



## **Sustainability Indices in Developing Markets: A Study About Borsa İstanbul Sustainability Index** (Gelişmekte Olan Piyasalarda Sürdürülebilirlik Endeksleri : Borsa İstanbul Sürdürülebilirlik Endeksi)<sup>1</sup>

Nevser Mine TÜKENMEZ<sup>a</sup>

Ahmet Galip GENÇYÜREK<sup>b</sup>

<sup>a</sup> Assoc. Prof. Dokuz Eylül University, Faculty of Economics and Administrative Sciences, Department of Business Administration, mine.tukenmez@deu.edu.tr

<sup>b</sup> Res.Asst., Dokuz Eylül University, Faculty of Economics and Administrative Sciences, Department of Business Administration, galip.gencyurek@deu.edu.tr

### **Keywords**

Sustainable Investment, Sustainability Indices, BIST Sustainability Index.

### **Jel Classification**

G11, G34.

### **Abstract**

Sustainability is currently a very popular topic in the world of business. This paper explores the concept of sustainable investment, its evolution, the role of stock exchanges in corporate sustainability, sustainability indices both in developed and developing markets and literature regarding sustainable investing performance. The main purpose of the study is to introduce Borsa İstanbul Sustainability Index and to study its performance. Wilcoxon test is used to test the differences in return of the index companies before and after the launch of the index. The results obtained revealed that most of the companies suffered a decrease in return after being included in the index. Also, paired samples t-test is used to explore the differences in performance between BIST Sustainability Index and other benchmark indices. The results showed no statistically significant difference between BIST Sustainability index and other benchmark indices.

### **Anahtar Kelimeler**

Sürdürülebilir yatırım, Sürdürülebilirlik Endeksleri, Borsa İstanbul Sürdürülebilirlik Endeksi.

### **Jel Sınıflandırması**

G11,G34.

### **Özet**

Sürdürülebilirlik günümüz akademik ve iş dünyası için çok popüler bir konudur. Bu çalışma sürdürülebilir yatırım kavramı , gelişimi , kurumsal sürdürülebilirliğin sağlanmasında menkul kıymet borsalarının rolü, gelişmiş ve gelişmekte olan piyasalarda sürdürülebilirlik endeksleri, sürdürülebilir yatırım performansı ile ilgili literatür konularını ele almaktadır. Çalışmanın temel amacı Borsa İstanbul Sürdürülebilirlik Endeksini tanıtmak ve performansını incelemektir. Wilcoxon testi endekste yer alan şirketlerin endeksin lansmanı sonrasında yaşadıkları fiyat değişikliklerinin yönünü test etmek için kullanılmıştır . Elde edilen sonuçlar şirketlerin çoğunun endekse dahil edildikten sonra fiyatlarında düşüş yaşadığını ortaya koymuştur. Ayrıca BIST Sürdürülebilirlik Endeksi ve diğer BIST endeksleri arasındaki ilişkiyi test etmek için için paired samples t testi kullanılmıştır. Sonuçlar BIST Sürdürülebilirlik endeksi ve diğer endeksler arasında istatistiksel olarak anlamlı farklılık olmadığını ortaya koymuştur.

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## **1. Introduction**

The economist Milton Friedman's famous 1970's utterance that a 'business's social responsibility is to increase its profits' has been a truism for private enterprise since at least the beginning of the Industrial Revolution. In the 1940's, the expectations of companies were as limited as the number and type of stakeholders. Certainly no one talked about responsibility for future generations. Until the 1980s, the term 'sustainability' was used by business leaders with the meaning: 'a company's ability to increase its profits steadily.'

A number of factors have changed these rules. A series of environmental disasters, various breaches of ethical rules, the abuse of human rights, instant access to information via the Internet and 24-hour newscasts, the evolution of corporate sustainability and sustainable development all had a part to play. At the same time, trust in corporations and CEOs have hit an all-time low with the rise of financial scandals in recent years. Indeed, according to the public, "if you are not a part of the solution, you are a part of the problem" (NRTEE, 2007).

Today, the concept of corporate sustainability encompasses all aspects of business environment, including the utilization of social, economic and natural resources by the firm. The term became widely-accepted after it appeared in a 1987 UN Report which defined sustainable development as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' (UN, 1987).

## **2. The Concepts Regarding Sustainability**

There are many different terms used to refer to sustainable practices. In corporations, responsible practices are often referred to under the banner of Corporate Social Responsibility (CSR). Recently, 'sustainability' has been used more for its simplicity and its all encompassing meaning.

Corporate sustainability can be thought not only as the management of the environment, and social and governance issues (ESG factors), but as a business approach that seeks to enhance long-term shareholder value by addressing opportunities and managing the associated risks that derive from the economic,

environmental and social developments facing the modern corporation (Daniel and Winston, 2008).

Sustainable Investment (SI) in turn, is a concept in evolution and can be defined as a process that integrates the ESG factors into investment analysis, stock selection and active ownership practices, into the belief that these factors can improve long-term risk management; therefore, that they may increase the investment's expected returns [Souza Cunha and Samanez, 2013].

In this context, the term ESG refers to non-financial metrics used in the analysis and selection of investments. While the environmental and social factors have an importance for socially responsible investors, the governance factor has historical emphasis due to its importance to all investors.

There are several other concepts similar to SI, and one of the commonly used is socially responsible investment (SRI). The Forum for Sustainable and Responsible Investment (US SIF) – formerly known as the Social Investment Forum describes sustainable and socially responsible investing as “an investment process that integrates the environmental, ethical, social and governance consequences of corporate policies and practices, both positive and negative, within the context of precise financial analysis to generate long-term competitive financial returns and positive societal impact” [Mermod and Idowu, 2014]. The Social Investment Forum states that SRI involves evaluating companies on CSR issues, analyzing corporate social and environmental risks and engaging corporations to improve their CSR policies and practices.

Unlike the traditional type of investments, SRI applies a set of investment screening criteria to choose or reject some specific firms for a ‘socially responsible portfolio’ based on ecological, social, corporate governance or ethical criteria. Businesses involved in industries and activities such as arms, alcohol, tobacco, gambling, animal testing and nuclear power are mostly unwelcomed sectors for SRI investors whereas companies that are engaged in sustainable and environmentally friendly areas such as environmental management, alternative energy, green technology, green construction, sustainable living, equal treatment of minorities and fair trade are mostly welcomed stocks in the portfolio of SRI investors [Leahy, 2008].

Investment approaches like SRI can also be referred to as responsible investing, double or triple bottom line investing, ethical investing or green investing.

## **2.2. The evolution of socially responsible investment**

Ancient ethical investing has origins in Jewish, Christian and Islamic traditions; however, modern SRI is rather based on various personal ethics and ethical conviction of individual investors. At the beginning of the 20<sup>th</sup> century, ethical and ecological investment model was enhanced in the USA and prohibited many sensible US investors from investing in 'sin stocks'. The Pioneer Fund, the first official SRI fund, was established in 1928.

In the 1960s, social concerns like civil rights, the environment and militarism were augmented. The first modern SRI fund, the Pax World Fund was founded in 1971 in the US. The fund was created for investors opposed to Vietnam war and avoided using instruments like weapon contracts [Renneboog et al., 2008].

In the 1980s, the anti-apartheid movement against the regime in South Africa had prevented socially responsible investors from buying the shares of companies operated in South Africa. In 1984, the Social Investment Forum (SIF) conducted the first industry-wide survey and calculated the amount of assets involved in social investment as \$ 40 billion.

The Chernobyl disaster in the former Soviet Union, Exxon Valdez oil spill disaster in Alaska in 1986 and other environmental disasters made investors more aware of the negative environmental consequences of industrial development. Since the 1990s, SRI industry has experienced growth all over the world. An important factor behind this growth has been ethical consumerism, where consumers have paid a premium for products that are consistent with their personal values.

The new millennium brought into the spotlight a new dimension of SRI. Corporate scandals like Enron and Worldcom, the Sarbanes-Oxley Act of 2002 and sub-prime mortgage crisis of 2008 heightened the public sensitivity regarding corporate governance aspect of SRI.

Table 1 shows the resources allocated to SI worldwide. Although the data obtained represents different periods, the volume of SI is notable and there is a great potential for growth in emerging markets.

**Table 1: Sustainable Investment Worldwide**

Country	ESG Incorporated	Source
USA (2012)	\$ 3,314 billion	US SIF
Europe(2011)	6,763 billion Euro	European SRI Study 2012
Europe (2014)	9,884 billion Euro	European SRI Study 2014
Canada (2008)	\$ 580 billion	Canadian Soc.Resp. Inv.Review 2010
Canada (2010)	\$ 530.9 billion	
Japan (2009)	579 billion JPY	2009 Review of Socially Responsible Review in Japan
South Africa (end of 2010)	\$ 111.2 billion	IFC 2011a The State of Sust. In Key Emerging Markets
Brazil (end of 2008)	\$ 86 billion	IFC 2011a The State of Sust. In Key Emerging Markets
Middle East and North Africa (2010)	\$17.1 billion	IFC 2011a The State of Sust. In Key Emerging Markets
China (1Q.2009)	\$4.12 billion	IFC 2011a The State of Sust. In Key Emerging Markets
India (1Q.2009)	\$1.13 billion	IFC 2011a The State of Sust. In Key Emerging Markets
Turkey (end of 2010)	\$1.5 billion	IFC 2011a The State of Sust. In Key Emerging Markets

### 2.3 Sustainable investment strategies

According to US SIF (2010), there are three main SI strategies: shareholder advocacy, community investing and portfolio screening

The shareholder advocacy strategy refers to the use of shareholders' right to make companies act more socially responsible. It means directly confronting management on social or environmental issues, as well as earnings, by applying pressure or support [Kawamura, 2002].

The second strategy is community investing. With the enhanced awareness in CSR in recent years, SRI investors thus have aimed at promoting socially and environmentally sound corporate behavior. Community investing directs capital to people and communities underserved by traditional providers of financial services [Statman, 2007].

Third type of strategy is called portfolio screening. Screening means the use of criteria to select companies to be a part of the investment universe. There are two broad categories of screens. Negative screening excludes the stocks of companies which the main source of income is related to the sale of goods and services that generate negative externalities to society (sin stocks) like alcohol, tobacco, weapons and gambling.

The other portfolio screening sub-strategy is positive screening which is also called best in class approach. It refers to the selection of companies on the basis of positive criteria such as good governance, environmental management, and climate protection. In this type, investors prefer to invest their money in companies that are environmentally aware, seek to reduce pollution, have progressive hiring policies and possess a good human rights record and exercise good labor relations [Benson et al., 2006].

Although portfolio screening strategy falls into two broad categories as positive or negative screening, a third category has been emerging from positive screening and it's called ESG integration. ESG integration explicitly includes ESG risks and opportunities in traditional financial analysis. This category takes its roots from the

finance theory rule that it is impossible to beat the market and this rule implies to SRI funds, too. Therefore, it is entirely possible to align financial investments with moral convictions. SRI funds should not perform significantly better or worse than other funds. [Capelle-Blanchard and Monjon, 2014].

### **2.3. The strategic value of sustainability**

A strong sustainability reputation should allow a firm to achieve above average profitability and increase shareholder's wealth maximization. Corporate sustainability efforts also serve to signal both the capital markets and consumer markets of the overall quality of a firm's product and services. As a result of this signaling hypothesis, the capital market participants may be expected to pay a premium for the shares of high-sustainability firms.

A firm with high sustainability metrics may also possess certain cost advantages. For example, high reputation firms have the benefit of attracting qualified manpower and also lower contracting and monitoring costs by suppliers and investors when transacting. An additional benefit which may accrue is the enhancement of recovery in the events of corporate crisis. British Petroleum will be a great case study on how well BP recovers following the oil spill in the gulf [Adams et al., 2010].

Marketing research points out that a good reputation not only supports but actually enhances the firm's sales force and leads to the development of new products and services.

Improving firm efficiency by lower operating costs and boosting the firm's competitive position is also one of the reasons for corporations to engage in sustainability issues. Above all, the most important direct benefit of corporate sustainability is the enhancement of brand value and increased corporate reputation.

### **3. The Role of Stock Exchanges in Corporate Sustainability**

The questions about how financial market activities can influence prospects for sustainable development receive attention among academics and practitioners. One of the later additions to the area of interest is about the role of stock exchanges within the ESG and sustainability landscape. This has resulted in projects and

reports, exploring different aspects of stock exchanges' potential to contribute towards sustainability. The most notable of these projects is the Sustainable Stock Exchanges Initiative launched by UN Global Compact, United Nations Conference on Trade and Development (UNCTAD), United Nations Environment Program (UNEP) and Principles for Responsible Investment (PRI) in 2009 [Myklebust, 2013].

The Equator Principles (EPs) were launched in 2003 following the initiatives of World Bank Group's International Finance Corporation (IFC) and nine international banks. The banks that signed EPs can ensure their investors the projects which have social and environmental responsibilities. Currently, there are 83 financial institutions in 36 countries that adopted the EPs and this covers over 70 % of international project finance debt in emerging markets. [Equator Principles, 2014].

Financial markets around the world have increasingly incorporated the Principles of Responsible Investments (PRI) which were launched at the New York Stock Exchange in 2006. In May 2014, there were 1,258 signatories to the PRI.

In 2012, five stock exchanges announced a commitment to promote long-term sustainable investment in their markets (NASDAQ OMX, BM&FBOVESPA, Johannesburg Stock Exchange (JSE), the Istanbul Stock Exchange (ISE) and the Egyptian Stock Exchange (EGX)).

Among the key international policy developments that underpin the increasing number of stock exchange initiatives on sustainability, the chief is the outcome of Rio +20 United Nations Conference on Sustainable Development and specifically paragraph 47 that called governments 'to develop models for best practice and facilitate action for sustainability reporting'. The European Commission has also adopted a proposal for a directive enhancing the transparency of certain large companies on social and environmental matters on April 2013, by amending existing Accounting Directives [Ararat and Süel, 2014].

Sustainability initiatives adopted by stock exchanges differ both with regards to approach and scope. Building on the findings of Sustainable Stock Exchanges Initiative Responsible Research 2010 and 2012 Reports, most significant methods

used by stock exchanges in the sustainability field can be divided into three main categories :

- Indices which capture ESG relevant issues in different ways and other information products.
- Measures or requirements directed towards the listed companies, like reporting and listing requirements.
- Provide specialized markets, either for certain kinds of investments or with companies complying with higher standards.

Main objective of this study is to address the Borsa İstanbul Sustainability Index, so the following section will be about sustainability indices.

### **3.1. Sustainability indices.**

Indices are constructed portfolios or benchmarks of financial instruments with designed features. Index managers can be stock exchanges, affiliates of stock exchanges or individual companies [Myklebust, 2013].

Sustainability indices fulfill several important functions:

- Establish performance benchmarks: Indices generate a historical data stream that provides objective information on how SRI affects performance and risk.
- Serve as a basis for passive investment vehicles: Indices also provide asset managers with a valuable basis for developing investment products like indexed ESG mutual funds and ESG exchange-traded funds (ETFs). Such products track the underlying index, providing investors with low-cost alternatives to actively managed funds.
- Provide investment universes for active managers: Active equity managers can select companies from the investment universe set by an index and benefit from the research embedded in ESG indices' selection processes.
- Set standards for responsible corporate behavior: Since indices are rule-based, they provide a consistent yardstick for the criteria that qualify companies to be selected or excluded [USSIF, 2013].

Sustainability indices typically use three main ESG factors to assess the performances of companies. However, some indices use only one or two factors. Moreover, some relevant issues derived from a specific ESG factor may be regarded as a separate factor (For example, climate change factor has been separated from the environment factor) [Souza Cunha and Samanez, 2013].

The ESG factors are broken down into assessment metrics that define the ESG issues upon which the index will be based. For the environmental factor context, potential investment metrics would include: the management of solid waste, the management of water resources and energy efficiency. Assessment metrics are then broken down into indicators in order to quantify the ESG performance. [Souza Cunha and Samanez, 2013].

Within the sustainability sector there are several different index categories in use. Responsible Research 2010 describes four categories:

- Broad-based: constituents from all sectors that meet certain ESG criteria
- Sector-based: constituents from one sector that meet certain ESG criteria (e.g. sustainable real estate or finance)
- Sustainable sector-based: constituents from a sustainable sector, do not necessarily meet minimum ESG criteria (e.g. “green”, clean tech, renewable)
- Sustainable Issue-based: non-sector specific firms that focus on sustainability theme (e.g. water scarcity, diversity, good governance) [Myklebust, 2013].

SRI indices are designed to be benchmarked to non-SRI indices, such as S&P 500 or MSCI World Index. Developed markets and global sustainability indices have existed for some time. For example, the oldest SRI index, The Domini 400 Social Index (name has changed to KLD 400) was launched in 1990. KLD's Domini 400 index (shortly DS400) is chosen to represent the negative screening strategy for the US market. DS 400 index is independently selected by the research firm KLD Research & Analytics and aims to include primarily large cap stocks in the S&P 500. Calvert's Responsibility Index series is a broad-based benchmark to measure the performance of US-based sustainable companies. Calvert starts by taking 1,000

largest companies in the Dow Jones Total Market Index and after the analysis of Calvert's Social Research Department, the stocks that meet Calvert's criteria are chosen. As of today, Calvert offers three responsible indexes. Calvert US Large cap Core Responsible Index (formerly named Calvert Social Index) has 718 constituents.

The Dow Jones Sustainability World Index was launched in 1999 as the first global sustainability benchmark. The DJSI Index Family is offered cooperatively by RobecoSAM Indices and S&P Dow Jones Indices. The index family tracks the stock performance of the world's leading companies. DJSI family comprises global, regional and country benchmarks. Currently, 319 companies from all over the world are listed in DJSI World.

The FTSE4 Good Global Index is a stock price index developed and established by Financial Times Stock Exchange and the London Stock Exchange in 2001. It has been designed to measure the performance of companies utilizing globally recognized ESG standards.

### **3.2. Sustainability indices in emerging markets**

Although sustainability indices are common in developed countries, the number of emerging market sustainability indices has grown significantly in recent years. In the course of this study, authors identified 19 indices that have been launched since 2004. Fourteen of these have been launched since 2009. The latest ones are Borsa İstanbul Sustainability Index (November 2014) and FTSEGood Bursa Malaysia Sustainability Index (December 2014)

As of late 2014, there were only ten sustainability indices in emerging markets associated with stock exchanges. These are listed in Table 2.

While both developed and developing market sustainability indices face a number of critical market challenges, developed market indices are ahead of developing market indices in several key areas. These include building a track record, the availability of investable products and brand recognition [IFC, 2011b].

**Table 2: Sustainability Indices in Developing Markets**

<b>Stock Exchange</b>	<b>Index</b>	<b>Launch</b>
South Africa Stock Exchange	Socially Responsible Investment Index (SRI)	2004
Sao Paulo Stock Exchange	Corporate Sustainability Index (ISE)	2005
National S.E. of India	S&P ESG India Index	2008
Indonesia S.E.	SRI-KEHATI Index	2009
China(Shanghai) S.E.	SSE Social Responsibility Index	2009
The Egyptian Exchange	S&P/EGX ESG Index	2010
Korean Stock Exchange	KRX SRI Index	2009
Bolsa Mexicana de Volares	BMV Sustainability Index	2011
Borsa İstanbul	BIST Sustainability Index	2014
Bursa Malaysia Stock Ex.	FTSE4Good Bursa Malaysia Index	2014

- Building a track record: Developed market indices have over twenty years of history, whereas the first emerging market sustainability index was launched in 2004.
- Availability of investable products: Passive investors do not invest directly in indices, they rather invest in products designed to track an index such as a mutual fund or an ETF. The longer tenure of the developed market indices means there are more products based on these indices than those of developing markets.
- Brand recognition: Many of the developed markets sustainability indices have been launched by companies (such as Dow Jones, MSCI, FTSE) that have a long standing reach into the global investment community. On the other hand, many

of the developing market indices have been launched by stock exchanges and have less global brand awareness.

In a 2011 study by IFC that explores the rapid expansion of sustainability indices in emerging markets, it is emphasized that emerging market sustainability indices, beyond serving as a cost-effective way to identify companies that have higher sustainability performances could also play an important role in supporting and driving broader corporate sustainability efforts. However, as mentioned in the study, index providers and other stakeholders need to address a number of challenges to enable better alignment between the needs of sustainability investors and the potential of indices to meet these needs. These challenges can be summarized as follows:

- **Communication:** Match investor's sustainability and investment intents to the appropriate investment vehicle.
- **Index Sustainability Framework and Metrics:** Ensure that sustainability frameworks and metrics assess a company's sustainability performance in a meaningful way.
- **Data Analysis:** Ensure the quality, consistency, timeliness, proper normalization of ESG data.
- **Data Sourcing:** Obtain meaningful and consistent sustainability data from companies and other sources to conduct accurate ESG analysis (IFC, 2011b).

However, it is important to note that the sustainability indices are instrumental in improving ESG performance of companies listed on exchanges, since corporations become increasingly aware of the risks associated with ESG issues and reporting practices improve. As a result more information becomes available and best practices indicators are identified. Consequently, regulatory frameworks and listing rules improve in the support of better ESG performance.

### **3.3. BIST Sustainability Index**

As mentioned earlier, stock exchanges around the world assume more dynamic roles in CSR and sustainability studies, and expand more projects regarding these areas. These studies are varied out through a task force set up within the World

Federation of Exchanges (WFE). As a member of WFE, Borsa İstanbul (BIST) has become a member of UN Global Compact and UN Principles of Sustainable Investment (UNPRI).

After becoming one of the five signatories to the UN Sustainable Stock Exchanges Initiative, BIST launched the Sustainability Index Project in August 2010. Just before the launch of the project, 'Sustainable Investing in Turkey' study sponsored by IFC was published. Despite the early start, the Project was stalled due to pending issues and organizational changes that took place in BIST and Capital Market Board of Turkey (CMBT) [Ararat and Süel, 2014].

Sabancı University Corporate Governance Forum (SU CGFT) received funding from the British Embassy Prosperity Fund Program in June 2013 to help revive the project. Following that, BIST took a series of decisions that addressed most of the outstanding issues to move forward with the launch of the BIST Sustainability Index:

- BIST contracted Ethical Investment Research Services Limited (EIRIS) as the research partner.
- BIST opted for the use of EIRIS's core methodology to rate BIST companies.
- The first assessment would cover BIST 30 index constituents only, followed by the second assessment to cover BIST 50. The number of assessed companies for inclusion would then be increased gradually.
- Only publicly disclosed data will be used to assess companies.
- The detailed Research Methodology document which covers the indicators under each of the different ESG factors, that the assessments are based upon is revised by EIRIS to make it more understandable for the companies.

After this stage, BIST SUSTAINABILITY INDEX GROUND RULES are specified and the constituents of the index are determined through the assessment of BIST 30 companies according to the criteria concerning environmental, bio-diversity, climate change, human rights, Board practice, countering bribery, health and safety issues.

The companies performing over the threshold for each criteria group are included in the Index. Finally, BIST Sustainability Index was launched on the 4<sup>th</sup> of November, 2014 with the code XUSRD.

Currently only fifteen companies are included in the Index. As of 2016, the list of companies to be assessed is extended to BIST 50. Index period for XUSRD is set as November-October.

According to the survey conducted by investment advisory and research firm Corporate Knights Capital, after the launch of the Sustainability Index, Borsa Istanbul has promoted to rank eleven from rank thirty-two among the forty-six sustainable stock exchanges in terms of sustainability reporting performance.

### **3.4. Structure of Turkey's capital market**

Turkey has a middle-sized equities market. Capital Markets Board, established in 1982, is the main regulatory and supervising authority. İstanbul Stock exchange, established in 1987, became a joint stock company named Borsa İstanbul with the new Capital Markets Law in 2012. Some of the special features of Turkey's capital market are presented below:

- Average free-float of companies traded at BIST-ALL index was % 39.31 in June 2014, this rate rose to % 40,32 as of June 2015. Effective free float rates for the same periods are % 29,88 and % 32,07 respectively.
- As of the end of 2014, 217 companies are listed in BIST, excluding investment trusts and unit trusts.
- In 2014, Borsa İstanbul recorded a 26 % increase in TL terms, but only 16 % in USD terms. The BIST 100 ranked the 13<sup>th</sup> in terms of market returns.
- In the first half of 2015 due to the sharp depreciation of TL against \$, market capitalization of companies was adversely affected in all indexes in USD terms. As of June 2015, BIST ALL index increased by 4 % 2015, BIST ALL index increased by 4 % annually while it decreased by 18 % in USD terms.

- Borsa İstanbul continued to be one of the most liquid stock exchanges in the world with 208 % share turnover velocity as of June 2015, ranking the fourth among the members of WFE.
- USD 37 million net foreign inflow took place in the first half of 2015.
- The domestic individuals drive the market economy in Turkey with a % 78 share of the trade volume in Borsa İstanbul.
- As of June 2015, the total number of investors in Borsa İstanbul was 1,053,000; 9,740 of which are foreign investors. Their share in trade volume is 22% but they hold 64% of the total market cap.
- The domestic investors are mostly individuals. Among foreign investors, corporate investors have a much higher share with 38 % as compared to the domestic investors.

### **3.5. Sustainability reporting in Turkey**

Mandatory Disclosure: Turkish companies listed on BIST have been required to prepare their financial statements in accordance with IFRS (International Financial Reporting Standards) since 2005. Also starting in 2005, firm annual reports were required to include 'Corporate Governance Compliance Report (CG Report)' indicating which guidelines they had met and if not, explaining why not. CG Reports also include recommended disclosures in social and environmental dimensions. Beginning in 2007, BIST created a Corporate Governance Index comprising of firms which complied with at least 60 % of the Guidelines. BIST CG index currently includes fifty firms.

Voluntary Disclosure: The two of the most notable international standards/platforms that have been instrumental in advancing sustainability reporting in Turkey are Global Reporting Initiative (GRI) and CDP.

GRI is international sustainability reporting standards used by companies to publicly announce their ESG performance. In 2013, twenty-one companies published sustainability reports in accordance with GRI guidelines or as GRI-referenced whereas that number grew to forty companies in 2014.

CDP is an initiative which has been collecting climate-related corporate data globally since 2003 and since 2010 in Turkey. From the companies included in BIST100 index, thirty-nine companies in 2013 and forty-one in 2014 responded to CDP's information request.

#### **4. The Literature Regarding SRI Performance**

An important facet of SRI is whether there is a beneficial effect on shareholder value. Clearly the OECD (1988) believes this is to be so as they state that 'acting as a responsible citizen is consistent with this economic objective (of generating long-term economic profit to enhance shareholder's value).

While there is a generalized perception that a corporate sustainability strategy can result in a better financial performance for a company, it has not been proved conclusively on a statistical basis. There is no consensus that empirical studies show a positive relationship; some show no relationship and even some show negative relationship. Furthermore, causality of the relationship is still to be proven: are profitable companies responsible or does responsibility lead to profitability? The answer seems to be 'it depends' on a case by case basis. Therefore, it is seen that empirical research on the financial performance of sustainability investments has not made roots for the development of a theory for now.

Numerous studies have been conducted since 1970s to measure whether SRI is capable of providing its investors' returns competitive with traditional investments. These studies fall into two basic groups: Studies on SRI investment funds and studies on SRI indices.

The major question of both of these groups of studies is whether these funds (or indices) perform better or worse than traditional investment funds (or indices). Two contrasting arguments have competed to explain the impact of social screens on the financial performance of mutual funds (or indices) .

On one hand, arguments based on portfolio theory suggest that construction of portfolios from a restricted universe of stocks will limit the benefits of diversification. Also, the additional cost of monitoring social performance will lead to lower returns. Accordingly, these funds should exhibit underperformance relative to

conventional portfolios. On the other hand, proponents of socially responsible investments argue that ESG screens represent filters that enable the selection of firms with better management. Consequently, portfolios composed of socially responsible stocks will benefit from improved performance in the long run [Cortez et al., 2012].

Empirical evidence on socially responsible funds has typically shown that there are no statistical differences between the performance of these funds and the conventional ones. However, there are theoretical and methodological shortcomings associated with these studies regarding the use of single-index measures of performance, small sample size and short periods of analysis.

Recently, some studies provided empirical evidence on the basis of more robust performance measures and for longer time periods. Bauer et al. (2005), (2006), (2007) and Cortez et al (2009) used multi-factor models that control investment style and/or conditional models of performance evaluation. In general, these studies have common findings that socially screened funds do not underperform their unscreened peers.

The second group of studies analyzes the performance of SRI indices. According to Fowler and Hope (2007) there are very few academic studies that analyze the performance of sustainability indices mainly due to their short period of existence. The analysis using SRI indices instead of investment funds has two important advantages:

- (1) It avoids methodological problems
- (2) It tests directly the performance of SRI assets and these tests are not distorted by transaction costs or the ability of the fund management.

Therefore, Sauer (1997) examined the performance of Domini Social Index (DSI) and compared its monthly average raw returns, Jensen's Alpha and Sharpe ratio with two benchmarks (S&P 500 and CRSP Value Weighted Market Index) for 1986-2004 period. The author stated that DSI presented neither positive nor negative differentials.

DiBartolemeo and Kurtz (1999) compared the performance of S&P 500 index and Domini Social Index (DSI) for the period between 1990 and 1999. They used fundamental risk model and arbitrage pricing theory. According to their results, DSI outperformed S&P 500 during that period.

Statman (2000) compared the performance of DSI with S&P 500 index for 1990-1999 time period. The author concluded that when comparing the raw returns, DSI outperformed S&P 500 slightly, but when risk-adjusted measure of performance was used (Jensen's Alpha), the reverse was found as the risk of DSI, which was higher than that of S&P 500.

Garz et al. (2002) compared DJSI for Europe with DJ STOXX 600 index for the January 1999-October 2002 period. They found a slight significant but small out-performance of DJSI Europe index.

In another study, Statman (2005) compared the content with the returns of S&P 500 index with four SRI indices for the period between May 1990 and April 2004. He stated, in general, SRI indices performed better than S&P 500 during the boom of the late 1990s but lagged during the bust of the early 2000s.

Schröder (2004) compared the performances of ten SRI indices with conventional benchmark indices and observed that most of the SRI indices exhibited a positive (but insignificant) Jensen's alpha. Overall, hypothesize that the performance of SRI assets is not worse than those of conventional assets which could only be rejected for at most two of the ten SRI indices.

Collison et al. (2008) compared the indices of FTSE4 Good series with relevant benchmarks for 1996-2005 period and observed that the SRI indices outperformed. However, authors stated that this outperformance was due to the differences in risk between SRI indices and their benchmarks. In addition, much of the outperformance arose during the period before the indices could be used by practitioners.

Some studies analyzed the relative performance of companies included in sustainability indices with comparable companies included in general indices. Lo'pez et al. (2007) performed this analysis for European firms in the DJSI and DJ Global Index. They found that companies in DJSI underperformed those in the DJGI

presumably because of the higher costs of responsible practices which were not rewarded by the market.

Adams et al. (2010) tested the stock price difference between the firms in S&P 500 and DJSI for the 2008-2009 period. The hypothesis they tested is whether a company that actively engages in sustainability efforts increases shareholder value in the short-term. The study found no statistically significant difference in the average percentage change in the stock prices between the two groups. The authors concluded that sustainability efforts of the publicly-traded firms do not result in higher stock prices or enhanced returns in the short run.

One possible mechanism through which sustainable indices can lead to possible practices is the inclusion or exclusion of a company from the index to change the financial returns of a company's stock. In a 2009 study using the DJSI for European stocks, the authors used a standard event study approach and tested the market reaction of stock prices to the inclusion (deletion) of a company stock in (from) the sustainability index (Consolandi et al, 2009). The hypothesis underlying the study is that the inclusion (exclusion) in (from) the index affects positively (negatively) the market value of the stock. The results of the event study analysis showed positive (negative) excess returns for companies included in (deleted from) the DJSI over the period, with the negative impact of exclusion stronger than the positive of inclusion.

A more recent study used the North American stocks in the DJSI and analyzed both the short-term and the intermediary impact on the firms' returns of being included or excluded from the DJSI for the 2003-2007 period (Robinson et al., 2011). The results provide evidence that being added to the DJSI results in a sustained increase in a firm's stock price and a temporary decrease for the first ten days after the removal. However, this latter effect is eliminated within the next ten trading days. This paper also concludes that the increase in value is due to the reputational effects of sustainability practices.

In the case of developing markets, there have been very few studies on the performance of SRI indices. Boga et al. (2008) analyzed the impact of company returns of the inclusion in ISE in the Brazilian market. The authors did not find any evidence of abnormal returns. However, they hypothesized that this could be

because the market for SRI in Brazil is not developed and its indifference to such information or it could be the case that the inclusion did not give the market any additional information that it did not have [Vives and Wadhwa, 2012].

Machado et al. (2009) and Cavalcante et al. (2009) analyzed Brazilian ISE index and observed that the index had a statistically similar financial performance similar to its benchmark.

Souza Cunha and Samanez (2013) analyzed the Corporate Sustainability Index (ISE) of the Brazilian Stock Exchange for the 2005-2010 period by using Sharpe, Treynor and Sortino analysis and concluded that sustainability investments did not achieve satisfactory performance for that period.

To summarize the arguments made up to this point, it seems that the inclusion of a company in a sustainability index does lead to better results, but SRI indices do not provide better risk-adjusted return as a whole when compared with conventional benchmarks.

## **5. Analysis and Results**

The first aim of this study is to introduce Borsa İstanbul Sustainability Index, one of the very few sustainability indices launched by developing market stock exchanges. As mentioned earlier, XUSRD is launched on November 4<sup>th</sup>, 2014 and included fifteen companies which had been chosen from BIST-30 index. Therefore, the main limitation of the study is the shortage of data. Since the index has been launched very recently, it is not possible to carry out an empirical research in accordance with the prior literature.

In other words, it is not possible to calculate the financial performance of the sustainability index and compare it with a conventional benchmark index (not even in the short time). Instead, the authors have conducted both non-parametric Wilcoxon test and parametric paired sample t-test to test whether there is a significant difference in the stock prices of companies included in XUSRD in the two selected periods. The Wilcoxon test is the non-parametric test equivalent to the dependent t-test and is used when comparing two related samples, matched samples, or repeated measurements on a single sample to assess whether their

population mean ranks differ. The test is used in researches in many fields as a preliminary test and especially in small samples. (Some examples of the studies using Wilcoxon test and paired samples t-test in the field of corporate governance are Kang and Shivdasani (1999), Haniffa and Cooke (2005), Liu and Lu (2007), Chhaochharai and Grinstein (2007), Goss and Roberts (2011), Li and Zhang (2011) and Jo and Harjoto (2011).)

The average returns of fifteen companies included in the index are calculated for two periods: The first period covers the one hundred eighty trading days before the launch and the second period covers the other one hundred eighty days after the launch.

The Wilcoxon test investigates if there is a statistically significant difference in the returns of the fifteen index companies between the two periods. The hypotheses are:

$H_0$  = There is no statistically significant difference between the returns of XUSRD companies for the periods before and after the launch.

$H_1$  = There is a statistically significant difference between the returns of XUSRD companies for the periods before and after the launch.

According to the results on Table 3, the null hypothesis is rejected ( $0,017 < 0,05$ ). The table shows that the average return of eleven companies decreased after the launch whereas only four companies experienced an increase in return.

**Table 3: Results of the Wilcoxon Test**

	N	MeanRank	Sum of Ranks
AFTER -			
BEFORE			
Negative Ranks	11(a)	9,27	102,00
Positive Ranks	4(b)	4,50	18,00
Ties	0(c)		
Total	15		
		AFTER - BEFORE	
Z	-2,385(a)		
Asymp. Sig. (2-tailed)	,017		

On the second part of the study, statistically significant difference between XUSRD and other indexes of Borsa İstanbul (namely, BIST 100 and BIST 100-30) was investigated by using paired samples t-test.

BIST 100 index (XU100) consists of 100 stocks selected among the stocks of companies trading on the BIST Stars and BIST Main markets and the stocks of real estate investment trusts and venture capital investment trusts trading on the Collective and Structured Products Market. Although BIST 100 index also includes the companies of the BIST Sustainability Index, it was chosen for this part of the study as it is used as the main index for Borsa İstanbul Equity Market and consists of the companies with the highest market value and free-float ratio.

BIST 100-30 index (XYUZO) consists of 70 stocks included in BIST 100 Index but not in BIST 30 Index. Therefore, this index excludes the companies included in XUSRD as well.

The hypotheses are presented below and the results are presented on Tables 4 and 5 .

$H_1$ = There is a statistically significant difference between the returns of XUSRD and XU100

$H_1$ = There is a statistically significant difference between the returns of XUSRD and XYUZO.

**Table 4: XUSRD and XU100 Paired Samples t-test**

XU100 - XUSRD	T	Sig. (2-tailed)
	-1,112	,267

**Table 5 : XUSRD and XYUZO Paired Samples t -test**

XYUZO - XUSRD	t	Sig. (2-tailed)
	-,473	,637

It can be seen from the tables that in all of the cases null hypothesis is accepted and there is no statistically significant difference between the returns of XUSRD and XU100 and XYUZO respectively.

The correlation analysis results on Table 6 also support these findings, indicating high degrees of positive correlation between XUSRD and two other indices: BIST 100-30 (XYUZO) and BIST ALL-100 (XTUMY). As mentioned before, BIST 100-30 index consists of 70 stocks included in BIST 100 Index but not in BIST 30 Index. BIST ALL-100 index consists of the stocks of companies which are included in BIST All Index but not in BIST 100 Index; therefore, sustainability index companies are not included in these two indices. The high and positive degrees of correlation between the indices for the 180 days after the launch of the sustainability index suggest that there are common factors affecting the stock prices of the constituents of all of these indices. (During the period of the study (mid 2014 and mid 2015), the depreciation of TL against USD, Greece debt crisis, concerns about global growth and uncertainty generated by political elections in Turkey adversely affected the market capitalization of many companies listed in Borsa İstanbul. All indices declined in the first half of 2015 in USD terms.)

**Table 6: The Correlation Analysis of XUSRD, XYUZO and XTUMY**

	XTUMY	XUSRD	XYUZO
XTUMY	1.000000	0.750098	0.838802
XUSRD	0.750098	1.000000	0.784079
XYUZO	0.838802	0.784079	1.000000

The results of this analysis revealed that inclusion of companies to the sustainability index has a significant but negative effect on their returns but these results should be viewed by taking the limitations of the analysis into consideration. It can be concluded that the investors who create portfolios based on company's sustainability performance and the ones who create conventional index based on portfolios will achieve similar returns. In other words, investors in Borsa İstanbul do not seem to value sustainability performances of companies. Although prior literature has not reached a consensus on whether corporate sustainability results

in a better financial performance, the results of this study seem to be in accordance with the results of prior research, especially with the studies about developing market sustainability indices: Machado et al.(2009), Cavalcante et al.(2009), Souza Cunha and Samanez (2013).

As mentioned earlier, BIST is one of the most liquid stock exchanges in the world with 208 % share turnover velocity as of June 2015. Therefore, it can be argued that buying and selling of investors in short intervals prevent them from concentrating on issues like SRI and CSR and make them indifferent to information regarding such issues.

## **6. Conclusion**

Socially responsible investing has its roots back into history, but the concept has evolved considerably and has become one of the major themes of the new millennium. Turkey, with its claim to become a regional financial center, has no other alternative other than catching the wave and promoting SRI practices. BIST Sustainability Index is an important step in achieving this objective, but this attempt needs to be supported not only by the government but also by the private sector. As an emerging economy which depends on long-term foreign capital, SRI must be seen and supported as a new investment approach in Turkey.

Since sustainability index was launched only a year ago, the data in hand is very limited. Taking that into consideration, authors tried to evaluate the performance of the index by comparing its performance with other benchmarks. The results showed no statistically significant difference between BIST SUSTAINABILITY index and other benchmark indices. The results may seem rational as the time period is very short and most investors (especially domestic ones) have not given their attention to sustainability investing yet. In the second part of the analysis, authors compared the returns of companies in the index for two periods: a period after the launch and another before the launch. It is observed that being included in a sustainability index did not create an increase in the returns of companies; on the contrary, eleven of the fifteen companies suffered a decrease. These results are in harmony with the first part of the analysis: The investors in the Turkish capital market do not seem to value sustainability for now as the index is very new.

Although literature related to financial performance of sustainability investments have not reached a consensus about whether these investments lead to better financial performance or not, authors of this study believe that sustainability investments should be considered and promoted for the welfare of the public interest in the first place. Looking from this perspective, few recommendation can be made to promote sustainability practices of companies and enhance the impact of sustainability indices:

- Actions of managers and employees as a result of the desire to become a member of the index are one of the factors that determine the impact of the index on the company practices. In this sense, index methodology can have a determinant impact. A sustainability entrance questionnaire can be used by the company as a guide to assess materiality and to take action.
- The financial products and service markets need to get a better appreciation for index companies.
- In order to draw more attraction from the financial markets, the indices have to become a benchmark for SRI, both to select companies and to invest and measure performance. To do this, a large number of companies must be included in the index.
- This is more important in emerging markets where there is significant concentration of value in a small number of stocks.
- Financial analysts and institutional investors need to be educated on sustainability issues. This is particularly more important in the early stages of the sustainability index, where most market actors concentrate on financial and governance factors and less on environmental and social risks.
- Emerging market stock exchanges which have launched sustainability indices do not require ESG criteria for listed companies. Responsible Research 2010 suggests stock exchanges may issue guidelines for voluntary adoption of ESG practices and reporting (like Borsa İstanbul Sustainability Guide). The stock exchanges must move to mainstream ESG practices, not just have an index with a few companies.

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