Any experienced investor takes operational cost-efficiency into consideration when selecting investments, because it represents the firm's ability to use its assets to generate the most profit possible to owners and shareholders. Moreover, efficient companies can sustain stronger cash flows, while higher profits enable them to make decisions that promote their competitiveness.

According to some of the most adopted valuation models, stronger cash flows are translated into higher future forecasts on profits and dividends. Therefore, investors who prefer either growth or income stocks have strong motivations to look for efficient companies.

According to Khan, Serafeim & Yoon, companies that discover which ESG issues are strategically important for their business and adopt sustainable practices on those ranked as the most important have better stock market performances than competitors[14].

[14] Khan, M.; Serafeim, G. & Yoon, A., 2015, "Corporate Sustainability: First Evidence on Materiality", The Accounting Review, 91, pp. 1697-1724.

By analyzing how the stock exchange evaluated efforts of global companies to be carbon efficient, BlackRock concluded that firms with a higher improvement in their carbon footprint outperformed the market[15].

The analysis used the ASSET4 database to calculate the carbon intensity of all MSCI World companies dividing their annual carbon emissions by annual net revenues. Then, companies were ranked and grouped into five equal quintiles based on their year-over-year change in carbon footprint, being Q1 composed with companies which reduced the most their emissions impact and Q5 representing the ones with the lowest improvement. Finally, each quintile's stock price performance was compared to the MSCI World Index. The results of the experiment are graphed in Figure 9.

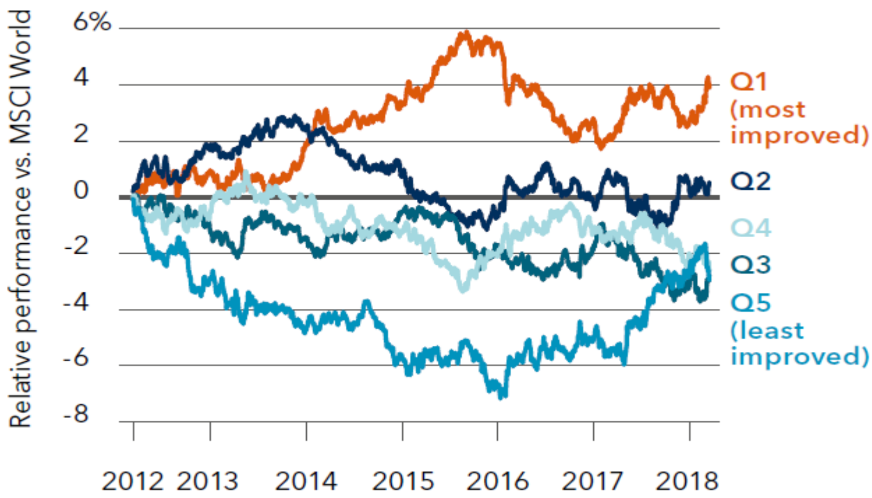


Figure 9 - Carbon Efficiency Improvement and Stock Performance

These positive results for improving companies can be partially explained as a consequence of the achievements of the ongoing technology revolution that enhance competition in sustainable products and create better access conditions to ESG friendly practices.

One example is the recent reduction in the cost of renewable energy sources evidenced by the International Renewable Energy Agency (IRENA). According to their 2017 Renewable Power Generation Costs report[16], the global average cost of electricity from onshore wind dropped 23% from 2010 to 2017 while solar photovoltaic projects cost decreased 73% in the same period.

[15] BlackRock, 2018, *Sustainable Investing: a "Why-Not" Moment*.
[16] IRENA, 2017, *Renewable Power Generation Costs*.

These results, available in Figure 10, indicate competitive prices to renewable sources of energy. On average, solar energy is commercialized at USD 0,10/kWh, while onshore wind energy costs USD 0,06/kWh.

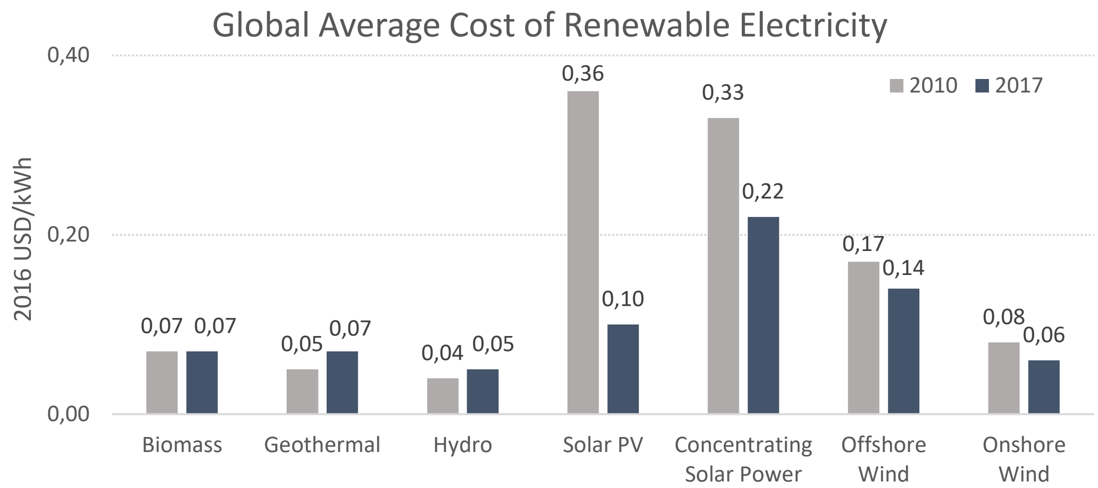


Figure 10 - Cost Reduction in Renewable Energy Sources

The downward trend evidenced in the period 2010-2017 is expected to continue for the next years, driven by more competitive auctions, higher investments in technology-driven innovation and a large base of experienced project developers. According to the agency, these factors will create the conditions to make renewable energy cheaper than energy produced from fossil fuels by 2020.

In Brazil, IRENA discovered that the annual average price of solar photovoltaic modules decreased 24% from 2015 to 2016, while onshore wind weighted average total installed costs reduced 17% from 2010 to 2016.

The employment of renewable energy is just one example of how firms can improve their efficiency by adopting ESG friendly practices. Any investment in sustainable technologies represents a good opportunity for companies to enhance efficiency while becoming attractive to ESG investors, who might enjoy larger returns to their investments.

3.2 – Enhanced Brand Image and Reputation

Apart from the additional value generated by an improved operational cost-efficiency, companies with good ESG practices can exploit better returns resulting from their brand image and reputation. Firms with substantial brand equity enjoy competitive advantages that enable practices such as the possibility of charging higher mark-ups and promote gains from perception, word of mouth and advocacy.

A study conducted by Nielsen[17] concluded that companies with positive social impact are better perceived by the customers, who are increasingly willing to pay price premiums to the products and services provided by them.

According to the research, 66% of the customers reported a higher willingness to pay for ESG friendly products in 2015, representing a significative growth over the 33% who gave the same answer when questioned in 2013.

Wang, Chen, Yu & Hsiao found similar conclusions by analyzing a sample of Taiwanese high-tech companies from 2010 to 2013[18]. By applying a quantile regression and structural equation model, the authors verified that the level of Corporate Social Responsibility (CSR) had a positive and significant causal linkage to brand equity and both CSR level and brand equity affect positively the firm’s performance.

Rivera, Bigne & Curras-Perez made an analysis of the American Customer Satisfaction Index and CSR initiatives reported by 65 US companies to look for potential links between ESG friendly practices and brand reputation[19]. Although the ratifying results showing a positive relationship between CSR and customer satisfaction, Riviera et al concluded that the excess of CSR corporate communication initiatives had a negative impact over customer satisfaction.

To sum up, ESG friendly companies generally have their corporate strategy more aligned with the customer’s values, principally considering those belonging to the Generation Y, which will drive the Brazilian market in the next decades due to the demographic shift in which the country is currently inserted. This alignment enables companies with good ESG practices to enjoy better brand perception, which is directly linked to higher expected returns.

However, the communication approach adopted when disclosing CSR initiatives interferes in its acceptance by customers. Companies should find how to communicate

[17] Nielsen, 2015, *The Sustainability Imperative*.
[18] Wang, D. H.-M.; Chen, P.-H.; Yu, T. H.-K. & Hsiao, C.-Y., 2015, “The effects of corporate social responsibility on brand equity and firm performance”, Journal of Business Research, 68, pp. 2232-2236.
[19] Rivera, J.J., Bigne, E. & Curras-Perez, R., 2016, “Effects of Corporate Social Responsibility perception on consumer satisfaction with the brand”, Spanish Journal of Marketing – ESIC, 20, pp. 104-114.

their ESG efforts to their customers, informing only few credible key performance indicators and avoiding repetitive marketing campaigns, which might have a negative effect over customer satisfaction, as evidenced by Riviera et al.

3.3 – Lower Risk Exposure

As described in *Section 2*, anyone investing in Brazil is subject to some systematic and country-related risks, which cannot be avoided and should be considered by all types of investors. However, by applying ESG investment techniques, some players mitigate industry and firm-specific risks, because firms with better ESG practices are less exposed to major downside risks.

Companies with higher quality standards, better risk control and compliance to regulation are less vulnerable to systematic market shocks and have less company-specific downsides. Therefore, ESG investing can be used as a supplementary risk management tool.

This subsection will describe how the lack of consideration of ESG issues represents an additional risk faced by some companies, which might be negatively valued by investors. To make it more tangible, the author will analyze a famous case involving Vale, a well-known Brazilian mining company.

Vale S.A., one of Brazil's most valuable companies and the world's largest iron one miner, suffered on the 25th January 2019 its second negative shock due to the collapse of a tailings dam. Both disasters contributed to an immensurable loss of brand reputation, making stock prices immediately shrink as a consequence due to expected fines and additional risk faced by the company, as showed in Figure 11.

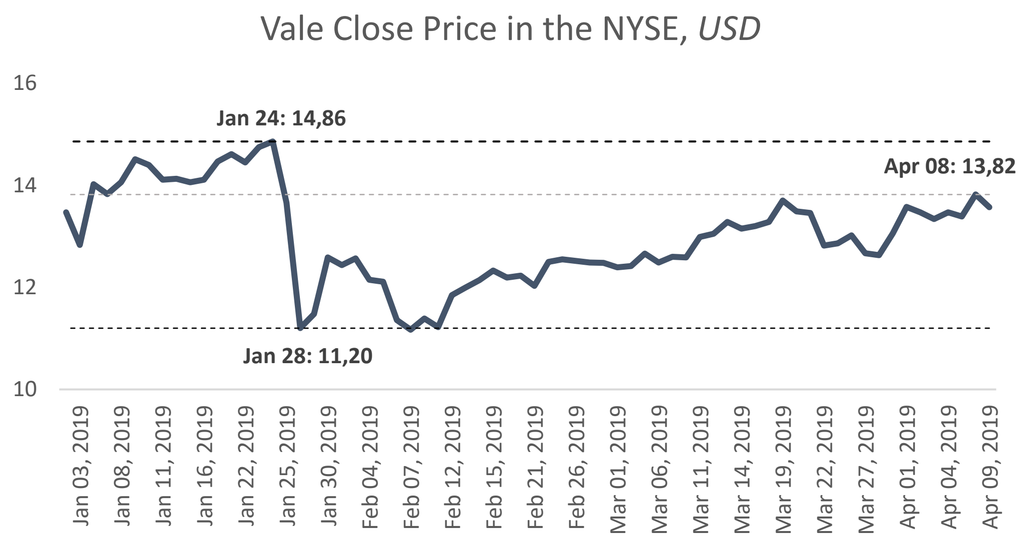


Figure 11 - Vale Share Price in the NYSE

The first incident happened in November 2015 and is considered the worst-ever environmental catastrophe of Brazil, involving the rupture of two dams operated by Samarco, a joint-venture between Vale and BHP Billiton, each one holding 50% of the ownership.

That failure killed 19 civilians and significantly damaged the environment, contaminating nearby rivers which used to supply potable water to 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[20].

The second accident was similar to the first, showing that the company kept the lack of consideration of ESG issues after the first incident. The rupture of a different dam unleashed sludge into a town called Brumadinho, located also in Minas Gerais state, causing hundreds of deaths, destroying buildings and covering the city with mud. Until today, months after the episode, investigations are running, authorities struggle to find missing bodies and there is no consensus on how to evaluate the total damage caused by it.

On the 24th January 2019, one day before the second disaster, Vale's shares traded in the NYSE closed the day at USD 14,86, while four days later the close price was USD 11,20.

[20] BBC. [Online] 2015. [Access: April 15, 2019]. https://www.bbc.com/news/world-latin-america-34772319

That represents an instantaneous reduction of almost 25% of the company's market share. Moreover, until April 2019, the highest close price after the episode was USD 13,82 (which is still 7% lower than before the accident), meaning that the company is not fully recovered from the shock.

This time, Vale suffered significant negative consequences: it was charged in BRL 350 million in penalties, eight executives were arrested and its former CEO, Fábio Schvartsman, was temporarily removed from the position. Also, Vale's credit rating was put on review in major credit rating agencies, being downgraded by Moody's from Baa3 to Ba1[21] and Fitch from BBB+ to BBB-[22].

Vale is currently suffering the negative consequences of being downgraded by credit rating agencies. Due to the additional risk, investors demand higher returns to finance Vale's activities, hence nowadays the company has a higher cost of capital and lower market value than before the accident.

To sum up, the consequences of the disasters can be described as: loss of brand image reputation, high amount to be paid as penalties to authorities and compensations to victims, loss of experienced personnel, loss of confidence to be long-term financed and extra expenditures in maintenance investment to avoid future disasters.

Vale's case illustrates why companies that neglect ESG issues are more volatile and susceptible to downside risks. By analyzing Vale's disclosed financial statements, it is clear that throughout the last years the company chose to keep its dividend distribution policy in the same level even when results were unsatisfactory, meanwhile the firm reduced its investments in maintenance of existing assets, as showed in Figure 12. This decision indicates the overall strategy adopted to prioritize dividend payments over risk mitigation.

---

[21] Moodys. [Online] 2019. [Access: April 15, 2019]. https://www.moodys.com/research/Moodys-downgrades-Vale-to-Ba1-negative-outlook--PR_395758

[22] Valor Econômico. [Online] 2019. [Access: April 15, 2019]. https://www.valor.com.br/empresas/6092683/fitch-rebaixa-rating-global-da-vale-de-%3Fbbb%3F-para-%3Fbbb-%3F

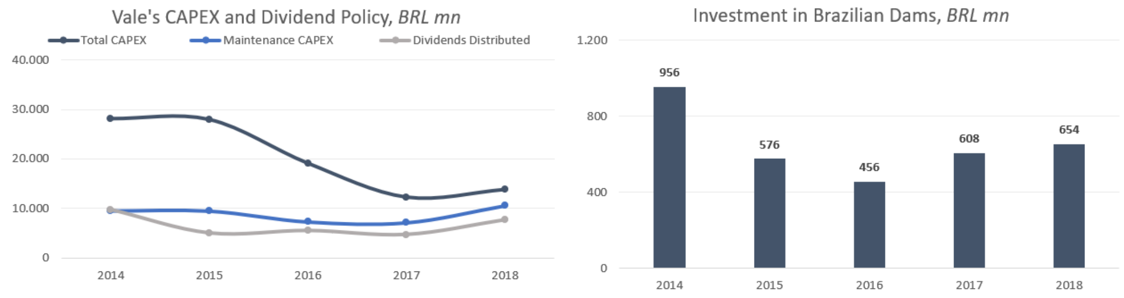


Figure 12 - Vale Prioritized its Dividends Policy over Investments

From this episode, Brazilian investors and executives learned to enhance their overall concern with ESG issues when making decisions and selecting investments in order to avoid future major downside risks as the one faced by Vale. Consequently, it is expected that Brazilian financial players will increase their awareness on ESG issues throughout the following years.

3.4 – Less Compliance Risk to Future Regulations

Given the increasing awareness of the importance of ESG issues and their potential effects, global institutions are concerned about the need to foster the sustainable development as described in *Section 1*.

It is expected that national governments position themselves in favor of the trend promoted by the United Nations' 17 Sustainable Development Goals and the Paris Agreement in a short-term future. Episodes such as Vale's collapsed dams have a worldwide repercussion through media channels and reinforce why authorities should create and enforce laws that promote the sustainable development.

Companies will have to adapt their operations to the new regulatory framework and this process is likely to benefit ESG early adopters and penalize laggards. Firms that employ good ESG practices even when not obliged to do so are more flexible to adapt to new requirements, because their strategy and organizational structure are more used to face sustainable development challenges.

Traditionally, negative externalities did not represent a cost to companies that produced them. However, considering the increasingly overall awareness, governments started to intervene to fix market failures such as neglection to environmental issues by either making firms internalize external costs or promoting environmental-friendly innovation.

In 2019, more than 40 governments worldwide have adopted some measure of carbon pricing[23]. Those environmental policies can be categorized as:

1- Command & Control Policies: policy makers set performance or technological standards to control the level of emissions and apply penalties to non-compliant firms.

2- Economic Regulation: policy makers set prices to emissions and let firms decide how to act, considering tax benefits and subsides. Thus, firms are obliged to internalize external costs.

3- Regulated Market: policy makers set the maximum amount of emissions and firms can negotiate quotas. This option represents an opportunity to companies with lower abatement costs to sell their quotas to competitors and boost new revenue streams.

The Brazilian government particularly showed some signals of adapting its legislation to the sustainable development with the establishment of the law 12.187/2009, called "National Policy on Climate Change" (*Política Nacional sobre a Mudança do Clima*), which is a national regulatory framework that legitimize the public commitment to reduce greenhouse gas emissions between 36,1% and 38,9% of the expected by 2020.[24]

Moreover, some Brazilian state-owned financial institutions such as the national development bank are creating specific lines of credit that promote green projects at a lower cost of capital or better repayment conditions.

One of these exclusive lines of credit is called "BNDES Finame – Renewable Energy" (*BNDES Finame – Energia Renovável*) that specifically finances renewable energy items such as solar photovoltaic panels and wind turbines[25].

Finally, the Inter-American Development Bank, which is the leading source of development financing for Latin America and the Caribbean and the main international

[23] The New York Times. [Online] 2019. [Access: April 15, 2019].
https://www.nytimes.com/interactive/2019/04/02/climate/pricing-carbon-emissions.html
[24]Ministry of Environment. [Online] 2019. [Access: April 15, 2019].
http://www.mma.gov.br/pol%C3%ADtica-sobre-mudan%C3%A7a-do-clima.html
[25] National Bank for Economic and Social Development. [Online]. [Access: April 15, 2019].
https://www.bndes.gov.br/wps/portal/site/home/financiamento/produto/bndes-finame-energia-renovavel

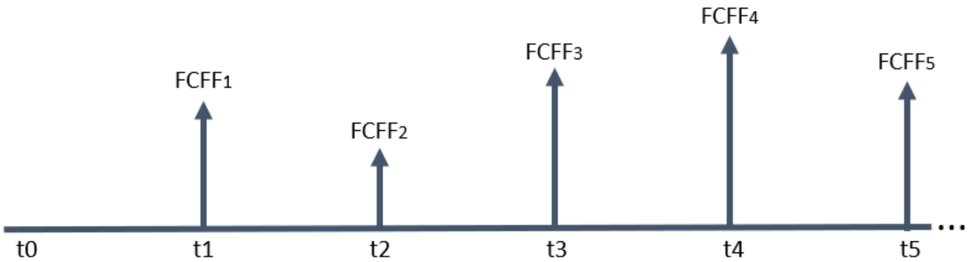
financer of the Brazilian National Bank for Economic and Social Development, has the mission to finance projects that enable countries to achieve development in a sustainable, climate-friendly way.[26]

3.5 – Higher Valuations

This subsection will describe how higher expected returns and lower risks faced by ESG friendly companies are translated into higher valuations, considering the Discounted Cash Flow (DCF) method.

The DCF method is an analytical method used to decide a firm's fair value based on the present value of the cash flows expected to be generated by the company in the future. It is commonly used when determining the value of a company that operates in a stable business, with limited growth or with foreseeable results. Therefore, the value of a company depends on financial forecasts and on an estimation of the cost of capital, which will be used as a discount rate to compute the present value of expected future cash flows.

Better operational cost-efficiency and enhanced brand image increase the firm's value by driving financial projections to higher numbers. On the other hand, lower risk exposure and less compliance risk to future regulations are responsible for an increase in the firm's value, because less risks means lower cost of capital, reducing the denominator used when bringing future cash flows to the present value. The simplified structure of the DCF model is illustrated in Figure 13, showing that the firm's value can be increased either by higher free cash flow projections or by a lower cost of capital.



$$Present\ Value\ of\ FCFFs = \frac{FCFF_1}{(1+WACC)^1} + \frac{FCFF_2}{(1+WACC)^2} + \frac{FCFF_3}{(1+WACC)^3} + \frac{FCFF_4}{(1+WACC)^4} + \frac{FCFF_5}{(1+WACC)^5} + \cdots$$

Figure 13 - Simplified Asset Side DCF Model

[26] Inter-American Development Bank (IDB). [Online]. [Access: May 02, 2019]. https://www.iadb.org/en/about-us/overview

Since there are infinite ways to estimate future financial results considering gains from efficiency and brand image improvements, this report will not focus on how companies with ESG practices differentiate their financial forecasts from competitors. However, the discussion will be limited to how ESG friendly companies are benefitted from risk avoidance, which means lower cost of capital and, consequently, higher valuations.

The main reason to limit the discussion to the cost of capital is the existence of a framework which is adopted by most financial analysts and investors, the Weighted Average Cost of Capital (*WACC*), which represents the average return demanded by equity and debtholders, weighted by the financial structure of each company and considering tax shield effects. The *WACC* formula is represented in Figure 14.

$$WACC = \frac{D}{(D+E)} * Kd * (1 - tc) + \frac{E}{(D+E)} * Ke$$

Figure 14 - WACC Formula

Some abbreviations must be explained in order to discuss the formula above and discover how ESG friendly companies might benefit from lower costs of capital:

- *Kd*: means cost of debt, which is the average interest of all loans taken by the company. It is calculated by adding an associated credit default spread (CDS) to the risk-free rate or estimated by dividing the financial expenses by the sum of company's debt.
- *Ke*: represents the cost of equity, which is an opportunity cost requested by shareholders in order to invest in the company. It is calculated using the Capital Asset Pricing Model (CAPM), which will be further discussed in this report.
- *tc*: corresponds to the corporate tax rate.
- *D*: is the company's total debt.
- *E*: equals to the company's total equity.

It is relevant to notice that there are two common methodologies to valuate a company using the DCF model, which employ different cash flow projections and discount rates:

1- Asset Side Perspective: calculates the enterprise value of the company using free cash flows to firm (FCFFs) discounted by the *WACC*.

2- Equity Side Perspective: calculates the equity value of the company using free cash flows to equity (FCFEs) discounted by *Ke*.

The first method takes the company as an investment, does not consider gains/losses derived from its financial structure and calculates the enterprise value, which is the sum of the equity value with the net debt. In contrast, the second method takes the perspective of a shareholder to calculate the equity value hence considering the effects of the financial structure adopted.

Considering the *WACC* formula, ESG friendly companies may have lower *WACC*s than competition due to the exploitation of sources of competitive advantage which decrease their *Kd* or *Ke*, given the same corporate tax rate and financial structure as its peers.

In Brazil, companies with good ESG practices may have lower costs of debt than its competitors, because they have access to better credit conditions, which are enhanced during credit rationing recession periods.

According to the national Central Bank[27], three state-owned financial institutions (*Banco do Brasil*, *Caixa Econômica Federal* and *Banco Nacional de Desenvolvimento Econômico e Social* - BNDES) control 39,2% of the total assets in Brazil while the same players represent 41,8% of total net credit operations. Table 1 describes the classification of Brazilian financial institutions by assets under management and net credit operations as of September 2018.

[27] Banco Central do Brasil, 2018, *Relatório de Economia Brasileira*

Rank	Financial Institution	Assets, *BRL bn*	% of Total	Net Credit Operations, *BRL bn*	% of Total
1st	Banco do Brasil S.A.	1.469,3	16,2%	740,1	17,5%
2nd	Itaú Unibanco Holding S.A.	1.448,3	16,0%	665,5	15,7%
3rd	Caixa Econômica Federal	1.282,6	14,2%	730,1	17,2%
4th	Banco Bradesco S.A.	1.118,9	12,4%	480,0	11,3%
5th	Banco Nacional de Desenvolvimento Econômico e Social (BNDES)	789,7	8,7%	302,8	7,1%
6th	Banco Santander Brasil S.A.	757,1	8,4%	408,0	9,6%
7th	Banco BTG Pactual S.A.	183,8	2,0%	49,5	1,2%
8th	Banco Safra S.A.	176,7	2,0%	70,8	1,7%
9th	Banco Votorantim S.A.	97,3	1,1%	55,6	1,3%
10th	Banco Citibank S.A.	82,3	0,9%	31,7	0,7%
-	Others	1.637,9	18,1%	703,7	16,6%
1.367 players	**Total**	**9.044,0**	**100,0%**	**4.237,9**	**100,0%**

Table 1 - Brazilian Financial Institutions

Moreover, these same state-owned financial institutions accounted for 52% of the total credit operations to juridical persons as of 2017. Therefore, in Brazil, the government plays an important role in deciding which firms will be funded and at what conditions.

The breakdown of credit suppliers to juridical persons is presented in Table 2, which also shows the HHI index calculation that describes market concentration. According to the US Justice Department that market is classified as a “moderately concentrated market”[28], but in practice credit to juridical persons depends a lot on state-owned institutions in Brazil, which means an additional risk to companies with long-term strategies not aligned with the government’s point of view.

[28] The United States Department of Justice. [Online] 2018. [Access: April 15, 2019]. https://www.justice.gov/atr/herfindahl-hirschman-index

Rank	Credit Operations to Juridical Persons Financial Institution	Market Share, as of 2016	2017
1st	Banco Nacional de Desenvolvimento Econômico e Social (BNDES)	21,9%	21,3%
2nd	Banco do Brasil S.A.	18,9%	18,7%
3rd	Caixa Econômica Federal	12,3%	12,0%
4th	Banco Bradesco S.A.	11,7%	11,5%
5th	Itaú Unibanco Holding S.A.	9,1%	9,2%
6th	Other Commercial Banks	19,9%	20,3%
7th	Investment Banks	2,7%	2,8%
8th	Credit Cooperatives	1,9%	2,4%
9th	Other Development Banks (excl. BNDES)	1,0%	1,1%
10th	Non-Banking Players	0,6%	0,7%
	Total	**100%**	**100%**
	HHI Index	**1614**	**1592**

Table 2 - Classification of Credit Operations to Juridical Persons in Brazil

Since authorities have a high market power to decide which firms would get credit and at what conditions, companies aligned with the government's long-term strategy are more likely to obtain better access positions to raise debt. Consequently, their cost of debt is lower than the *Kd* of comparable companies with divergent strategies. This lower cost of debt will reduce the firm's *WACC* and increase its enterprise value, when calculated using the DCF methodology.

As explained in subsection 3.4, the Brazilian government and international institutions that finance Brazil are currently showing some signals of supporting the sustainable development. Therefore, companies with good ESG practices have their strategies aligned with the long-term view orientation fostered by authorities and can be benefitted from raising debt at better conditions.

At the same time, ESG friendly companies can also enjoy lower costs of equity, due to their lower amount of risks. The most used methodology to calculate *Ke* is the CAPM, showed in Figure 15, where *rf* stands for the risk-free rate, *(rm-rf)* is the market premium and β is a measure of the volatility of the share compared to the market.

$$Ke = rf + \beta * (rm - rf)$$

Figure 15 - CAPM Calculation

Therefore, when ESG friendly companies avoid additional risks such as company and firm-specific risks they are actually reducing their β and, consequently, reducing their cost of equity.

To conclude, this section analyzed some value drivers that ESG friendly companies exploit in order to either raise their returns or lower their risks. By discussing the DCF model, the report also explained how these sources of competitive advantage translated into higher firm value considering some particularities of Brazil. The next section will explain some of the ESG investment strategies globally adopted.

4 – How to Invest with an ESG Approach

The previous section explained some important gains of adopting ESG investing techniques and how ESG practices affect positively companies' valuations, boosting return projections and reducing risks. This section is intended to list different ESG strategies adopted worldwide, explaining their differences and particularities.

Once again, it is important to notice that ESG investing is not equivalent to promoting investments in companies with environmental concerns, because ESG criteria is not restricted to that. Actually, the CFA Institute concluded in 2017 that corporate governance is the most considered pillar amongst investors who take an ESG approach to select investments[29].

Moreover, according to a research conducted by Politecnico di Milano in partnership with Banor SIM, European companies which take into account all three aspects simultaneously have significant higher margins than those exclusively focused on a single pillar.[30]

4.1 - ESG Investment Strategies

It is important to notice that since it is a newly developed concept, there is a lack of consensus of the nomenclature used for referring to ESG investment approaches. However, by consolidating the existing literature, it is possible to group ESG investment strategies into:

[29] CFA Institute, 2017, *Global Perception Environmental, Social and Governance Issues in Investing*.
[30] Giudici, G. & Bonaventura, M., 2018, "ESG Ratings and Market Performance: A Study of Stoxx Europe 600 Index Stocks".

1- Screening: consists in excluding sectors or companies which are not compliant to ESG good practices, when selecting investment targets. This is the most adopted ESG strategy, because it is cheap, quick and easy to be implemented. Screening can be further divided into:

   a) Norms-Based Screening: screen companies according to their compliance with international standards before deeply analyzing potential targets. Investors who employ a norms-based screening approach do not consider investing in non-compliant companies, even those with outstanding financials.

   b) Exclusionary Screening: consists in an initial exclusion of controversial industries and further verification of ESG practices taken by potential targets, whose performance is compared to competitors, to the market or to a benchmark. To make this comparison, exclusionary screening investors need to apply an ESG rating methodology, which can be created internally or by an independent firm.

      The rating methodology employed should be rational, avoiding subjective interpretations, but criteria must differ between industries, because some ESG practices may be more or less relevant according to the sector analyzed.

      After the rating procedure, potential targets are ranked based on their commitment to ESG criteria, compliance with international standards and earned certifications. Finally, exclusionary screening adopters do not consider firms rated below a minimum score when deciding where to invest.

   c) Divestment: immediately divest from companies and industries that impact negatively the environment or their stakeholders. This strategy is often adopted by investors who suddenly decide to apply ESG friendly techniques in their portfolios and need to divest from non-compliant firms.

2- Best-in-Class: exclusively invest in companies or projects selected from a restricted sample for recognized good ESG performance relative to comparable peers. Best-in-Class investors divide companies into sectors, rank them using ESG rating criteria, and invest only in top performers of each group. This strategy is similar to exclusionary screening, but best-in-class adopters are more selective when stock picking.

3- ESG Integration: is the combination of the traditional investment approach with non-financial ESG criteria when evaluating potential targets. This strategy takes ESG good practices into consideration when analyzing potential investments alongside expected financial returns. Under this strategy, ESG rating methodologies might be used to analyze non-financial criteria.

4- Focused Investments: is the management of specialized thematic portfolios which focus on a particular ESG-related topic, for instance, the level of diversity on a company's workforce.

5- Engagement: consists in employing shareholder power to actively manage the company towards an ESG friendly direction, rewriting its mission and objectives, communicating ideas internally and using voting power in decision-making opportunities. It is mostly used by private equity funds and investors with a higher ownership percentage of the company.

According to the 2016 Global Sustainable Investment Review[31], the breakdown of assets managed under ESG strategies worldwide is illustrated in Figure 16.

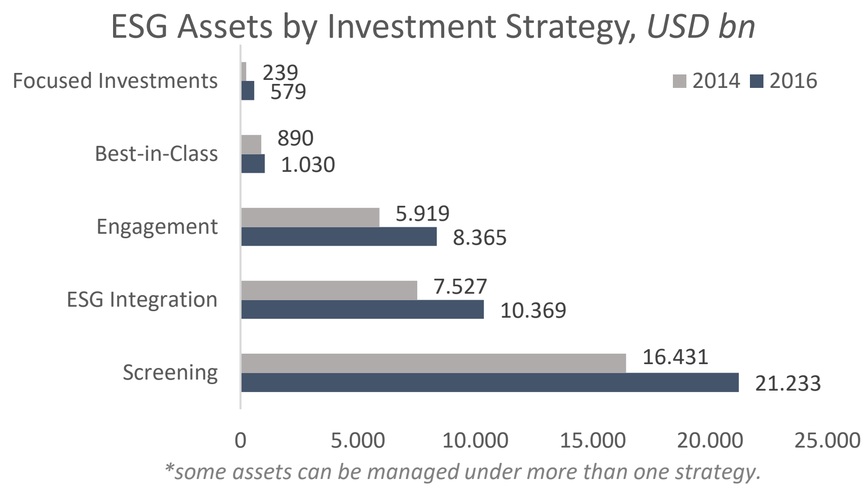


Figure 16 - ESG Assets by Investment Strategy Worldwide

Since the same study reported that the total amount invested with any ESG investment strategy in 2016 was USD 22,9 trillion, it is possible to conclude that assets managed

[31] Global Sustainable Alliance, 2016, *Global Sustainable Investment Review*.

under more than a single ESG strategy were double-counted when consolidating the numbers graphed in Figure 16.

5 – ESG Funds in Brazil

This section is intended to provide a general panorama of ESG investing trailblazers in Brazil, evaluating their ability to drive the consolidation of ESG investment in the country. Therefore, it will analyze some pioneer Brazilian ESG funds, describing their activities and assessing some initial results.

Since there is still an academic debate with controversial opinions about the outcomes of ESG investing in terms of additional value for shareholders, as of 2019 there is no major asset management firm exclusively specialized in ESG investing in Brazil. However, there are some Brazilian firms focused on a ramification of ESG investing called impact investing.

As any kind of ESG investing approach, impact investors include environmental, social and corporate governance issues alongside expected financial returns when evaluating targets. The difference is that, when selecting investments, impact investors tend to prioritize the non-financial results generated by invested companies over their expected cash flows.

The firms which will be discussed in this report are Vox Capital, "MOV Investments" (*MOV Investimentos*), "Kaeté Investments" (*Kaeté Investimentos*), "GAG Investments" (*GAG Investimentos)* and Virtuose.

All funds managed by these financial players are categorized as closed-end funds, which means that the number of shares issued is limited and supply and demand forces determine the value in which these shares are traded.

According to the Securities and Exchange Commission of Brazil ("*Comissão de Valores Mobiliários – CVM*"), throughout the twenty-first century the amount of assets under management (AUM) labelled as impact investments increased significantly as shown in Table 3[32].

[32] Securities and Exchange Commission of Brazil. [Online]. [Access: April 20, 2019]. http://cvmweb.cvm.gov.br/SWB/Sistemas/SCW/CPublica/ListaPLFdoExcvFech/CPublicaListaPlFdoExcvFech.aspx?TPPartic=73

AUM, *BRL mn*	2012	2013	2014	2015	2016	2017	2018	1Q19
VOX CAPITAL Vox I	8,68	10,53	28,44	45,78	40,06	52,85	88,07	105,44
VOX CAPITAL Vox II	-	-	-	-	0,69	2,69	NA	27,68
MOV 1	-	-	-	15,52	33,74	53,05	66,64	100,76
KAETÉ INVESTIMENTOS Kaeté's	-	6,47	17,48	34,96	51,40	53,98	49,97	32,01
BRL TRUST INVESTIMENTOS FIP Virtuose	2,00	4,06	6,63	8,08	7,91	7,97	2,86	2,93

Table 3 - Major Impact Investment Funds in Brazil

Impact investors generally employ screening and engagement ESG investment strategies in their activities. Firstly, they take an exclusionary screening approach when selecting investment targets as an *ex-ante* measure which guarantees that invested companies are capable of causing a positive social or environmental impact. Then, after the signature of the contract, impact investing firms actively manage their invested companies with an engagement ESG strategy that mitigates risks of *ex-post* inadequate corporate governance.

It is important to notice that organizations whose mission is to promote investments with environmental or social impacts without considering financial returns were not considered in this report, because their business models are not aligned to the ESG investing theory.

Some examples of companies that contribute to the Brazilian impact investment environment, but were not included in the report are Artemisia, Sitawi and Bemtevi.

5.1 – Vox Capital

Vox Capital is a venture capital company that since 2009 invests in businesses that improve life standards of low-income population in Brazil. It was the first exclusive impact investment fund to start operations in the country and its strategy is to invest in operating early stage for-profit companies with potential to scale up operations and deliver value for the society through a combination of attractive financial returns and positive social impact.

In order to avoid any conflict of interests, Vox's remuneration policy[33] is aligned with investor's expectations by an exclusive carry compensation model, which makes Vox eligible to a performance fee of up to 20% of the amount superior to the financial hurdle rate of the investment, as illustrated in Figure 17.

This compensation policy was designed to consider Vox's performance according to the independent Global Impact Investing Rating System (GIIRS), which rates investment firms based on their impact on five different criteria: communities, environment, employees, governance and customers. Therefore, Vox's performance fee depends on its capability of getting a GIIRS rating higher than the average of assessed comparable firms.

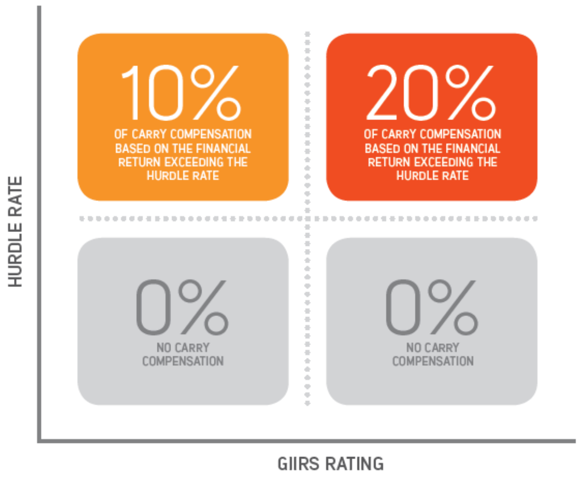


Figure 17 - Vox's Carry Compensation Model

Vox's current portfolio includes two funds, which are actively managed by the company: Vox Impact Investing I and II. Both funds invest in education, healthcare and financial services companies and, apart from the size, the main difference between them is the stage in which each one is positioned.

Vox I was initiated in September 2012 and is already making some divestments while Vox II started operations in August 2016 and is still raising funds and developing its portfolio, which is composed by three companies up to date.

According to market authorities, in the first quarter of 2019 Vox I had BRL 105,4 million in assets under management while Vox II had BRL 27,7 million. The breakdown of both portfolios as of 2019[34] is illustrated in Table 4.

[33] Vox Capital, 2017, *Social Impact Report*.
[34] Vox Capital, 2018, *Social Impact Report*.

Company	Sector	Year of Investment	Core Business
Fund: VOX Impact Investing I			
Tamboro	Education	2014	adaptive learning platform that provides interactive games to improve the education process, enhancing problem solving, social skills and creativity
ToLife	Healthcare	2014	improve logistics in inbound procedures of hospitals, managing queues in emergency rooms
Avante	Financial Services	2014	finance low income entrepreneurs with easy credit
Magnamed	Healthcare	2015	high-tech intuitive medical equipment specialized in lung ventilation
BemCare	Healthcare	2015	platform that offers healthcare services, medical assistance and insurances
Fund: VOX Impact Investing II			
Edufuturo	Education	2017	learning platform that improves basic education by applying unconventional approaches to teach mathematics and literacy
Sanar	Education Healthcare	2018	improve healthcare in Brazil by means of offering high-quality education with acessible prices
Celcoin	Financial Services	2019	supply financial services to the population with no access to conventional banks while providing new revenue streams to local shops

Table 4 - Vox's Invested Companies as of 2019

It is noticeable that all companies in Vox's portfolio must contribute to at least one of the United Nations' SDGs as illustrated in Figure 18. In other words, it means that Vox's investment decisions are always taken by the lens of an ESG exclusionary screening strategy.

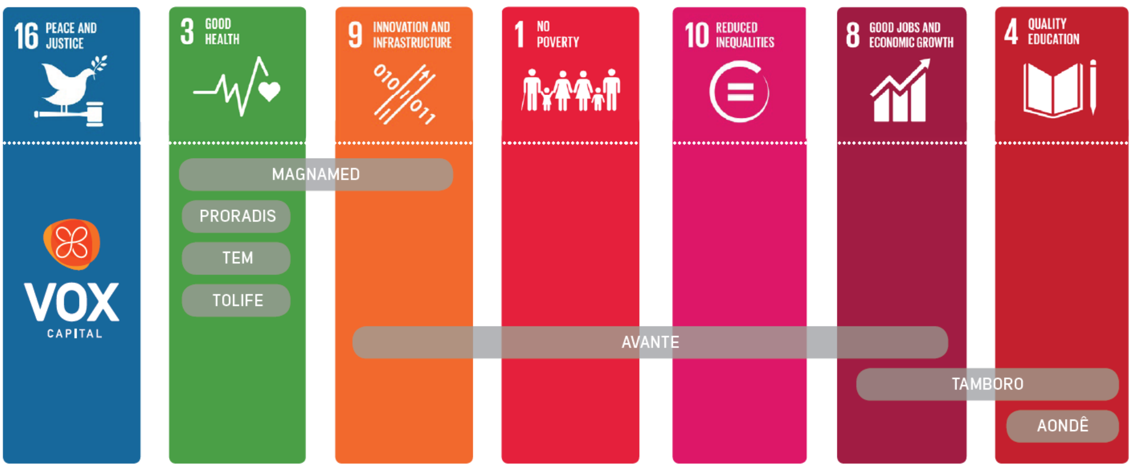


Figure 18 - Vox's Portfolio Contribution to the United Nations' SDGs as of 2017

In 2018, Vox Capital exited from its investment in Tem, a prepaid credit card company that offers discounts in healthcare services and products. That divestment generated an annual return of 26% over the initial investment of BRL 3 million made in 2015 for a 30% stake of the company and represented the first successful case of impact investment in Brazil[35].

Since the entry of Vox Capital, Tem showed an upward trend in revenues which increased 140% from 2016 to 2017. Also, its workforce went from 11 to 39 employees and it established a solid customer base of more than 1,5 million cards issued.

Before this announcement, Natura, a major player in the beauty industry in Brazil, disclosed a partnership with Tem aimed to offer the card as an employee benefit to its 1,2 million salespeople[36]. That fact was expected to boost Tem's revenues from BRL 6 million in 2017 to BRL 10 million in 2018, what would be another impressive annual growth of approximately 67%.

Vox's exit in Tem also meant the entry of Generali, the third largest insurance company in the world. Therefore, a further increment on the range of medical services provided by Tem is expected.

In 2019, Vox Capital launched a new product called the Impact Club (*Clube de Impacto*), which aims to reduce the previous gap between who was qualified to invest through the funds offered by Vox and low-income entrepreneurs financed by the instruments.

Both funds managed by Vox are classified as *Fundos de Investimento em Participações* (FIP), which is a Brazilian type of fund similar to private equity funds. FIPs are classified as variable income securities that must keep, at least, 90% of its assets under management invested in equity[37].

Despite being managed by professional investors, FIPs are considered illiquid high-risk investment vehicles, because they can finance both listed and non-listed companies. Since

[35] Valor Econômico. [Online] 2018. [Access: April 21, 2019]. https://www.valor.com.br/financas/5572647/vox-capital-tem-lucro-de-26-ao-ano-com-negocio-de-impacto
[36] Tem. [Online] 2018. [Access: April 21, 2019]. https://www.meutem.com.br/release-26
[37] B3 – Bovespa Stock Exchange. [Online]. [Access: May 28, 2019]. http://www.b3.com.br/pt_br/produtos-e-servicos/negociacao/renda-variavel/fundos-de-investimento-em-participacoes-fip.htm

non-listed companies are not as mature as public companies, FIPs can invest in firms with higher growth potential, but with higher bankruptcy risks.

Therefore, Brazilian legislation allows a restricted quantity of qualified investors to invest in FIPs. In order to allocate resources in FIPs, the investor must have more than BRL 10 million in his/her bank account. Moreover, FIPs require a minimum initial investment amount often superior to tens of thousands of dollars.

Needless to say, it is evident that only a small percentage of the Brazilian population meets all these requirements. According to an estimate of the Brazilian Institute of Geography and Statistics, only 5,4% of households have a monthly income superior to BRL 4.990 per capita.[38]

Therefore, the Impact Club is innovative, because it creates an equity crowdfunding platform that unlocks the access of more investors to early stage businesses and impact investing.

Gabriela Chagas, who is the responsible for new products in Vox Capital, defines the Impact Club as an online platform that exposes different startups and early stage businesses to common investors, requiring a minimum initial investment amount of BRL 1.000.

As a secondary objective, the Impact Club is intended to serve as a network to connect investors with similar thoughts and purposes, with the objective of fostering more commitment to impact investing.

5.2 – MOV Investimentos

MOV Investimentos is an asset management firm that formally made its first transaction in 2012. It is specialized on early and growth stage businesses and had BRL 100,8 million in assets under management in the end of the first quarter of 2019.

Its mission is to invest and co-create innovative companies that offer opportunities to vulnerable populations and/or promote the sustainable use of natural resources while providing attractive financial results.

[38] Brazilian Institute of Geography and Statistics. [Online]. [Access: May 28, 2019]. https://www.ibge.gov.br/estatisticas/sociais/populacao/9221-sintese-de-indicadores-sociais.html?=&t=resultados

According to the disclosed Impact Report of 2016, MOV intentionally aims to generate financial returns to its investors by betting on companies that cause any social or environmental impact. However, while pursuing non-financial objectives the firm accepts higher risks, because it concentrates its investments in startups.[39]

The company manages a single closed-end fund named MOV 1, which started its operations in 2015 and currently invests in seven companies from diverse sectors as shown in Table 5.

Company	Sector	Core Business
Fund: MOV 1		
Biofílica	Forest	commercialization of forest products and promotion of biodiversity research, while partnering with communities and land owners to avoid Amazon deforestation and reduce carbon emissions
Órigo Energia	Utilities	provision of solar photovoltaic energy to distant communities
Audsat	Agribusiness	provision of satellite image analyses to credit providers in the agribusiness sector
Sollar	Utilities	incorporation of solar energy in low-income households
Triciclos	Recycling	provision of recycling stations to promote circular economy
Tuneduc	Education	educational platform that provides information to students and teachers, tracking progress and helping decision-making
Terra Nova	Law	land regularization to low-income families by means of judicial settlement

Table 5 - MOV's Invested Companies

According to Kim Machlup, a former partner at *MOV Investmentos*, startups must meet some requirements in order to receive funding from the impact investment fund[40]:

- Impact performance must be measured or measurable.
- The business model must be innovative and have potential to scale up operations.
- The entrepreneur must be qualified and aligned to his/her company's mission.
- The business must be operating, generating revenues. It cannot be just an idea.

Therefore, MOV's portfolio is constituted exclusively with companies whose strategies are interweaved with the United Nations' SDGs as illustrated in Figure 19.

[39] MOV Investments, 2016, *Impact Report*.
[40] Kim Machlup, 2017, *What is Impact Investing*, https://www.youtube.com/watch?v=ASldJm1YOeE

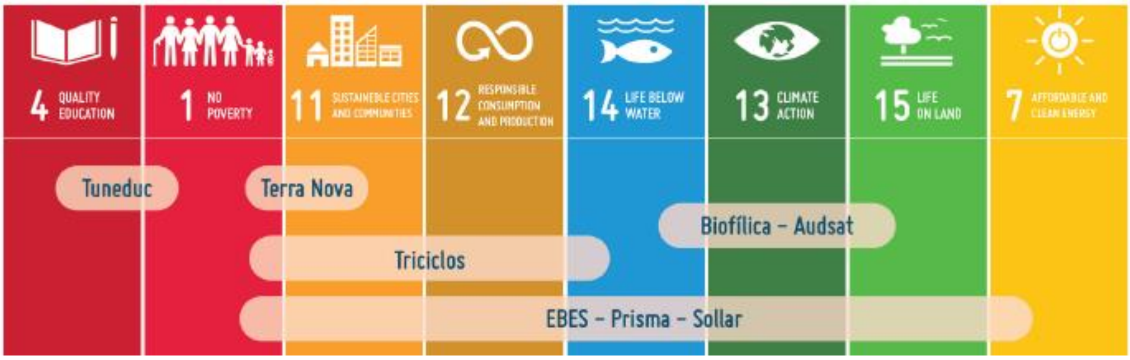


Figure 19 - MOV's Portfolio Contribution to the United Nations' SDGs as of 2016

In 2016, *MOV Investimentos* became certified as a B-Corp, which means that it "meets the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profits and purpose"[41].

Since the certification is trustworthy and well-known amongst investors, it meant an outstanding transformation inside the company, because the international recognition attracted more entrepreneurs.

According to Tiffany Lewkowitz, who has been recently hired by MOV, the company does not have much spare time to engage in prospecting potential investments due to its dynamic environment and small size. Therefore, word of mouth represents an important role in attracting entrepreneurs to contact MOV through its website.

After the certification, the inflow of companies applying for investments skyrocketed, making MOV question the pros and cons of launching a second investment vehicle, which is expected to start operations in late 2019.

5.3 – Kaeté Investimentos

Kaeté Investimentos is a private equity firm founded in 2011, which invests in small and middle-sized companies operating mainly in the northern region of Brazil. Its management team has a combined experience of more than 50 years in the financial markets and throughout the last decade its managers closed seventeen different transactions accounting for a total amount of USD 380 million[42].

---

[41] B Corporation. [Online]. [Access: April 21, 2019]. https://bcorporation.net/about-b-corps
[42] Kaeté Investimentos. [Online]. [Access: April 23, 2019]. http://www.kaeteinvestimentos.com.br/

Kaeté's first fund called *Empresas Sustentáveis na Amazônia* ("Sustainable Corporations in Amazon") started its operations in 2012 backed by BNDES, Banpará and ANAC. In the end of the first quarter of 2019 it had roughly BRL 32 million in assets under management, which were distributed in four invested companies as shown in Table 6.

Company	State	Sector	Year of Investment	Amount Invested	Core Business
Fund: Empresas Sustentáveis na Amazônia					
Ouro Verde Amazônia	Mato Grosso	Agriculture	2002	BRL 2mn	commercialization of regional nuts in partnership with local communities
Torres Engenharia	São Paulo	Housing	2009	BRL 3mn	construction of low-income housing
Peixes da Amazônia S.A	Acre	Food and Beverage	2013	BRL 15mn	commercialization of regional fish species in partnership with local communities
Dom Porquito	Acre	Food and Beverage	2015	BRL 15mn	pork meat production in partnership with local producers

Table 6 - Kaeté's Invested Companies

From Table 3 it is noticeable that the fund managed by Kaeté overperformed other impact investment funds from 2013 to 2017, with an impressive CAGR of roughly 70%. However, the same fund showed negative results recently, because one of its main invested companies, *Peixes da Amazônia*, is facing bankruptcy risks and formally required judicial reorganization on February 2019.

This relevant fact restated the market value of that specific investment to zero, reducing Kaeté's entire performance in 36,36%[43].

5.4 – GAG Investimentos

GAG Investimentos is a private equity firm founded in 2012 by three partners: Fátima Laplaca, Anna Caroline and Gilberto Gonçalves, who had an extensive background on the financial markets, with more than ten years of working experience in top financial institutions such as Morgan Stanley and Credit Suisse.

It invests in companies that promote the access of low-income population to healthcare services with the final objective of reducing inequality, but despite its main focus on the

[43] BRL Trust. [Online]. [Access: April 23, 2019]. https://www.brltrust.com.br/wp-content/uploads/2018/05/20190306_Fato_Relevante_vfinal-FIP_AMAZONIA.pdf

healthcare sector GAG's investments are not restricted to that. Its actual portfolio englobes different sectors as described in Table 7.

Company	Sector	Core Business
AssistCare	Healthcare	provision of accessible home care services
GC2	Healthcare	clinical research laboratory focused on pharmaceutical R&D that would decrease healthcare costs
GlicOnline	Healthcare	app that helps diabetics on their daily routine
Magma	Healthcare	provision of logistics services that increase efficiency in emergency rooms
Já Entendi	Education	educational platform focused on low-income students
Casa e Café	Home Services	platform that connects home service providers to homeowners

Table 7 - GAG's Invested Companies

According to their website, all companies backed by *GAG Investimentos* proved to ethically seek viable alternatives of causing any social impact while keeping their financial statements under control[44].

However, the company does not disclose much information regarding its fund past performance and could not be contacted by the author to clarify some information.

5.5 – BRL Trust Investimentos: Virtuose

Virtuose is a closed-end multi strategy fund initiated in 2012 managed by *BRL Trust Investimentos*. This fund invests 99,9% of its assets in a single certified B-Corp company named Geekie, whose activities are better described in Table 8.

Company	Sector	Core Business
Fund: Vituose Multi Strategy		
Geekie	Education	adaptive platform that improves high school education by applying an innovative methodology tailored according to the needs of each student

Table 8 - Virtuose's Invested Companies

From 2012 to 2017 the fund's value showed an impressive growth evidenced by a 31,85% CAGR, which made its value jump from BRL 2 million to roughly BRL 8 million. However, in 2018 the fund showed a decrease of 64% of its total value and in the end of the first quarter of 2019 it disclosed to have BRL 2,9 million under management.

[44] GAG Investimentos. [Online]. [Access: April 24, 2019]. http://gaginvestimentos.com.br/

Nowadays, Virtuose is looking for potential investment targets that meet its requirements of being Brazilian companies focused on developing educational innovative projects capable of generating a positive social impact while maintaining strong cash flows.

Also, the fund can only invest in companies that allow, after the investment, its active intervention as managers or directors, enabling the adoption of an engagement ESG investment strategy.

5.6 – Preliminary Conclusions of ESG Funds in Brazil

As evidenced in *Section 5*, the Brazilian ESG funds market is restricted to the impact investing segment as of 2019. Moreover, that limited market is constituted by few incumbents, which are still ramping up operations, showing weak historical financial returns and low transparency levels. Therefore, impact investment funds are not likely to drive the consolidation of ESG investments in Brazil.

Nevertheless, the amount of assets managed by impact investment funds increased significantly in the last decade, reaching approximately BRL 200 million in the 2018 and suggesting that some investors support the idea of considering non-financial information to assess the fair value of a company.

At first sight, impact investment first adopters seem to be outperforming the market due to higher expertise and managerial experience. However, ESG investing is long-term oriented and since the ESG investment industry is not well established in Brazil, preliminary results cannot be accurately assessed yet.

The apparent better performance of early adopters could be explained, for example, by the difference in investment stages between funds.

6 – ESG Friendly Debt Instruments

Recently, the concept of ESG investing expanded its boundaries from exclusively equity investments to include debt instruments as well. Therefore, some securities such as green bonds, sustainability bonds and social bonds were designed and started to be traded in financial markets.

In order to better understand these new products, this section will describe what types of investment could be considered ESG friendly debt instruments. This definition will be based on the official taxonomy developed by the Climate Bonds Initiative (CBI), a non-profit organization with the mission of mobilizing debt capital markets for climate change solutions[45].

CBI's idea is to foster the development of a large trustworthy ESG friendly bonds market that supports companies and governments to raise capital at better conditions for qualified investments. Also, issuers may benefit from other additional ESG value streams such as reputational gains and access to an amplified base of potential investors.

This objective is pursued by a combination of three critical activities developed by the organization:

1- Market Intelligence: the company is responsible for frequently reporting the latest achievements of the green bonds market by disclosing global, regional and country-specific documents that are publicly available online.
   These reports are produced using data collected from an internal research department, which is kept on an extensive database that gathers all available information since 2009, including historical numbers, cumulative figures, regional facts and post-issuance track records.

2- Providing Policy Models and Advice: CBI is focused on sustaining a close relationship with governments, private companies and investors to work as an advisory partner to help their adoption of ESG friendly debt instruments by developing proposals, explaining mandatory procedures to facilitate issuance, providing support to solve problems and explaining the financial and other gains of ESG investing.

3- Developing a Trusted Standard: the organization developed a certification scheme that objectively evaluates debt instruments to decide which ones could be officially labelled as green, social or sustainability bonds.

[45] Climate Bonds Initiative. [Online]. [Access: April 24, 2019]. https://www.climatebonds.net/about

The Climate Bonds Standard was designed as a tool to certify investments addressed to reduce the effects of climate change, aligned to the objective of keeping global warming in two degrees Celsius above pre-industrial levels as stated in the Paris Agreement. The main goal of the certification is to differentiate labelled instruments in order to make ESG investors prioritize them when making investment decisions.

Therefore, it categorizes qualified debt instruments as green bonds based on their compliance to rigorous requirements, which are self-assured and reviewed by approved independent partners. The initial verification happens before the issuance of the bond, guaranteeing its compliance with general standards and sector-specific criteria. Also, in order to maintain its certified status, the issuer must be annually monitored in the post-issuance period to guarantee transparency and commitment.

According to the taxonomy, green bonds are fixed income debt instruments designated to exclusively finance new or existing climate change solutions, aimed to foster a low carbon economy resilient to global warming. These solutions are projects which must be previously disclosed to investors, stating their assumptions, expected financials and positive results on the environment.

By definition, CBI allows a maximum proportion of 5% of the total amount raised to be allocated to social projects which are not also green. Moreover, even some bonds earmarked to environmental projects may not be labelled as green if the institute finds any particularity that makes them not eligible to the title.

Therefore, climate friendly debt instruments that do not meet all the requirements to be certified as green bonds may be classified as:

- Sustainability Bonds: fixed income debt instruments earmarked to projects that promote both environmental and social positive results.
- Social Bonds: financial debt securities whose proceeds are used to finance projects addressed to promote exclusively social impacts.
- Other Climate Friendly Bonds: fixed income debt instruments with underlying projects that promote low carbon initiatives, but did not manage to get the Climate Bonds’ certificate.

The expansion of the labelled bond market beyond green bonds has just happened, hence the annual issuance of sustainability, social and other climate friendly bonds issued is significantly smaller than of certified green bonds as illustrated in Figure 20[46].

However, it is important to notice that sustainability and social bonds are showing an upward trend throughout the last years: in 2018, the amount of sustainability bonds issued was USD 21 billion, which represents an impressive 114% annual growth, whereas social bonds also had positive results with issuance totaling USD 14,2 billion, a 37% annual jump[47].

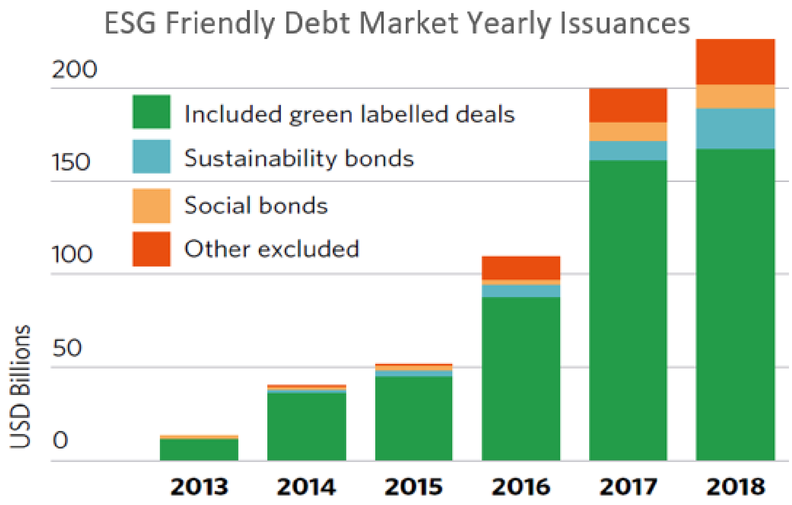


Figure 20 - ESG Friendly Debt Market by Category

Considering all ESG friendly bond categories the annual issuance of 2018 was USD 226,5 billion, which is roughly 14% better than the figure of USD 199,3 billion showed in 2017. According to the Climate Bonds Initiative, the breakdown of labelled ESG bonds initially traded in 2018 is graphed in Figure 21.

[46] Climate Bonds Initiative, 2018, *Green Bonds: The State of the Market.*
[47] Climate Bonds Initiative, 2018, *Green Bonds: The State of the Market.*

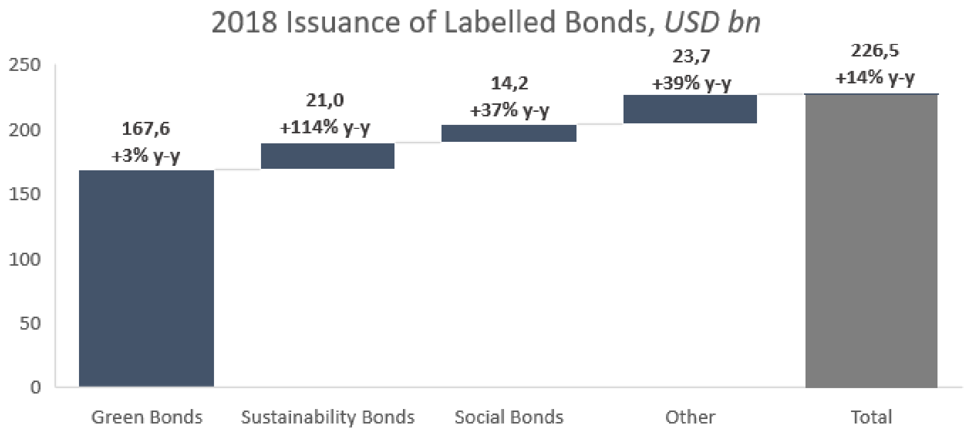


Figure 21 - Labelled Bonds Issued in 2018

Since green bonds are the most established ESG friendly debt instruments, representing almost 75% of the total amount of issuances of 2018, the next subsection is intended to better describe its current adoption by Brazilian companies. It will, therefore, list all instruments negotiated up to date, analyze historical data and discuss some challenges that green bonds face in that specific market.

Furthermore, the only social bond traded in Brazil was issued in 2018 by Din4mo in partnership with Gaia. Its BRL 5 million raised were addressed to finance Vivenda, a program focused on low-end habitations, for a time span of 10 years with an annual interest rate of 7%.[48]

6.1 – Green Bonds in Brazil

In the world, the first green bond issuance dates back to 2007 when discussions about global warming were rare and few questioned the future consequences of environmental degradation. Green bonds only gained importance after 2015, when global leaders and policy makers created the UN Sustainable Development Goals and signed the Paris Agreement.

With the general awareness raised by those events, green bonds showed two consecutive years of almost 100% growth in issuances[49], as illustrated in Figure 22, gaining attention of the media and interest of financial players.

[48] Din4mo. [Online] 2018. [Access: May 13, 2019]. http://din4mo.com/alianca-entre-din4mo-e-grupo-gaia-viabiliza-o-surgimento-da-primeira-debenture-de-impacto-social-no-brasil/
[49] Climate Bonds Initiative, *Bonds and Climate Change*.

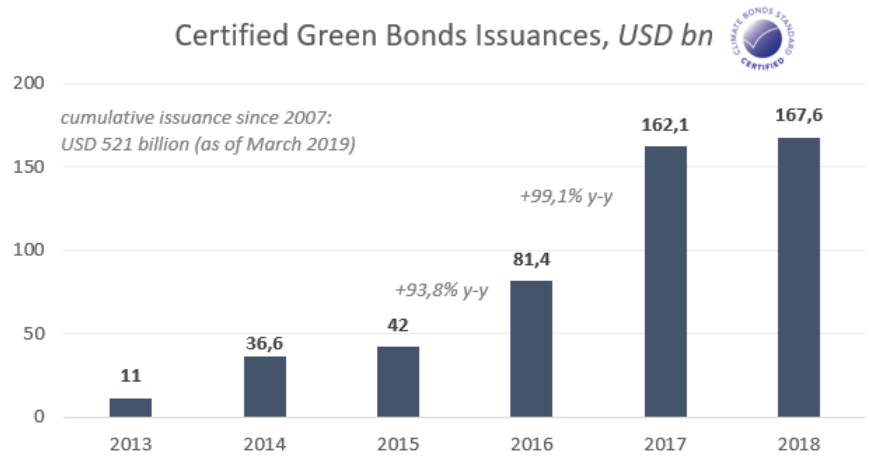


Figure 22 - Evolution of the Green Bonds Global Market

As mentioned before, green bonds are currently the most adopted ESG friendly debt instruments. In March 2019 green bonds were negotiated in 54 different markets, by 628 issuers with a total traded amount of USD 521 billion.

The market leaders were the United States of America (USD 118,6 billion), followed by China (USD 77,5 billion) and France (USD 56,7 billion). Some highlights of the global green bonds market are shown in Table 9.

Region	# of Green Bond Markets	# of Issuers	Amount Issued, *USD bn*
Africa	4	11	2
Asia-Pacific	18	222	119
Europe	22	193	190
Latin America	7	24	7
North America	3	167	137
Supranationals	-	11	66
Total	**54**	**628**	**521**

Table 9 - Cumulative Green Bond Issuance by Region

From Table 9 it is possible to conclude that the Latin American bonds market is one of the least developed ones in the world, with certified securities traded in only seven countries by less than 25 different issuers. However, it is important to notice that amongst those countries Brazil represents the most relevant market in volume traded and its firms account for almost half of the issuers.

In 2017, Brazilian instruments represented 60% of all Latin American certified green bonds issuance in volume negotiated, which contributed to the regional record-breaking year. On the other hand, in 2018, Brazilian issuances shrank due to the additional risk posed by its presidential elections, whose leading and future elected candidate, Jair Bolsonaro, supported ideas that put the maintenance of the sustainable development in the country at risk, such as arguing against the Paris Agreement.

The main highlight of Latin American green bonds market in 2018 was the Uruguayan debut deal of USD 108,2 million made by Atlas Renewable Energy, which represented a step forward in the establishment of green bonds as attractive investments in the region. The historical labelled green bonds Latin American market is illustrated in Figure 23.

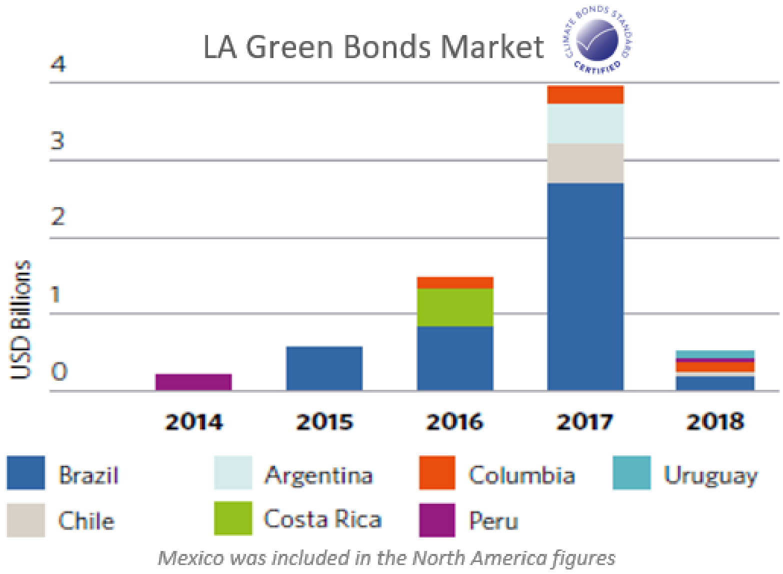


Figure 23 - Latin American Green Bonds Market

Despite being the most developed green bonds market in Latin America, Brazil still faces some challenges. Its domestic ESG friendly debt market is overly concentrated on few industries, for example renewable energy and pulp and paper, while sectors such as agriculture, forestry and livestock are responsible for the highest levels of pollutant emissions, but do not signal the same engagement on searching for environmental positive impacts.

That market concentration was backed by the state-owned development national bank, BNDES, which announced in 2017 the creation of a BRL 500 million Sustainable Energy

Fund managed by Vinci Partners with the objective of investing exclusively in infrastructure tax-incentivized debentures focused on low carbon energy projects[50].

In order to improve the attractiveness of ESG friendly markets to a wider range of sectors, the government could promote the creation of similar incentivizing tools, such as exclusive investment funds and lines of credit that promote environmental consciousness in strategic industries.

Due to country-related risks which create additional uncertainty and, consequently, make investors ask for higher returns, some Brazilian companies decided to issue major green bonds in international markets, raising funds in foreign currency but with lower coupons.

The most relevant green bond raised internationally until 2019 was a BNDES's bond of USD 1 billion raised in May 2017 with a 7-year maturity and annual coupon of 4,8%[51]. It is important to notice that the annual return of 4,8% is very attractive to international investors, but is significantly lower than the annual Brazilian interest rate of 10,25% applicable at that time[52].

A breakdown of all green bonds issued by Brazilian companies on foreign markets is illustrated in Table 10.

Issuers	Issuance Date	Amount	Sector	External Reviewer
suzano Suzano Papel e Celulose	Sept-17	USD 200 mn	Pulp and Paper	SUSTAINALYTICS Sustainalytics
Klabin Klabin	Sept-17	USD 500 mn	Pulp and Paper	SUSTAINALYTICS Sustainalytics
BNDES BNDES	May-17	USD 1.000 mn	Financial	GlobalCapital Global Capital
Fibria Fibria	Jan-17	USD 700 mn	Pulp and Paper	GlobalCapital Global Capital
suzano Suzano Papel e Celulose	July-16	USD 500 mn	Pulp and Paper	SUSTAINALYTICS Sustainalytics
brf BRF SA	June-16	EUR 500 mn	Food	SUSTAINALYTICS Sustainalytics

Table 10 - Green Bonds Issued Internationally by Brazilian Organizations

[50] National Bank for Economic and Social Development. [Online] 2016. [Access: April 27, 2019]. https://www.bndes.gov.br/wps/portal/site/home/imprensa/noticias/conteudo/bndes-aprova-criacao-do-fundo-de-energia-sustentavel

[51] National Bank for Economic and Social Development. [Online] 2017. [Access: April 27, 2019]. https://www.bndes.gov.br/wps/portal/site/home/imprensa/noticias/conteudo/bndes%20capta%20us%24%201%20bi%20em%20green%20bonds%20no%20mercado%20internacional

[52] Central Bank of Brazil. [Online]. [Access: April 29, 2019]. https://www.bcb.gov.br/controleinflacao/historicotaxasjuros

In the domestic market, the most relevant issuance was made by Suzano. The pulp and paper market leader raised BRL 1 billion in November 2016 with a maturity of 8 years and annual coupon of 96% of the intrabank rate to invest in sustainable energy, efficient water management and land conservation[53].

Table 11 summarizes all securities traded in the national green bonds market as of March 2019, showing its concentration in wind energy projects.

Issuers	Issuance Date	Amount	Sector	External Reviewer
Rio Energy	Aug-18	BRL 127,8 mn	Wind Energy	Vigeo Eiris
ISA CTEEP	May-18	BRL 621 mn	Utilities	Santander
Enel Green Power Brazil	Dec-17	BRL 22 mn	Wind Energy	Vigeo Eiris
Eólica Serra das Vacas	Nov-17	BRL 48 mn	Wind Energy	Vigeo Eiris
Omega Energia	Nov-17	BRL 220 mn	Wind Energy	Vigeo Eiris
Omega Energia	Mar-17	BRL 42,4 mn	Wind Energy	Vigeo Eiris
Rio Energy	Mar-17	BRL 111,8 mn	Wind Energy	Vigeo Eiris
Suzano Papel e Celulose	Nov-16	BRL 1.000 mn	Pulp and Paper	SITAWI
CPFL Energias Renováveis	Sep-16	BRL 200 mn	Wind Energy	Vigeo Eiris

Table 11 - Brazilian Green Bonds Market

It is important to notice that while ESG funds are not representative in Brazil, ESG friendly debt instruments seem to be better accepted by Brazilian investors, companies and financial institutions. Therefore, green bonds and other alternative debt instruments may represent the main drivers for the adoption of ESG investments in that specific geography.

7 – Barriers to ESG Investing

In previous sections, this document covered different ESG investing strategies and products traded in Brazilian financial markets, analyzing their availability to investors.

[53] Valor Econômico. [Online] 2016. [Access: April 27, 2019]. https://www.valor.com.br/financas/4790243/suzano-capta-r-1-bi-com-titulo-verde-no-brasil

This section is intended to describe some obstacles that limit the adoption of ESG investment techniques.

The identified barriers to ESG investing are:

a) The inconsistency of ESG definitions.
b) The incompatibility between short-term returns requested by investors and long-term results provided by ESG investments.
c) The difficulties to provide ESG friendly products to potential investors.
d) The lack of reliable non-financial information.

It is important to notice that some of these obstacles might be faced with the involvement of market authorities and regulators, but financial players are the only responsible for the elaboration of strategies to overcome others, such as training their sales department to match demand and supply of ESG friendly products.

In 2018, HSBC interviewed 863 issuers and 868 investors globally to determine future trends of ESG investing. Amongst the total 1731 respondents, 66,6% issuers and 57,1% investors supported that there are no barriers to increasing their ESG commitments[54].

However, the research also showed some obstacles to ESG investing according to two different perspectives which were not always aligned. The barriers to increasing ESG commitment found by HSBC are available in Table 12.

Barriers to Increasing ESG Commitment	Issuer	Investor
Inconsistency of ESG Definitions	72,8%	57,8%
Lack of Disclosure	69,7%	62,7%
Lack of Demand/Opportunities	25,0%	78,3%
Relatively Poor Financial Returns	60,1%	41,8%

Table 12 - Barriers to Increasing ESG Commitment

These results evidenced an existing gap between issuer and investor standpoints: while investors complain about the lack of ESG investment opportunities, the increasing demand is not captured by issuers.

[54] HSBC, 2018, *Sustainable Financing and ESG Investing*

To bridge this gap, financial distributors must be trained to offer ESG friendly instruments to potential investors, explaining its differences from traditional investment products such as the additional value streams presented in *Section 3*.

7.1 – Inconsistency of ESG Definitions

As stated before, ESG investing is a recent concept that considers non-financial data when analyzing investment options with the objective of maximizing long-term returns. Therefore, by adopting ESG investment strategies, investors might enjoy better returns and lower risks which are derived from competitive advantages that companies with ESG friendly practices exploit, such as better operational cost-efficiency, enhanced brand image, lower company-specific risks and lower compliance risks to future regulations.

However, adopting an ESG investment approach is constantly confused with philanthropy and the promotion of social consciousness, which are more linked to socially responsible integration (SRI) investment techniques and investing in not for-profit organizations.

To mitigate this misconception, market authorities could officially define what is ESG investing, certifying instruments aligned to that investment approach and financial distributors could educate their workforce to better explain the features of ESG products to potential investors, presenting the additional value streams and how are they converted into higher valuations.

7.2 – Investment Horizons

In the capital markets there is a common mismatch between investment horizons that creates a serious barrier to the acceptance of ESG investment strategies. Investors are impatient and focused in immediate results, whereas ESG practices are long-term oriented.

Therefore, sometimes conclusions about whether the investment showed positive results or not are based on wrong assumptions and misjudgment. It takes time to measure the real advantages of ESG investing and this should be explained for investors since the beginning.

Moreover, a common principal-agent problem might arise, because asset managers' remuneration scheme is frequently based on the results delivered in the short-term while investors are looking for better long-term performance.

To mitigate this problem, compensation frameworks that foster long-term results should be supported by asset management companies and investors, who must take that aspect into consideration when determining where to invest.

7.3 – Matching Supply and Demand

ESG products are designed to target investors who either have knowledge of its additional value streams or have personal values aligned to promote positive impacts on the society and environment.

Therefore, one barrier to the establishment of ESG investing as the adopted investment approach is the ability of financial distributors to identify potential demand for the offered products.

This obstacle will be faded when the concepts of ESG investing, with its characteristics and additional value streams, become widespread. However, in order to anticipate this step, asset managers could train their workforce to identify potential demand and financial distributors could also educate investors, boosting the employment of ESG investment techniques.

7.4 – Lack of Reliable Non-Financial Information

Another main challenge to the adoption of ESG investing techniques is the lack of reliable non-financial information. In Brazil, companies listed in any segment of the São Paulo Stock Exchange (B3 – Bovespa Stock Exchange) are not obliged to inform their sustainable practices to the market as of 2019.

Therefore, only few public companies voluntarily disclose sustainability reports and these documents suffer from a lack of standardization. Since there is no official regulatory framework guiding ESG data disclosure, figures might be previously manipulated and numbers reported are not always comparable.

This represents a problem not only for investors, who are unable to make proper comparisons and market analysis before stock picking, but also to companies, that generally use competitor's data to benchmark their own actions and results[55].

This context, however, is likely to be changed in a short-term future, because since 2017 B3 conducts an annual survey with all public companies named "Report or Explain for the 17 SDGs" (*Relate ou Explique para os Objetivos de Desenvolvimento Sustentável*) in which it instigates whether listed companies informed non-financial data to the market and encourages the disclosure of sustainability reports[56]. In 2018, approximately 26% of the total 437 companies listed in the stock exchange elaborated sustainability reports taking the United Nations' SDGs into consideration.

However, the creation of this activity seems to be just a starting point towards better non-financial data disclosure. On one hand, the survey pressures listed companies to disclose sustainability reports, but it does not enforce any specific reporting guidelines, consequently, sustainability reports disclosed to the market are still not uniform and comparable.

Given the background of increasing commitment of governments and supranational institutions to the sustainable development, the actual encouragement of informing the market about sustainable practices might signal the evolution of this voluntary measure to a requirement in the upcoming years.

This transformation might be endorsed by companies operating in sensitive industries, in other words, those more likely to cause negative externalities on the environment or to society. According to a study published in the Journal of Cleaner Production, sensitive industries produce better ESG performance in emerging markets, because they are more concerned about their own reputation and brand image.

Therefore, given the risk related to the nature of the business, companies in sensitive industries are generally more prone to report non-financial information avoiding additional sources of risk and attracting more financers[57].

---

[55] Serafeim, G. & Ioannou I., "The Consequences of Mandatory Corporate Sustainability Reporting", Harvard Business School Research Working Paper No. 11-100.
[56] B3 – Bovespa Stock Exchange. [Online]. [Access: April 30, 2019].
http://www.b3.com.br/pt_br/b3/sustentabilidade/nas-empresas/relate-ou-explique/
[57] Garcia, A.S.; Mendes-da-Silva, W. & Orsato, R.J., 2017, "Sensitive Industries Produce Better ESG Performance: Evidence from Emerging Markets", Journal of Cleaner Production, 150, pp. 135-147.

In Brazil, the market showed to be interested in environmental practices carried out by companies, evidencing an overall concern on environmental issues, which is already reflected in share prices of all sectors. In contrast, the market positively values social and corporate governance practices taken only by sensitive industries, suggesting that the disclosure of this unexpected information is what really differentiates those firms[58].

In order to study the determinants of voluntary non-financial disclosure by Latin American companies, Duran & Rodrigo tested eight factors supported by the literature in a sample of 643 firms, including 133 Brazilian organizations, for a 10-year period (2006-2015)[59].

Using a logit panel regression analysis, the authors indicated that firm size, market-to-book ratio, systematic risk, industry are positive determinants to report non-financial information. On the other hand, profitability and regulatory quality inversely affect corporate willingness to disclose ESG data. The results from this research are illustrated in Table 13.

Determinant	Mechanisms and Rationale	Results
Firm Size	high visibility and subject to external pressure from stakeholders. more interactions lead to higher dependence on different stakeholders. promote larger impact on the environment and society.	positive
Market-to-Book Ratio	proxy for information asymmetries that can be solved by non-financial disclosure	positive
Systematic Risk	riskier firms are media focused and have the incentive to signal for a better public image.	positive
Industry	sensible industries are more subject to scrutiny.	positive
Profitability	larger resources available to report voluntarily more data. executives are skillful enough to handle multiple responsibilities.	negative
Regulatory Quality	political interference affects ESG disclosure, ensuring that the company is properly managed and avoiding governmental influence or retaliation.	negative
Leverage	highly leveraged companies suffer non-financial disclosure demand from creditors, who might use ESG data to assess risks. As a response, firms report non-financial data to reduce the cost of capital.	inconclusive
Level of Internationalization	Foreign stakeholders might pressure firms to engage in non-financial disclosure. Voluntary reporting could be used as a tool to present companies as good corporate citizens internationally, softening their entrance in new markets.	inconclusive

Table 13 - Determinants to Voluntarily Report Non-Financial Data

The results found by Duran & Rodrigo verified that in 2015 non-financial data was already demanded by some stakeholders. However, considering the rapid growth of ESG

[58] Miralles-Quirós, M.M.; Miralles-Quirós, J.L. & Valente Gonçalves, L.M., 2018, "The Value Relevance of Environmental, Social and Governance Performance: The Brazilian Case", Sustainability 2018, 10, 574.
[59] Duran, I.J. and Rodrigo, P., "Why Do Firms in Emerging Markets Report? A Stakeholder Theory Approach to Study the Determinants of Non-Financial Disclosure in Latin America", Sustainability 2018, 10, 3111.

investing evidenced in the recent years, firms tend to suffer stronger demand from information-seeking groups.

Considering the Brazilian context, companies are likely to suffer stronger pressure from different stakeholders in the following years. Market authorities support firms to disclose non-financial information and signaled to enforce this practice by the creation of comply-or-explain researches while ESG investing is surging as an alternative investment approach, whose adopters are tuned in non-financial data.

8 – Conclusions

As explained in the report, companies with good ESG practices exploit additional value streams, such as: better operational cost-efficiency, enhanced brand image, lower company-specific risks and lower compliance risks to future regulations.

However, these features are not considered by traditional investors, who assess target companies by analyzing exclusively their strategy, financial statements and the context in which the organizations are inserted.

By taking an ESG investment approach, financial players might experience better risk-adjusted returns on their portfolios, because commitment to good ESG practices affects positively valuation models, raising expected cash flows while reducing the cost of capital, which is directly linked to risk mitigation.

Therefore, some investors are starting to consider non-financial data in order to assess potential targets and commitment to ESG investing is increasing globally, as reflected by the growing number of financial institutions which voluntarily decided to sign the Principles for Responsible Investing (PRI)[60] showed in Figure 24.

[60] Principles of Responsible Investment, 2018, *Annual Report*

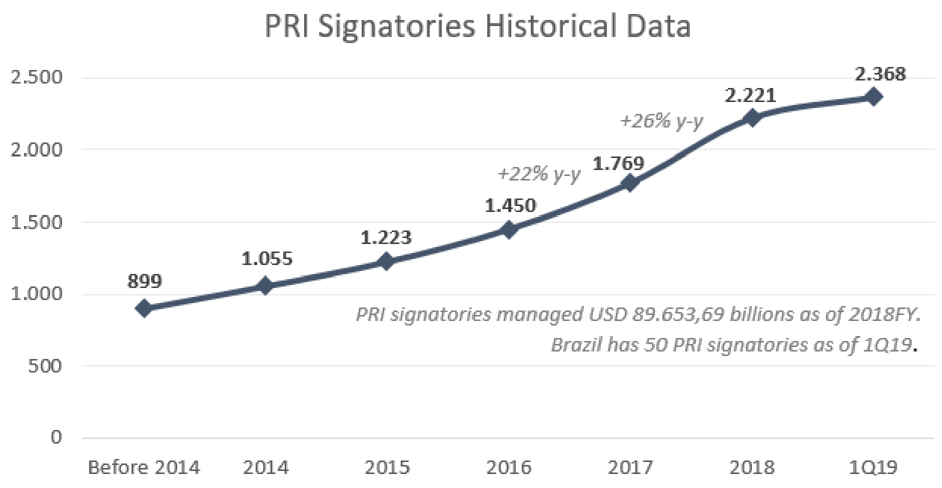


Figure 24 – Principles of Responsible Investing Signatories

The PRI is a private initiative created by an international group of institutional investors in partnership with UNEP Finance Initiative and United Nations Global Compact, which supports the adoption of six guiding principles that foster the adoption of ESG investing approaches.

Therefore, its signatories publicly commit to align their investment strategies with the broader interests of society, contributing to develop a more sustainable global financial system[61].

Even if it does not mean that all assets managed by PRI signatories are invested according to ESG techniques, the increasing number of members reinforce that ESG concerns are getting more widespread worldwide and signal that financial players are evaluating new investment approaches, which might provide better financial results.

Moreover, ESG additional value streams tend to be intensified in emerging markets, where the country-specific risk is above average, such as Brazil. According to a research conducted by BlackRock, ESG investing historically showed better results when applied in undeveloped countries as shown in Table 14[62].

[61] Principles of Responsible Investment. [Online]. [Access: May 02, 2019]. https://www.unpri.org/pri/what-are-the-principles-for-responsible-investment
[62] BlackRock, 2018, *Sustainable Investing: a "Why-Not" Moment*.

	US		World (excl. US)		Emerging Markets	
	Traditional	ESG	Traditional	ESG	Traditional	ESG
Annualized Return	**15,8%**	**15,8%**	10,5%	**11,1%**	7,8%	**9,1%**
Volatility	**9,5%**	9,6%	**11,4%**	11,6%	14,4%	**14,3%**
Sharpe Ratio	**1,62**	1,60	0,88	**0,92**	0,51	**0,61**
Max Monthly Drawdown	-13,9%	**-13,8%**	-23,3%	**-22,6%**	-35,2%	**-33,0%**
Dividend Yield	**2,10%**	**2,10%**	**3,20%**	**3,20%**	2,70%	**2,80%**
Number of Stocks	620	293	1.011	419	831	288

Table 14 - ESG Performance Around the World

Nevertheless, the adoption of ESG investing techniques is currently restricted in Brazil, where only few funds consider non-financial aspects to evaluate potential targets, adopting an impact investing posture.

It is important to notice that impact investing and ESG investing are different concepts, because the first considers that social or environmental impact caused by companies are more important than financial results provided while the latter believes that companies with good ESG practices exploit competitive advantages which will boost their performance and provide positive non-financial results as a secondary consequence.

Also, the existing exclusive impact investing funds in Brazil are still ramping up operations and do not represent relevant players in terms of assets under management. On the other hand, ESG friendly debt instruments showed positive results in terms of market acceptance and regional importance. Taken this into consideration, green bonds might represent the guiding instruments of the consolidation of ESG investing in Brazil.

In 2005, the Corporate Sustainability Index (*Índice de Sustentabilidade Empresarial*) was created in the B3 stock exchange, backed by the World Bank's financial business unit, the International Finance Corporation. This fact reflected that the Brazilian market was already starting to evaluate whether non-financial aspects influence stock performances.

The Corporate Sustainability Index (ISE) is composed by approximately 30 companies that take ESG issues into consideration while doing business. Its composition is variable and any liquid firm listed in the stock exchange can apply to be part of the index, which represents the most credible certification of good ESG practices. In 2018, the ISE index was composed by the firms illustrated in Figure 25, which accounted for approximately 40% of the total B3 market value[63].

Figure 25 - ISE Composition as of 2018

When comparing the ISE with the overall stock exchange index, Ibovespa (IBOV), it is interesting to notice that the former historically outperformed the latter, suggesting that in Brazil firms with good ESG practices are better valued by the market, as illustrated in Figure 26.

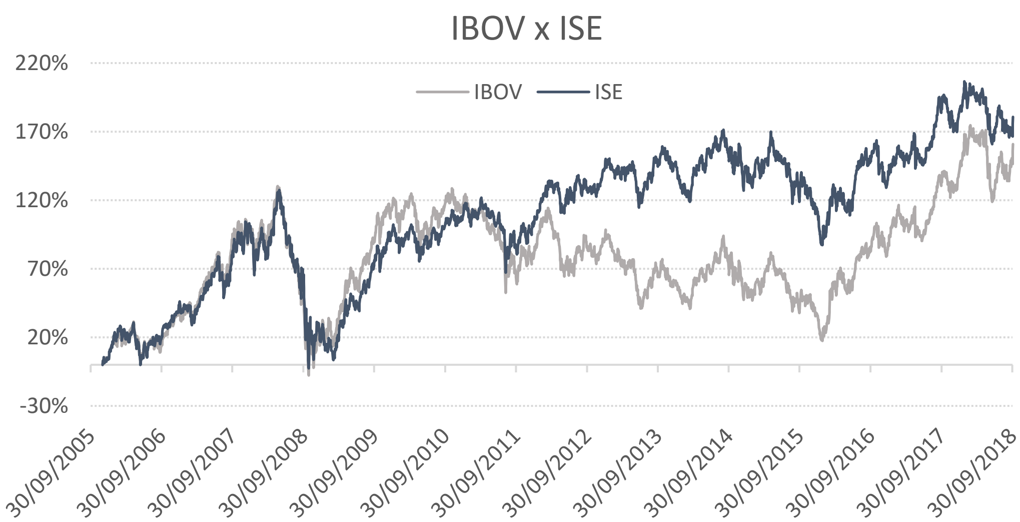


Figure 26 - Ibovespa vs. ISE

[63] Corporate Sustainability Index (ISE). [Online]. [Access: May 06, 2019]. http://www.b3.com.br/pt_br/market-data-e-indices/indices/indices-de-sustentabilidade/indice-de-sustentabilidade-empresarial-ise.htm

It is also interesting to point that the gap between sustainable companies and the market was larger during recession periods, such as from 2012 until today. This fact is coherent with the characteristic of lower stock-specific risks linked to companies aligned to ESG practices and supports that ESG investing might be used as a risk mitigation tool for financial players investing in Brazil.

However, it is important to notice that the results of ESG investing depend on how the local government positions itself in a spectrum from low to high future commitment to the sustainable development.

The effects of the government's position could be evidenced when analyzing the amount of green bonds issued in 2018, which was significantly lower than in the previous year due to Bolsonaro's attitude towards the Paris Agreement during his presidential campaign.

To sum up, this document supported the existence of a potential market for ESG investment in Brazil since additional value streams exploited by ESG friendly companies are enhanced by the characteristics of that specific country.

It also showed that despite restricted commitment to ESG investment techniques, listed firms with better ESG practices already outperformed the market. Furthermore, local authorities have historically signaled concerns to social and environmental issues, which are likely to push the adoption of future regulation that will intensify the competitive advantages of ESG friendly companies.

Therefore, ESG investing seems to be an attractive approach to investments in Brazil.

References

ABC News. (2018, March 23). Retrieved from ABC News: https://abcnews.go.com/International/great-pacific-garbage-patch-massive-floating-island-plastic/story?id=53962147

B Corporation. (n.d.). *About B Corps*. Retrieved from B Corporation: https://bcorporation.net/about-b-corps

B3 - Bovespa Stock Exchange. (2018). *Corporate Sustainability Index (ISE).* Retrieved from B3 - Bovespa Stock Exchange: http://www.b3.com.br/pt_br/market-data-e-indices/indices/indices-de-sustentabilidade/indice-de-sustentabilidade-empresarial-ise.htm

B3 - Bovespa Stock Exchange. (2018, October 24). *Sustainability.* Retrieved from B3 - Bovespa Stock Exchange: http://www.b3.com.br/data/files/C2/C6/A2/61/6F7F6610E634FD66AC094EA8/Release_Relate_2018.pdf

B3 - Bovespa Stock Exchange. (n.d.). *Sustainability*. Retrieved from B3 - Bovespa Stock Exchange: http://www.b3.com.br/pt_br/b3/sustentabilidade/nas-empresas/relate-ou-explique/

B3 Stock Exchange. (n.d.). *Products and Services*. Retrieved from B3 Stock Exchange: http://www.b3.com.br/pt_br/produtos-e-servicos/negociacao/renda-variavel/fundos-de-investimento-em-participacoes-fip.htm

BBC. (2015, November 5). Retrieved from BBC: https://www.bbc.com/news/world-latin-america-34772319

BBC Brazil. (2001, March 29). Retrieved from BBC Brazil: https://www.bbc.com/portuguese/noticias/2001/010329_usaclimate.shtml

BlackRock. (2018). *Sustainable Investing: a "Why-Not" Moment.*

Brazilian Institute of Geography and Statistics (IBGE). (2019, February 28). *Agência de Notícias*. Retrieved from Brazilian Institute of Geography and Statistics (IBGE): https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/23886-pib-cresce-1-1-em-2018-e-fecha-ano-em-r-6-8-trilhoes

BRL Trust Investments. (2019, March 9). *Relevant Fact.* Retrieved from BRL Trust Investments: https://www.brltrust.com.br/wp-content/uploads/2018/05/20190306_Fato_Relevante_vfinal-FIP_AMAZONIA.pdf

Central Bank of Brazil. (n.d.). Retrieved from Central Bank of Brazil: https://www.bcb.gov.br/controleinflacao/historicotaxasjuros

Central Bank of Brazil. (2018). *Relatório de Economia Brasiliera.*

CFA Institute. (2017). *Global Perception Environmental, Social and Governance Issues in Investing.*

Cimate Bonds Initiative. (2018). *Green Bonds: The State of the Market 2018.*

Cimate Bonds Initiative. (n.d.). *Bonds and Climate Change.*

Climate Bonds Initiative. (n.d.). *About Us*. Retrieved from Climate Bonds Initiative: https://www.climatebonds.net/about

Climate Change News. (2018, October 08). Retrieved from Climate Change News: https://www.climatechangenews.com/2018/10/08/bolsonaro-made-grim-threats-amazon-people/

Din4mo Inovadores de Impacto. (2018, June 09). Retrieved from Din4mo Inovadores de Impacto: http://din4mo.com/alianca-entre-din4mo-e-grupo-gaia-viabiliza-o-surgimento-da-primeira-debenture-de-impacto-social-no-brasil/

Duran, I., & Rodrigo, P. (2018). Why Do Firms in Emerging Markets Report? A Stakeholder Theory Approach to Study the Determinants of Non-Financial Disclosure in Latin America. *Sustainability*, 10, 3111.

GAG Investments. (n.d.). Retrieved from GAG Investments: http://gaginvestimentos.com.br/

Garcia, A., Mendes-da-Silva, W., & Orsato, R. (2017). Sensitive Industries Produce Better ESG Performance: Evidence from Emerging Markets. *Journal of Cleaner Production*, 135-147.

Giudici, G., & Bonaventura, M. (2018). *ESG Ratings and Market Performance: A Study of Stoxx Europe 600 Index Stocks.* Milan.

Global Sustainable Alliance. (2016). *Global Sustainable Investment Review.*

Globo. (2018, January 12). Retrieved from Globo G1: https://g1.globo.com/economia/noticia/veja-historico-das-notas-de-credito-do-brasil.ghtml

HSBC. (2018). *Sustainable Financing and ESG Investing* .

Institute of Applied Economic Research (IPEA). (2018). *O Crescimento Insustentável dos Gastos com Previdência e Pessoal.*

Inter-American Development Bank (IDB). (n.d.). *About Us*. Retrieved from Inter-American Development Bank (IDB): https://www.iadb.org/en/about-us/overview

International Renewable Energy Agency (IRENA). (2018). *Renewable Generation Costs in 2017.*

Kaeté Investments. (n.d.). Retrieved from Kaeté Investments: http://www.kaeteinvestimentos.com.br/

Khan, M., Serafeim, G., & Yoon, A. (2015). Corporate Sustainability: First Evidence on Materiality. *The Accounting Review*, 1697-1724.

Machlup, K. (2017, May 25). What is Impact Investing. (Baanko, Interviewer)

Ministry of Environment. (n.d.). *National Policy on Climate Change* . Retrieved from Ministry of Environment: http://www.mma.gov.br/pol%C3%ADtica-sobre-mudan%C3%A7a-do-clima.html

Miralles-Quirós, M., Miralles-Quirós, J., & Valente Gonçalves, L. (2018). The Value Relevance of Environmental, Social and Governance Performance: The Brazilian Case. *Sustainability*, volume 10, 574.

Moody's. (2019, February 27). Retrieved from Moody's: https://www.moodys.com/research/Moodys-downgrades-Vale-to-Ba1-negative-outlook--PR_395758

MOV Investments. (2016). *Impact Report.*

National Bank for Economic and Social Development (BNDES). (n.d.). Retrieved from National Bank for Economic and Social Development (BNDES):

https://www.bndes.gov.br/wps/portal/site/home/financiamento/produto/bndes-finame-energia-renovavel

National Bank for Economic and Social Development (BNDES). (2016, December 1). Retrieved from National Bank for Economic and Social Development (BNDES): https://www.bndes.gov.br/wps/portal/site/home/imprensa/noticias/conteudo/bndes-aprova-criacao-do-fundo-de-energia-sustentavel

National Bank for Economic and Social Development (BNDES). (2017, May 9). Retrieved from National Bank for Economic and Social Development (BNDES): https://www.bndes.gov.br/wps/portal/site/home/imprensa/noticias/conteudo/bndes%20capta%20us%24%201%20bi%20em%20green%20bonds%20no%20mercado%20internacional

Nielsen. (2005). *The Sustainability Imperative.*

O Globo. (2019, January 14). Retrieved from O Globo: https://oglobo.globo.com/brasil/salles-diz-que-brasil-permanece-no-acordo-de-paris-23371858

Principles of Responsible Investment (PRI). (2018). *Annual Report.*

Principles of Responsible Investment (PRI). (n.d.). *What are the PRI*. Retrieved from Principles of Responsible Investment: https://www.unpri.org/pri/what-are-the-principles-for-responsible-investment

Rivera, J., Bigne, E., & Curras-Perez, R. (2016). Effects of Corporate Social Responsibility perception on consumer satisfaction with the brand. *Spanish Journal of Marketing - ESIC,* 104-114.

Securities and Exchange Commission of Brazil (CVM). (n.d.). Retrieved from Securities and Exchange Commission of Brazil (CVM): http://cvmweb.cvm.gov.br/SWB/Sistemas/SCW/CPublica/ListaPLFdoExcvFech/CPublicaListaPlFdoExcvFech.aspx?TPPartic=73

Serafeim, G., & I., I. (n.d.). *The Consequences of Mandatory Corporate Sustainability Reporting.* Working Paper No. 11-100: Harvard Business School Research.

Tem. (2018, January 31). *Release*. Retrieved from Tem: https://www.meutem.com.br/release-26

The New York Times. (2019, April 02). Retrieved from The New York Times: https://www.nytimes.com/interactive/2019/04/02/climate/pricing-carbon-emissions.html

The United States Department of Justice. (2018, July 31). *Antitrust Division*. Retrieved from The United States Department of Justice: https://www.justice.gov/atr/herfindahl-hirschman-index

United Nations. (1972). *Declaration of the United Nations Conference on the Human Environment.* Stockholm.

United Nations. (1987, December 11). *Report of the World Commission on Environment and Development.* Retrieved from United Nations: https://www.un.org/documents/ga/res/42/ares42-187.htm

United Nations. (2015). Retrieved from Sustainable Development Goals: https://sustainabledevelopment.un.org/sdgs

United Nations Framework Convention on Climate Change. (2018, October 22). *Process and Meetings*. Retrieved from United Nations Framework Convention on Climate Change: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

Valor Econômico. (2016, November 29). Retrieved from Valor Econômico: https://www.valor.com.br/financas/4790243/suzano-capta-r-1-bi-com-titulo-verde-no-brasil

Valor Econômico. (2018, June 6). Retrieved from Valor Econômico: https://www.valor.com.br/financas/5572647/vox-capital-tem-lucro-de-26-ao-ano-com-negocio-de-impacto

Valor Econômico. (2019, January 28). Retrieved from Valor Econômico: https://www.valor.com.br/empresas/6092683/fitch-rebaixa-rating-global-da-vale-de-%3Fbbb%3F-para-%3Fbbb-%3F

Vox Capital. (2017). *Social Impact Report.*

Vox Capital. (2018). *Social Impact Report.*

Wang, D. H.-M., Chen, P.-H., Yu, T. H.-K., & Hsiao, C.-Y. (2015). The effects of corporate social responsibilitiy on brand equity and firm performance. *Journal of Business Research*, 2232-2236.

Appendix A: Interview Questions – Impact Investment Funds

1 – About the Interviewee:

- Name;
- Job Title;
- Academic formation and work experience;
- How long have you been working for the company?
- Why did you choose to work with impact investing?
- Do you invest your own resources in sustainable businesses?

2 – About the Organization:

- Name;
- Quantity of investors and number of companies in the portfolio;
- Amount of assets under management;
- Does it operate with a geographic or sectorial focus?
- Does the fund invest only in equity investments or does it negotiate ESG friendly debt instruments as well?
- In which stage are the funds managed by the company? (raising investments, developing their portfolios, maturing businesses, exiting...)

3 – General Questions and Future Perspectives:

- How ESG issues are inserted in the traditional investment's approach?
  - ➔ What is more important: expected financial returns or the ability to generate non-financial impact?
  - ➔ How does the company compare two potential investments?
- What are the main challenges for the implementation and consolidation of impact investing in Brazil?
  - ➔ How does the company behave in order to overcome these problems?
- What are the company's future perspectives about impact investments in Brazil?
  - ➔ What could change this envision?
- Is there any benchmark used to monitor the fund's performance? If so, what?