GESTÃO, FINANÇAS E CONTABILIDADE

PERFORMANCE OF TRADITIONAL INVESTMENT FUNDS AND ETFs LINKED TO SUSTAINABILITY AND CORPORATE GOVERNANCE

PERFORMANCE DE FUNDOS DE INVESTIMENTO TRADICIONAIS E ETFs LIGADOS A ÍNDICES DE SUSTENTABILIDADE E GOVERNANÇA CORPORATIVA

PERFORMANCE DE FONDOS DE INVERSIÓN TRADICIONALES Y ETFs VINCULADOS A LA SOSTENIBILIDAD Y GOBIERNO CORPORATIVO

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ABSTRACT
The objective of this study is to compare the performance of traditional investment funds and Exchange traded funds (ETFs), which benchmarks are Ibovespa, IBrX and Sustainability Indexes, as well as free funds using daily frequency data covering the period from 20 June 2012 to 31 October 2013. The survey is descriptive with a quantitative approach. Analyses were performed using the Capital Asset Pricing Model (CAPM) and the Sharpe Ratio (1966). In order to obtain an index of ETFs linked to sustainability, the nomenclature and prospectus of each ETF were analyzed to see which ones were linked to this sector. Then the average return of these funds was calculated, weighted by its Net Asset Value, generating a series of the same period and frequency of others. The results show that the funds linked to sustainability and corporate governance indices are one of the best investment options, surpassed only by free funds.
Keywords: Investment Funds, Sustainability Indexes, Performance

RESUMO
O objetivo deste trabalho é comparar a *performance* de fundos de investimento tradicionais e *Exchange traded funds* (ETFs), cujos *benchmark* são o Ibovespa, o IBrX e Índices de Sustentabilidade, além de fundos livres, utilizando dados de frequência diária que abrangem o período de 20 de junho de 2012 a 31 de outubro de 2013. A pesquisa enquadra-se como descritiva, com abordagem quantitativa. Foram realizadas análises através do *Capital Asset*

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Pricing Model (CAPM) e do Índice de Sharpe (1966). Para obter um índice de ETFs atrelado à sustentabilidade, analisou-se a nomenclatura e o prospecto de cada ETF, para verificar quais eram ligados a este setor. Em seguida, foi calculada a média de retorno destes fundos, ponderada pelo seu Patrimônio Líquido, gerando uma série de mesmo período e frequência dos demais. Os resultados apontam que os fundos ligados a índices de sustentabilidade e governança corporativa constituem uma das melhores opções de investimento, superada apenas pelos fundos livres.
Palavras-chave: Fundos de investimento. Índices de Sustentabilidade. *Performance.*

RESÚMEN

El objetivo de este estudio es comparar el rendimiento de los fondos tradicionales de inversión y los fondos cotizados (ETF), que tienen como *benchmark* el Ibovespa, IBrX y índices de Sustentabilidad, así como fondos libres utilizando datos de frecuencia diaria que cubren el período comprendido entre el 20 junio 2012 al 31 de octubre de 2013. La investigación constituye un estudio descriptivo, con abordaje cuantitativo. Los análisis se realizaron con el Capital Asset Pricing Model (CAPM) y el Ratio de Sharpe (1966). Para crear um índice de ETFs vinculados a la sostenibilidad, se analizó la nomenclatura y el prospecto de cada ETF, para ver los cuales estaban vinculados a este sector. Luego se calculó la rentabilidad media de los fondos, ponderado por su valor neto, generando una serie del mismo periodo y la frecuencia de los demás. Los resultados muestran que los fondos vinculados a índices de sostenibilidad y de gobierno corporativo son una de las mejores opciones de inversión, sólo superada por los fondos libres.
Palabras-Clave: Fondos de Inversión. Índices de Sostenibilidad. Desempeño.

1 INTRODUCTION

Practices of Sustainability, Corporate Governance and Social Corporate Responsibility have been the subject of multiple studies, the main source being Bowen's work (1957), which proposed a Social Responsibility view aligned with company policies as opposed to philanthropic approach the theme carried in the early days. The number of companies being inserted into this business model grows and it is a subject of much interest for entrepreneurs, media and government.

Werre and Marrewijk (2003, p. 95-96) summarized: "an intense debate has occurred among academics, consultants and business executives, resulting in many definitions of a more human, more ethical and more transparent way of doing business".

Recently, the subject has gained even more academic importance, resulting in the creation of the Corporate Sustainability Index in late 2005. Since its launch, the CSI is confirmed as an important inducing factor of companies that look for a business model that contributes to the sustainable development (BMF & BOVESPA, 2015). In contrast, the traditional Ibovespa index has been calculated since June 4, 1968 by the São Paulo Stock Exchange (Bovespa). Its importance stems from the fact of reflecting the return of the most traded shares in the Brazilian market as well as its tradition, keeping the methodological criteria unchanged since its creation (OLIVEIRA; PACHECO, 2010).

There is a considerable number of studies on the relationship between different practices indexes and traditional indexes, such as Jubert et al. (2008) and Ortas, Moneva and Salvador (2010). They focus on the differences between the two markets. However, it is necessary to analyze whether the investors foresee the possibility of obtaining different

returns when making their investments in shares of listed companies in different practices indexes. One way to make this comparison is to check the investment fund returns.

Investment funds are among the most important institutional investors in the majority of the global financial markets and in May 2015 they ran an amount greater than R$ 2.5 trillion (ANBIMA, 2015) in Brazil. Oliveira and Pacheco (2010) define them as a concentration of resources in the form of a condominium, open or closed, which aims to invest in securities or any available assets in the financial market.

Among these funds are the Index Funds, also known as ETFs (Exchange Traded Funds), which are mirrored in indexes and its shares are traded in the same way that the stocks (BMF & BOVESPA, 2015). Although they have invested only $ 4 billion in May 2015 (ANBIMA, 2015) they are considered a fast growing modality. Some of these funds / ETFs have established as investment policy the allocation of resources in companies with differentiated practices, using benchmarks as the ISE. These funds have been object of various academic studies, such as Bauer, Derwall and Otten (2007) and Milani et al. (2012a).

Due to the importance of subjects related to corporate sustainability and investment funds, this article has as main objective to compare the performance of traditional investment funds and Exchange traded funds (ETFs) whose benchmarks are Ibovespa, IBrX and Sustainability Indexes, as well as free funds.

The article is organized into six sections, including the introduction. Below, we present the theoretical background, which includes aspects on investment funds in general, benchmarks and type of management used as well as previous studies. The third section defines the methodological approach chosen for the development of the study. In the fourth section we present the results of the research, in the fifth section the conclusion and in the sixth section the references.

2 THEORETICAL BACKGROUND

2.1 Fundamental Concepts

Investment funds can be explained in several ways. In a more comprehensive way, it is possible to define an investment fund as a concentration of resources in the form of a condominium that buys various available assets in the financial and capital markets and distributes the results to the shareholders. Thus, the investors exchange their resources for quotas and the resources are invested in diversified securities in the financial market (OLIVEIRA; PACHECO, 2010).

The main purpose of an investment fund is to provide the investor an effective tool to invest his funds. This tool has the following characteristics:

a) funds are offered with different profiles in order to meet the diverse needs of investors related to time, profitability and risk profile;

b) it enables the outsourcing of investment decision to a specialized professional team that uses sophisticated management and analysis tools, eliminating the need for the investor to monitor the market every day to make decisions;

c) it acts as a long-term investor because there are simultaneous redemptions and applications, so that the largest share of the fund's investments is not really rescued. This turns several small short-term investors in a large long-term investor, functioning as an important source of funding for the government and companies (OLIVEIRA; PACHECO, 2010).

Fortuna (2010) also points out that the idea of condominium makes that, although investors can redeem their shares at any time, the fund always has a large sum available, enabling greater profitability due to gains of scale.

Despite the good opportunities presented by investment funds, there are differences in performance between them and the investor might not always select the best funds to invest their capital, effect verified by Fonseca and Malachi (2012), which found out that in a few occasions funds with increased investment flows coincided with the greatest return.

2.1.1 Stock Funds

According to Fortuna (2010), the Investment Funds classified as Equity Funds must have at least 67% in stocks, units (receipts of shares), bonuses or stock subscription receipts, certificates of stock deposits, fund shares and shares of stock index funds, and Brazilian Depositary Receipts - BDR - level II and III, since such securities are admitted to trading on the spot market of the stock exchange or entity of the organized counter market. Also according to the author, the net worth of the stock fund that exceed the minimum percentage of 67% may be applied to any other types of financial assets, since the limits by security issuer are cumulatively respected and the limits of concentration by modality of financial asset set forth in CVM 409 and 450 instructions are also considered.

These funds can be constituted with different types of stock portfolios, ranging from those who follow the indexes of Sao Paulo's Stock Market, such as Ibovespa, IBrX, IBrX-50, to funds with more complex strategies such as those investing in companies with specific characteristics of corporate governance and social responsibility (FORTUNA, 2010).

2.1.2 Exchange-Traded Funds (ETFs)

Also called Index Fund, it is established as an open condominium of resources for implementing in security portfolio that aimed to reflect the variations and profitability of a benchmark index, ie a specific market index recognized by CVM, to which the fund's investment policy is associated indefinitely (FORTUNA, 2010).

While the traditional discussion on performance and pricing dates back to investment funds, the emergence of similar/derivative products allowed the models to be applied in new contexts, like the Closed-End Funds (CEFs), Real Estate Investment Trusts (REITs) and ETFs. ETFs differ considerably compared to traditional investment funds, the main one being the fact that they have traded shares on the stock exchange. Thus, investors face the problem that the price of shares (Share Price) is different from its book value (Net Asset Value - NAV), a differentiated feature of this type of investment.

Brazilian ETFs were created in January 2002 by Instruction No. 359 of the Brazilian Securities Commission (CVM), a government institution that regulates the Brazilian financial market. As well as international ETFs, they must follow a benchmark, commonly Ibovespa index, which represents the Brazilian market.

The establishment of a fund must be approved by your administrator, which in the same act must also approve the entire content of its regulations. Fund management can only be exercised by a legal entity authorized by the CVM for the professional portfolio management activity. If you are not able or unwilling to exercise them directly, the administrator must hire qualified institutions to perform the following functions: fund portfolio management; execution of treasury services; bookkeeping, redemption and trading quotas; distribution of fund shares and provision of custody services of securities that are a part of the fund portfolio (FORTUNA, 2010).

2.1.3 Benchmark

According to Oliveira and Pacheco (2010), when we determine the performance of some investment, one must always be based on a standard or another index or measure. The financial market "borrowed" a term used by companies to assess, measure, and mainly to compare products and services, processes and functions of well-known companies as the best in its segment, aiming with this comparison to improve themselves: the term benchmark or benchmarking. In the financial market, the term is used for investment comparison. These are some examples of benchmark of investment funds, as Oliveira and Pacheco (2010):

a) DI Fund: its benchmark is the variation of the interest rate of the Interbank Deposit Certificate (IDC). They are used by more conservative investors who do not want risk in their investment portfolio.
b) Foreign Exchange Fund: use as a benchmark the variation of the exchange rate, ie, if the foreign currency appreciates, the investor placed in this fund earns. Otherwise, the investor loses profitability. In general, these funds earn the foreign exchange variation plus the exchange coupon, which as we have seen is the interest rate in dollar; they are good weapons for the investor to protect the so-called exchange rate risk if you have debts in foreign currency.
c) Equity Fund: each equity fund may have a different benchmark, or even have one. The most common is the type that uses the index of the São Paulo Stock Exchange (Bovespa) as a benchmark. That's because this index is composed of the most traded shares on the stock thus reflects more accurately the market's behavior. However, other indices can be used as a benchmark, such as IBX-50 or sectoral indices, such as Electric Power Index (IEE), for example.

2.1.4 Active Management x Passive Management

Active management is the kind of management that has a philosophy of selecting the best application opportunities among the existing application alternatives in the financial market. Active management has the following main features: maximizing results; having a higher operating cost; having a more aggressive profile and being better adjusted in short term, as pointed out by Fortuna (2010).

Active funds are those whose aim is to overcome a performance indicator or benchmark. Therefore, the fund manager seeks to take advantage of existing opportunities in the financial market, taking risks that vary according to the profile of the fund. As we take risks in order to overcome a certain benchmark, the likelihood to have losses in some operations, which increase in proportion to of the risk assumed (OLIVEIRA; PACHECO, 2010).

Passive management happens when funds are invested looking for a return that replicates the profitability of a wide use of an index or index and that acts as a reference - benchmark in the economy (eg the Ibovespa). To choose it, investors assume that there are no opportunities for extraordinary gains so different from the benchmark. Passive management has the following main characteristics: the results to the reference (benchmark); having a lower cost; having a more conservative profile; and being better adjusted in long-term (FORTUNA, 2010).

In the case of passive funds, the administrator aims to only track the variation of a particular benchmark, for example, if the investment fund is a fund referenced in exchange, the administrator will seek to follow as faithfully as possible the variation of the selected currency as reference, being it the dollar or the euro. Therefore we can say that the purpose of

these funds is no longer maximum profitability and becomes the maximum adherence to a performance indicator. To achieve its goal, the administrator takes a few risks to manage these funds, looking for assets which present yield very close to the chosen benchmark. However, as mutual funds have some costs that should be covered by the profitability of its assets, the administrator must assume some level of risk in order to obtain a surplus profit to cover these costs and deliver a net profit, after paying for the expenditure that form the liability fund, as close to the performance indicator (OLIVEIRA; PACHECO, 2010).

2.2 Previous Studies

In the study by Teixeira, Nossa and Funchal (2011), the addressed issue aimed to investigate the effect of the Corporate Sustainability Index (ISE) as signaling mechanism of Corporate Social Responsibility (CSR) in corporate indebtedness. Evidences of this study allow to conclude that the listing on the ISE influences the indebtedness of companies, acting as a potential determinant. The tests show that the treatment group (companies that signal commitment to CSR by ISE) shows a negative relationship with funding via debt compared to those companies that do not signal (control group). In this study, it was verified that there is evidence that the companies, while the ISE participated in the base period of study, had the Beta (β) reduced when compared to those that do not signal RSC for this indicator.

Milani *et al* (2012a) analyzed the impacts of sustainable management in Brazilian investment funds from 2007 to 2009. Active and passive management of funds that invest in assets present in the Ibovespa, IBrX and ISE as well as the performance of indexes themselves were evaluated. The results show that investment funds whose benchmark is the ISE have lower financial results to other investment options.

In another study done by Milani et al (2012b) the aim was to measure the performance of various indices calculated by BM & FBOVESPA in order to check for differences between indexes that list companies with the best sustainability practices, social responsibility, corporate governance and the Ibovespa, representing the market. It was found that the Ibovespa has significantly higher volatility to other indexes, which can be deduced that the investor who invests his funds in a portfolio that aims to mimic the behavior of this index may be subject to greater risk than that of the companies listed in the index sustainability.

Machado, Machado and Corrar (2009) conducted a study that aimed to determine if the average profitability of the Corporate Sustainability Index (ISE) is statistically equal to the profitability of other indexes of Bovespa, in the period from December 2005 to November 2007. To achieve the purpose, parametric and nonparametric tests were used, concluding no significant difference between Brazil 50 indices (IBrX 50), Brazil (IBrX), Corporate Sustainability (ISE), Sector Telecommunications (ITEL), Electricity (IEE), Industrial Sector (INDX), Bovespa Value (IVBX-2), Shares with Differentiated Corporate Governance (IGC), Shares with Differentiated Tag Along (ITAG). The presented results may not lead to the conclusion that socially responsible investments have the same return of investment that those that do not adopt the same approach, but the average return of the indexes is similar, since a significant number of companies makes up more than one index simultaneously.

Rezende, Nunes and Portela (2008) analyzed the relationship between the return of the Corporate Sustainability Index (ISE) over the return of the other indexes (Ibovespa, IBrX and IGC). The results generated a body of evidence that expand the discussion on the relationship between profitability and socially responsible investments. However, it is important to note that the evidence found and discussed in this study should be considered, respecting the limits of the methodology applied and the sample used. The evidences found allow some

conclusions, according to the question initially launched. The results derived by empirical research, through the T-Test, confirmed the main hypothesis in this paper that the Corporate Sustainability Index has return similar to other indexes. The Corporate Sustainability Index (ISE) has no better return than the other indexes, by selecting companies considering the concept of corporate sustainability that considers economic growth, social equity and ecological balance as premises for financial benefits and competitive advantages.

Miura, Marcom and Souza (2011), examined whether the average profitability of the Corporate Sustainability Index (ISE) achieved a statistically higher than the profitability of the Ibovespa behavior, from September 2008 to December 2010, period in which the world has undergone turbulent periods of economic crisis. There is no significant difference between the performance of the Ibovespa and ISE for the period September 2008 to December 2010. The results show that even in times of crisis the strong correlation indicates that when the Ibovespa rises ISE also rises and their behavior is also similar in times of crisis. In the same case that the research based this study, even in times of crisis the results also behaved similarly.

Rufino *et al* (2014) aimed to verify the existence of a better performance of financial indicators of banks considered sustainable, according to the definition of ISE from BMF & BOVESPA, in comparison with other non-sustainable banks. Four banks indicators have been analyzed over six years, two sustainable and two non-sustainable banks. Banks have as objective to increase the wealth of owners for the establishment of a proportional relationship between risk and return. On the basic levels of profitability: Return on Equity, Return on Total Investment and net margin, it was found, in general, the inability to state categorically which of the banks showed better or worse index. However, it could be seen more stable rates in sustainable banks, mainly in the Return on Total Investment index. In relation to other levels of profitability and profitability, non-sustainable banks in general, manifested better net interest rates, profitability of assets and average return on credit operations, and lower average cost of funding. Nevertheless, it can be concluded that there were no sufficient synergy to decisively say that sustainability affects the financial indicators of the companies studied. The clear absence of such relationship was predictable, since this relationship may provide more conclusive issues in the medium and long term.

Jubert *et al.* (2008) study the pattern of volatility of the main Bovespa indexes, including the Corporate Sustainability Index (ISE), analyzing daily frequency data from 2006-2007 through various models of ARCH family. Their results show that the ISE has the lowest value of α between the studied indexes, ie, the amplitudes of variations of the ISE stock prices react initially with a smaller movement than the other indexes. However, the coefficient β of the ISE is the second highest, indicating that the volatility of the previous day is transmitted to the next day. In general, the Ibovespa index was considered the least volatile, given to its high degree of diversification, as well as ITEL was considered the most volatile followed by the ISE.

Rabelo *et al* (2007) study the performance of best corporate governance practices in Brazil, based on the CAPM and several indexes, such as Treynor, Sharpe and Sortino. The authors define two types of investment portfolios: one for companies with higher corporate governance practices (GCD) and other companies that do not have them (GNCD), excluding companies that were part of the IGC and Ibovespa simultaneously and financial companies. The criteria for the formation of portfolios of companies with good practices were the presence in the IGC and the Bovespa's Novo Mercado. To match the size of the portfolios, the less liquid companies of the GNCD list were excluded. Based on 2006 data and a bootstrap

estimation, which allowed the formation of numerous portfolios, the results indicate that the GCD portfolios have higher risk and return and the application of the parameters that set the return for the risk pointed out that the GCD portfolios have also the best risk / return ratio.

Cavalcanti, Bruni and Costa (2008) compared the accumulated and ISE standard deviations with the Ibovespa and IBrX returns. Due to the high participation of financial companies in the ISE, the authors have chosen to exclude them after analyzing the performance indicator. Daily data were used from December 2005 to December 2006, even creating a feedback index, for the period prior to its creation. The results showed that after the establishment of the ISE, its performance on average was lower than the Ibovespa and IBrX as well as being more volatile. However, in analyzing the feedback of the index, it was established that the profitability of companies that would compose the index was much higher than market rates, giving evidence that the ISE creation news boosted the valuation of these companies. Relating to the exclusion of financial companies, the profitability of the ISE in the period prior to its establishment was higher than the Ibovespa and slightly lower than IBRX. In the period following its creation the index, even without financial institutions, showed better performance than Ibovespa and IBrX. In both cases, the volatility of the ISE was lower.

Sousa et al (2011), considering the attitude of the BM & FBOVESPA in creating the Corporate Sustainability Index (ISE), where companies that stand out in social and environmental areas in an investment portfolio are grouped, aimed to demonstrate the performance of these companies and point out what degree correlation between its net income and the ISE in the period in which they were part of the portfolio from 2005 to 2009. For this, we used the regression and correlation analysis, trying to describe and understand the supposed existence of relationship between these variables. The results showed that one year after the entry of companies in the ISE portfolio in 2007 its net income increased 56.46% over the previous year and the ISE increased 40.35% over the same period and through the regression analysis, it appears that 86.9% of the variations of the ISE are explained by the variation in the portfolio results, ie, the more the ISE varies, the more net receipts of companies will vary respectively in the stated percentage.

Ceretta et al (2009) analyzed the relationship between socio-environmental investments and corporate financial performance using a panel of balance sheets of 59 companies operating in Brazil for the period from 2005 to 2008. A positive relationship between internal, external social and external lagged indicators was observed in a period and the endogenous variables of the model. External social indicators proved to be significant in relations with both studied exogenous variables (net revenue and operating result).

Bauer Derwall and Otten (2007) analyzed the performance and sensitivity of the risk of Canadian ethical funds in comparison with the conventional funds. Their sample consisted of funds with guidance for domestic investment and funds that had investments abroad were excluded. These funds invest primarily in stocks, although it is allowed that a small percentage be invested in other funds. The sample did not include the funds that did not survive and the period considered was between 1995 and 2003, and between 1995 and 1999 data were created by projection. The analyzes showed that the ethical funds had income below the conventional and a greater standard deviation. The regression showed that both ethical funds as conventional showed significant negative alpha to 10%, but not to 5%. The exposure to changes in the market was higher for ethical funds. The Carhart model (1997) showed similar results to 5% of significance and conditional model of Ferson and Schadt (1996) showed similar results. Ethical funds found to be more correlated with the market proxy of

return than with the proxy of investment in social and environmental practices, presenting performance similar to conventional funds.

Ortas, Moneva and Salvador (2010) study the volatility index of the Madrid stock exchange, comparing traditional market indices with indices associated with sustainability. The Spanish market is represented by IBEX and the market of companies associated with sustainable practices is represented by FTSE4GOOD-IBEX index, a member of the FTSE family that seeks to measure the performance of companies with good practices within the IBEX universe. Based on a daily frequency of the sample data 09/04/2008 to 05/02/2010 initially estimated CAPM, which results in significantly negative Alpha and Beta approximately equal to one. Then, volatility is estimated based on GARCH, EGARCH and GJR, which show that the volatility of FTSE4GOOD-IBEX index is inferior to the IBEX, result that is confirmed by multivariate models. Furthermore, it is emphasized that the asymmetric designs generate positive and significant asymmetry ratios, showing that the negative impact of shocks to the volatility is larger than the positive shocks.

Studies comparing financial performance with investments in social responsibility or sustainability practices differ widely in their results because in some articles we can find performances that are similar, above or below market investments.

3 METHODOLOGICAL ASPECTS

The objective of this study is to compare the performance of traditional investment funds and Exchange-traded funds (ETFs), which benchmarks are Ibovespa, IBrX and Sustainability Indexes, as well as free funds. The research is considered descriptive with a quantitative approach.

The ISE aims to calculate the return on a portfolio composed of shares of companies with a commitment to social responsibility and corporate sustainability. This study is composed of a descriptive research of the quantitative type to obtain documentary evidence, which analyzes were performed using the Capital Asset Pricing Model (CAPM) and the Sharpe Ratio (1966).

Investment fund returns data were collected, which were granted by the Brazilian Association of Financial and Capital Markets (ANBIMA), daily frequent and covering the period from 20 June 2012 to 31 October 2013. Data were analyzed using Gretl 1.9.14 software and Microsoft Excel.

Para fins de comparação, obteve-se índices diferenciados para cada tipo de gestão (ativa, passiva ou livre), exceto para os ETFs, por haver um reduzido contingente de fundos ativos. Dessa forma, cada índice representou uma categoria de fundos, nas quais foi utilizada uma nomenclatura simplificada para facilitar a redação, conforme disposto no Quadro 1.

Indexes were analyzed representing the weighted average return of traditional investment funds whose benchmark is the Ibovespa, IBrX and indices related to sustainability. The ETFs return series and free funds were also obtained. Whereas there is a specific index ETFs linked to sustainability, a medium number of weighted return for ETFs whose benchmarks are the sustainability indices was calculated.

For comparison purposes, we obtained different contents for each type of management (active, passive or free) except for the ETF, for having a reduced quota of active funds. Thus, each index represents a category of funds in which simplified nomenclature was used to facilitate the drafting, as provided in Table 1.

Table 1- Description of the analyzed funds categories

Category	**Description**
Ibovespa Actives	Represent the traditional actively managed funds whose benchmark is the Ibovespa
Ibovespa Passives	Represent the traditional passive fund management whose benchmark is the Ibovespa
IBrX Actives	Represent the traditional actively managed funds whose benchmark is the IBrX
IBrX Passives	Represent the traditional passive fund management whose benchmark is the IBrX
Free	Represent the traditional funds that do not follow a particular type of management or a specific benchmark.
Sustainability/Governance	Represent the traditional funds whose benchmarks are Sustainability, Corporate Governance and Social Responsibility indexes.
ETFs	Represent the Brazilian ETFs without distinction of the kind of management or benchmark.
ETFs/SustGov	Represent the ETFs whose benchmark indexes are Sustainability, Corporate Governance and Social Responsibility. Created by the authors.

Source: Author's data.

To get an index of ETFs linked to sustainability, we held the naming analysis and the prospectus of each one to see exactly which were linked to this sector. The following funds were identified:

Table 2 - Funds related to sustainability

Fund name	**Administrator**
BB Ações Carbono Sust Op Venda FI Ações	Banco do Brasil
BB Ações Carbono Sustent FI Em Ações	Banco do Brasil
Ishares Ind Carbono Efic Ico2 Br Fdo Ind	Citibank
It Now IGT Fundo de Índice	Itaú
It Now ISE Fundo de Índice	Itaú

Source: ANBIMA, 2015

The average return of these funds, weighted by its shareholders' equity was calculated, resulting in a series of the same period and frequency of others, called ETFs/SustGov previously proposed in Table 1. In addition to the rates of investment funds and ETFs, the Ibovespa index was also analyzed, which represents the Brazilian market. The index was taken on a daily basis from the website of the Commodities and Futures Bovespa (BMF & BOVESPA).

The performance of the funds was analyzed by the Sharpe Ratio, which measures the profitability achieved by an investment above the risk-free rate relative to the risk assumed by the investor, ie, measures the relationship between risk and return. In other words, it can be said that the Sharpe ratio, also known as reward index for variability, represents how much risk (how many standard deviations) the investor had to run to get a higher payment than risk free rate (RF). Therefore, the higher the Sharpe ratio, the better the performance of the investment (Oliveira; Pacheco, 2010). The formula for calculating the Sharpe ratio is shown in Equation [1]:

$$IS = \frac{\mathrm{R_{Ativo}} - \mathrm{RF}}{\sigma_{\mathrm{Ativo}}} \quad [1]$$

Where: R_{Ativo} is the active return, RF is the risk free rate and σ_{Ativo} represents the standard deviation of the asset.

The performance of backgrounds was also analyzed by CAPM methodology described by Jensen (1967), which can be exemplified by Equation [2].

$$R_{i,t}\text{-}R_{f,t} = \alpha + \beta_i \, (R_{M,t} - R_{f,t}) \, \varepsilon_{i,t} \quad [2]$$

Where: $R_{i,t}$ represents the return of fund i at time t;

$R_{f,t}$ represents the return of risk-free asset in period t;

$R_{M,t}$ is the return of the market benchmark in period t;

$R_{i,t}\text{-}R_{f,t}$ is the excess return of the fund;

$(R_{M,t}\text{-}R_{f,t})$ is the excess return of the market; α is a constant;

β is a measure of the systematic risk; $\varepsilon_{i,t}$ represents the random error.

Coefficients with p-value less than 0.05 will be considered significant. In Equation [2] if the estimated coefficient α is positive and significant, it will evidence that the manager adds return to the investment fund because it would not depend only to the exposure to systematic risk. If it is significant and negative, it will evidence that the manager reduces the return of funds; if not significant, it will evidence that the manager does not impact on the return of funds.

The β coefficient shows the degree of background exposure to systematic risk. The higher this ratio, the more dependent the fund will be on market fluctuations. A β coefficient of 0.8 would mean that for every 1% positive market return it would result in 0.8% of positive return of the fund. Finally, the random error represents, at each time t, the return portion that is not explained by the estimated model.

The estimation is performed by linear regression by the method of ordinary least squares. Section 4 will present the results.

4 ANALYSIS AND DISCUSSION OF RESULTS

Opening the interpretation of the results Table 1 is presented, with descriptive statistics and Sharpe ratio.

Table 1 - Descriptive Statistics and Sharpe Ratio

Fund Category	Variable	Average	Minimum	Maximum	Standard deviation	Bias	Kustosis Ex.	IS
Ibovespa Actives	PL	$1{,}92*10^{7}$	$1{,}57*10^{7}$	$2{,}29*10^{7}$	$1{,}87*10^{6}$	$-7{,}80*10^{-2}$	$-1{,}08*10^{0}$	0,0305
	r	0,0255	-3,0352	3,1413	0,8355	-0,0802	0,9877	
Ibovespa	PL	$2{,}06*10^{6}$	$1{,}72*10^{6}$	$2{,}49*10^{6}$	$1{,}80*10^{5}$	$1{,}36*10^{-1}$	$-7{,}31*10^{-1}$	0,0069

Passives	r	0,0089	-4,2816	4,7699	1,2955	0,1184	0,6073	
IBrX Actives	PL	$1,35*10^{7}$	$1,21*10^{7}$	$1,48*10^{7}$	$6,18*10^{5}$	$-1,60*10^{-1}$	$-4,95*10^{-1}$	0,0305
	r	0,0296	-3,4617	3,6702	0,9714	-0,0630	0,9013	
IBrX Passives	PL	$1,10*10^{6}$	$4,89*10^{5}$	$1,43*10^{6}$	$2,57*10^{5}$	$-8,87*10^{-1}$	$-1,83*10^{-1}$	0,0248
	r	0,0244	-3,1138	3,8637	0,9836	0,0501	0,8452	
Free	PL	$5,96*10^{7}$	$4,66*10^{7}$	$6,82*10^{7}$	$6,76*10^{6}$	$-5,51*10^{-1}$	$-1,25*10^{0}$	0,0696
	r	0,0489	-2,3115	3,4951	0,7032	0,2432	2,2176	
ETFs	PL	$3,66*10^{6}$	$2,01*10^{6}$	$4,46*10^{6}$	$6,24*10^{5}$	$-9,37*10^{-1}$	$3,06*10^{-3}$	0,0225
	r	0,0263	-3,8299	4,3194	1,1677	0,0407	0,5980	
Sustainability/ Governance	PL	$1,66*10^{6}$	$1,30*10^{6}$	$1,85*10^{6}$	$1,39*10^{5}$	$-1,08*10^{0}$	$3,6610^{-1}$	0,0425
	r	0,0394	-3,0604	3,3828	0,9274	-0,0137	0,7308	
ETFs Sust/Gov	PL	$3,74*10^{8}$	$2,28*10^{8}$	$8,79*10^{8}$	$1,02*10^{8}$	$2,44*10^{-1}$	$7,01*10^{-1}$	0,0346
	r	0,0356	-3,4817	3,7398	1,0277	-0,0533	0,6788	
Ibovespa	r	-0,0160	-4,3283	4,6146	1,3447	0,0887	0,3916	-0,0119

Source: Data collected by the authors.

It can be seen that the lowest average return was the Ibovespa (-0.0160) and the highest was of Free Funds (0.0489), followed by ETFs Sust / Gov. The lowest equity average was the IBrX Funds Passive (R $ 1.1 million) and higher average were ETFs Sust / Gov (R $ 374 million), followed by free funds (R $ 59.6 million). Therefore, it is concluded that the investor is aware of the market, because the funds that have higher returns have higher net worth, ie more capital invested.

The analysis of the minimum and maximum points of returns shows that the lowest minimum point comes from the Ibovespa Passive funds (-4.28) and the largest, of Free Funds (-2.31). The Ibovespa Passive funds also has the highest peak, demonstrating that they have the greatest range of all categories, indicating a propensity to larger fluctuations. The lower peak is the Ibovespa Active funds.

As for the standard deviation, the Ibovespa Passive funds again draw attention since they have the highest coefficient, again indicating greater variability of returns. This, coupled with its low average return, explains the fact that they also have the lowest Sharpe ratio. At the other extreme, the Free funds had the lowest standard deviation, which combined with its high return provided the highest Sharpe ratio for this category.

It is also seen that the standard deviation is higher in the categories of funds aiming to track an index, such as passive funds and ETFs, influenced by the fact that the standard deviation of Ibovespa is the highest verified.

The Sharpe ratio shows that funds with better return per unit of risk are the Free ones, followed by Sustainability/Governance and ETFs Sust/Gov. In this context, the research problem is partially answered because it is clear that funds linked to corporate sustainability indexes have higher return to most other categories, except for the Free funds. We emphasize that this result differs from Jubert (2008), Cavalcanti, Bruni and Costa (2008), Ortas, Moneva and Salvador (2010) and Milani et al. (2012a), which found evidence that several investments that fall into different practices have lower returns and risks to others. In the case of Sustainability/Governance and ETFs Sust/Gov funds, their risk is not as small, because their standard deviation is greater than the Free funds and Ibovespa actives. However, it is lower

than all the others and considering that their returns are relatively high, their performance, measured by the Sharpe Ratio, is highlighted.

All fund categories have positive Sharpe ratio, while the Ibovespa Sharpe ratio was negative, indicating that the fund manager adds value because it gives the shareholder better performance than the market average. It appears again that the investor is aware of the returns, as Equity ETFs Sust/Gov is greater than the net equity of other ETFs. That is, the investor is switching to ETFs that have better performance.

Aiming to find complementary perspective, Table 2 shows the coefficients estimated by CAPM, by linear regression (OLS).

Table 2 - Estimation of CAPM coefficients.

Category	Alfa	p-value	Beta	p-value	R^2
Ibovespa Actives	0,0353	0,0051	0,6030	0,00001	0,9252
Ibovespa Passives	0,0152	0,0076	0,9719	0,00001	0,9937
IBrX Actives	0,0411	0,0245	0,6850	0,00001	0,8831
IBrX Passives	0,0272	0,1269	0,6961	0,00001	0,8940
Free	0,0572	0,0004	0,4793	0,00001	0,8250
ETFs	0,0269	0,0324	0,8639	0,00001	0,9622
Sustainability/Governance	0,0442	0,0250	0,6444	0,00001	0,8520
ETFs Sust/Gov	0,0475	0,0446	0,7006	0,00001	0,8251

Source: Data elaborated by the authors.

According to the methodology proposed by Jensen (1967), the linear coefficient is the portion of the return that the fund manager provides. All fund categories showed significant linear coefficients except the Ibovespa Passive funds, indicating that in most cases the fund manager added value. The greatest linear coefficients were of Free funds, ETFs Sust/Gov and Sustainability/Governance funds, repeating the trends in the analysis of Sharpe ratio that these are the categories with better performance.

It is noticed that the slope of the Ibovespa passive funds was the highest, which may explain the poor performance in this category due to poor performance of the market context. In other words, the fact that the Ibovespa presented poor performance in the period affected more strongly the Ibovespa passive funds because their sensitivity to market was higher. In general, passive funds and ETFs had the highest slope coefficients, which is expected by its nature that aims to replicate the benchmark, which is often the Ibovespa or other strongly influenced by it.

The slope, called Beta in CAPM, is frequently understood as a risk measure. Thus, it is clear that Sustainability/Governance funds would be considered (meeting the analysis of the Sharpe ratio) riskier than the Free and the Ibovespa actives. ETFs Sust/Gov would also be riskier than them, and they are also riskier than funds whose benchmark is the IBrX. Again, results gotten by Jubert (2008), Cavalcanti, Bruni and Costa (2008), Ortas, Moneva and Salvador (2010) and Milani et al. (2012a) are unproven.

It is mportant to highlight that ETFs and ETFs Sust/Gov showed good performance even with the obligation to replicate a benchmark that did not show good result in this period, which gives them considerable merit. In general, the slope coefficients can be considered low, which can be explained by the fact that the market showed low performance in the period and

the funds reacted with strategies that fled the traditional index replication. The good performance of these categories of funds is consistent with the results of Milani et al. (2012b), Rabelo et al. (2007), Souza et al. (2011), Ceretta et al. (2009).

The fact that R^2 is very high for all categories confirms that most of the variance was explained, indicating the good fit of the model.

5 FINAL CONSIDERATIONS

This article aimed to compare the performance of traditional investment funds and Exchange-traded funds (ETFs), which benchmarks are Ibovespa, IBrX and Sustainability Indexes, as well as free funds. Investment fund returns data were obtained, which were granted by the Brazilian Association of Financial and Capital Markets (ANBIMA), and daily frequency and covering the period from June 20th, 2012 to October 31st, 2013. Analyses were performed using the Capital Asset Pricing Model (CAPM) and the Sharpe Ratio (1966).

The results obtained through the descriptive statistics and the Sharpe ratio show that funds with better performance were the Free ones, followed by Sustainability/Governance and ETFs Sust/Gov funds, showing that in fact the funds linked to indexes of best practices show superior performance to the others, except for the Free Funds.

The analysis of the linear coefficient of the CAPM model confirms the results of the Sharpe ratio, as evidence that the same categories of funds showed the best results. The fact that the Free funds have better performance compared to the others may be related to poor performance of the Ibovespa in the period, because the no obligation to the index replication delivered them to perform declining stock purchases. This explanation is supported by its low slope. The same reasons may explain the poor performance of the Ibovespa passive funds because its slope of 0.97 indicates that this category followed the return of the Ibovespa more closely.

Despite the poor performance of the market index during the period, the fact that passive funds and ETFs presented positive Sharpe ratio weighs in its favor, because they could extricate themselves from the negative Sharpe ratio from Ibovespa even with the obligation to follow its variation.

Although the discussion between the types of management (active or passive) is traditional, the free funds, which do not have a management style characterized as active or passive, enjoyed the advantage of not being limited to predefined strategies in the period analyzed. Moreover, as they do have a defined benchmark, they could make better contingency investment opportunities in not necessarily listed actives in a benchmark.

In general, this study demonstrates that investments in companies with best practices generated benefits for funds and ETFs that invest in them, because they could achieve better risk-return ratio than the market average, even in a critical period.

Past articles show mixed results as to compare sustainable and traditional businesses. In some cases, it can perceive a superior trend in investments in companies with differentiated practices, as Milani et al. (2012b), Rabelo et al. (2007), Souza et al. (2011), Ceretta et al. (2009). However, in other studies it is clear that the results of investments in companies with differentiated practices are the same as traditional, as in Machado Machado and Corrar (2009), Rezende, Nunes and Portela (2008), Miura, Marcon and Souza (2011), Rufino et al., (2014). Still, there are studies that show that investments in companies with differentiated practices point lower returns, as Milani et al. (2012a), Cavalcanti, Bruni and Costa (2008), Bauer, Derwal and Otten (2007) and Ortas, Moneva and Salvador (2010). Even among the studies that show that these investments have lower returns on average much evidence that

their risk is lower too, as Jubert (2008), Cavalcanti, Bruni and Costa (2008), Ortas, Moneva and Salvador (2010) and Milani et al. (2012a). This study meets the first ones, reinforcing the idea that companies related to best management practices have better performance.

This study was limited by the fact that there are only a few ETFs linked to sustainability indexes and for being a recent investment vehicle, and that the reporting period was characterized as a crisis one. For future research, it is suggested the improvement of risk estimation by conditional volatility models.

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