

HOW DO SOCIALLY RESPONSIBLE INVESTMENT AND MACROECONOMIC INDICATORS INTERACT WITH EACH OTHER? THE CASE OF SELECTED DEVELOPING COUNTRIES¹

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ABSTRACT

Purpose- Sustainability is a multidimensional concept that expresses not only sensitivity to environmental policies, biodiversity and climate change, but also corporate governance principles and human rights. Accordingly, socially responsible investment is a kind of investment considering not only financial criteria but also environmental, social and corporate governance factors as well. In today's world, both the increase in social chaos, disasters and epidemics all over the world reveal the importance of addressing the issue of sustainability at the institutional and even governmental level and taking urgent action.

In this context, sustainability indices have been created in many international stock markets since the end of the 1990s, which are created according to various criteria. These indices follow the companies that comply with the concept of sustainability. Today, many developing country stock markets also have sustainability indices.

In this study, the interaction between the change in the sustainability index and macroeconomic indicators in developing countries was examined in order to be able to set forth the significance of the impact level of sustainability on the economy in the developing countries.

Methodology- Within the scope of the subject, the importance of adapting to sustainability in the developing countries and the activities carried out are also discussed. Within the analysis, the annual percentage change in the sustainability index in seven selected developing countries and macroeconomic indicators such as change in consumer price index and change in dollar-based exchange rates were examined for the period of 2015-2022 by the panel data methodology.

Findings- According to the findings, the impacts of changes in exchange rates and consumer price index on the sustainability indices are statistically significant. While exchange rates have negative effect, consumer price indices have positive effect on the sustainability indices.

Conclusion- Findings are expected to reveal the supportability and importance of sustainability in the developing countries and shed light for future research that this issue needs and worth to be investigated more deeply.

Keywords: Sustainability, socially responsible investment, macroeconomic indicators, developing countries, panel data.

JEL Codes: C23, G15, Q50

1. INTRODUCTION

Socially responsible investments have become increasingly popular especially in the last few decades. Socially Responsible Investment (SRI) is known in the literature as green, sustainable, ethical, responsible or impact investing as well. SRI prioritizes social, ethical or environmental conditions as well while considering the top aim of conventional investing as financial profitability maximization (Domini and Kinder 1984; Lowry 1993). There are many definitions and descriptions of SRI but no universal definition. Despite the definitions regarding SRI may vary, they reflect common traits (Ballesterro, Pérez-Gladish, and García Bernabeu, 2015). Definition of the Forum for Sustainable and Responsible Investment (SIF, <http://www.ussif.org>) is that the SRI is an investment process which takes into account environmental, social and governance (ESG) components into investment decision making process in order to get hopeful societal impact besides long-run competing financial returns. SRI and sustainable development have a direct and long-term connection with each other. Since SRI forms the way financial

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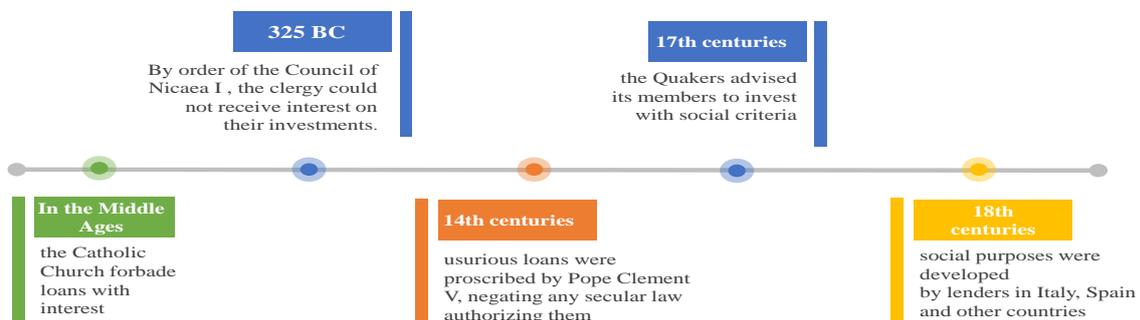
resources are turned into economic and business tasks so as to attain sustainable development for the world (Artie, 2019). Sustainable development has also been defined variously. However, a common definition of sustainable development is the one the Brundtland Commission formed (Brundtland, 1987). Accordingly, sustainable development is defined as “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The objective of sustainable development is mainly the long-run balance of both the environment and economy (Hope, 2020: 108). In order to achieve that, the consolidation and recognition of economic, environmental, and social concerns should be realized throughout the proper implication of the decision-making process (Emas, 2015: 2).

The world is facing various environmental and socioeconomic challenges. Hence, both companies and investors are directing their funds towards specific investment strategies which can improve environmental, social and corporate governance (ESG) considerations in order to support the society to address aforementioned challenges and to achieve a sustainable development (Social Investment Forum, 2006).

Fundamentally, the roots of socially responsible investing are thought to date back to very early times in the history. In the Middle Ages, loans with interest was prohibited by the Catholic Church. The first official prohibition of usury by the church was in 325 A.D (Ekelund, Hebert and Tollison, 1989: 314-321). Moreover, Quakers and Methodists had presented guidelines to their followers regarding the types of companies in which they should invest in the 18th Century (Schroders, 2016). The political climate of the 1960s has affected the evolution of the modern socially responsible investing movement (NBUPPE, 2009: 50). During the 1960s, the society’s understanding towards the issues related to social responsibility and accountability changed through a series of movements such as the civil rights, and equality for women. In the 1970s, these concerns were expanded so as to include disarmament, fair labor, and the environment. Beginning from the 1980s, socially concerned investors increased rapidly as many sections of the society focused their investment strategies against the racist system of South Africa government. After the incidents such as Bhopal, Chernobyl, Exxon Valdez, and global warming, the concept of SRI has been embraced by millions of people (The Social Equity Group, 2022). In the 1990s this trend was carried on and sustainability indices has been started to be calculated. SRI has been increasing since then (Ballesterero et al., 2015: 10-16).

Figure 1: Historical Outline of SRI

OLD ERA



MODERN ERA



Source: Prepared by the authors by using the information obtained from The Social Equity Group (2021), Townsend (2020) and Vincent (2014).

There is a wide range of classifications used in the literature for categorizing the different SRI strategies. It is also important to describe the different investment strategies, used to manage SRI assets as reported by the Global Sustainable Investment Alliance (GSIA) they are the following (Table 1). These strategies move together so as to support responsible business practices and to devote funds for social and environmental benefits throughout the economy (USSIF, 2017: 2).

Table 1: SRI Strategies (GSIA)

Investment strategy	Description
Negative/exclusionary screening	The excluding certain sectors companies or practices based on selected ESG criteria from a fund or portfolio.
Positive/best-in-class screening	Investing in certain sectors, companies or projects with positive ESG performance.
Norms-based screening	Monitoring investments that cannot meet minimum standards of business practice based on international norms.
ESG integration	Including environmental, social and governance factors into financial analysis systematically by investment managers.
Sustainability themed investing	Investing in sustainability related themes or assets.
Impact/community investing	Investing on purpose to solve social or environmental problems.
Corporate engagement and shareholder action	Benefiting from the shareholder power aiming to influence corporate behavior.

Source: Global Sustainable Investment Alliance (2021)

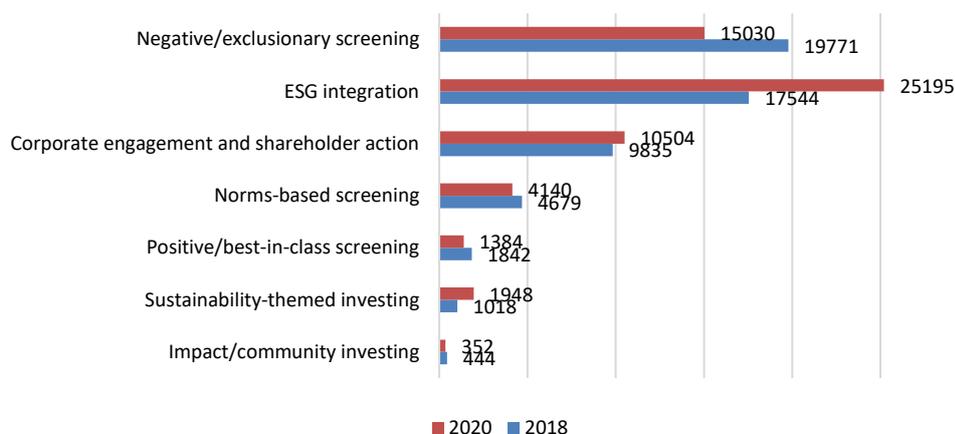
This is reflected in the large amounts invested according to SRI principles. In terms of the size of the SRI market, as of the latest available data, for the beginning of 2020, the Global Sustainable Investment Review (2020) reports the global SRI market included \$35.3 trillion in 2020. There is also 55% increase during the 2016-2020 period, 15% increase in the 2018-2020 period, and 167% increase in the past eight years (2012-2020). Five major markets are USA, Canada, Europe, Australia and Japan.

Table 2: Snapshot of Global SRI

Region	2012	2014	2016	2018	2020
Europe	8,758	10,775	12,040	14,075	12,017
United States	3,740	6,572	8,723	11,995	17,081
Japan	-	7	474	2,180	2,423
Canada	589	729	1,086	1,699	906
Australia/New Zealand	134	148	516	734	2,874
Total	13,221	18,231	22,890	30,683	35,301

Source: Global Sustainable Investment Review, 2020

The largest SRI strategy globally continues to be ESG integration, as shown in Figure 2, this is followed by negative or exclusionary screening. Also, the global growth of sustainable investing strategies from 2018 to 2020 is shown in Figure 2. As seen, sustainability-themed investing, ESG integration and corporate engagement have increased during this period. On the other hand, rest of the strategies have all experienced a more variable trend since 2018.

Figure 2: Global Growth of SRI Strategies, 2018–2020 (billion dollars)

Source: Global Sustainable Investment Review, 2020

SRI has expanded dramatically in developed countries. In emerging markets, on the other hand, growth in SRI has not yet occurred on the same scale, but this could soon change. As reported by Karen (2005), practices regarding sustainability including especially the ones related to SRI, have still to be fully evolved in a developing country context. The study reported in this article investigated the interaction between the SRI and macroeconomic indicators in the developing countries. We represent development of SRI in countries by SRI index (Sustainability index). SRI indices where constituents are shares of companies with high performance on ESG practices and specifically for companies trading in stock markets. This index has an important function in terms of favoring the responsible business practice improvement in the countries.

2. LITERATURE REVIEW

From the 1990s the SRIs have showed growth in the financial market and taken the attention of the academic researchers since the early 2000s (Renneboog et al. 2008). According to Luluk (2019) there are three research subjects in the SRI literature, mentioned as investor behavior, SRI development, and SRI performance. Studies focusing on SRI investor behavior investigate the points such as motivation, investment pattern, and decision making. Studies related to SRI development focus on specific areas such as theoretical evaluations, and roles of the participants in the SRI market. Finally, studies investigating SRI performance are found to be the most dominant area of investigation. They focus on the SRI practices and their financial impact. Most of the studies are seen to deal with the connection between financial achievement and corporate social responsibility (CSR). But, there are also studies that are analyzing the impact of SRI from a theoretical context (Dam and Heijdra, 2011).

Very few studies have explored the interaction between SRI (EGS, CSR) practice and macroeconomic performance as reported below.

Chapple and Moon (2005) investigated the relation between Gross National Product (GNP) and CSR activity and found no statistically significant correlation between the indicators. The analysis is conducted on the data obtained from 50 companies in seven Asian countries. The variables considered are the gross national product per capita, social development (life expectancy and adult literacy), economic structure.

Zadek (2006) analyzed National corporate responsibility index, internal dimension, external dimension, environmental management, responsible competitiveness index, national corporate responsibility, macroeconomic environment index, public institutions index, technology index. It is found that national and regional competitiveness can be supported by responsible business practices.

Muzindutsi and Sekhampu (2013) investigated the effect of various macroeconomic factors on the SRI index in South Africa and set forth a combined long-run influence of these variables on the index, and a two-way causality relationship between the variables. The factors considered for the analysis are government expenditure, import and exports, private consumption, employment growth rate, and gross domestic investment. The tests applied on the data are co-integration test, error correction model and Granger causality test.

Boulouta and Pitelis (2014) analyzed the panel data obtained from 19 developed countries for 6-year period. They studied on exploring conceptually if CSR can have effect on the competitiveness of nations. Findings indicate that, CSR can contribute to

national competitiveness. The variables used in the analysis are GDP per capita, national corporate social performance, innovation, unit cost economies, human capital.

Ahn and Kim (2015) conducted a cross-section analysis and pooled time series analysis, on the data taken from 15 welfare countries for the 1990-2007 period in order to investigate the importance of social services as the main component of social investment strategies on economic performance. The variables used in the analysis are the labor market performance, economic growth and social service tendency measured by social service spending as a percentage of total social spending. It is found that higher social service tendency contributes to labor market performance and economic growth. Also it is found that a larger overall size of the welfare state may negatively affect employment.

Kwarteng, Dadzie, and Famiyeh (2016) examined the effect of sustainability on the competitive advantage of manufacturing firms in Ghana by the structural equation modelling (SEM). They found that social and factors have a positive effect on corporate image but not the environment. Furthermore, it is found that, corporate image and social factors positively affect corporate performance. On the other hand, economic factors and environment do not have any effect on corporate performance.

Harrison and Berman (2016) studied the interaction between corporate social performance and economic cycles. The unbalanced panel data used in the analysis are obtained from 837 firms and comprises 50 variables in the five groups over the years 1995-2009. They set forth that economic growth has influence on corporate social responsibility. But this influence varies in different areas of corporate social responsibility. They also found a significant increase in corporate social responsibility related concerns when the economy weak and vice versa.

Krajnakova, Navickas and Kontautiene (2018) analyzed the relationship between social macroeconomic business environment and the development of corporate social responsibility practices in Baltic Countries and Slovakia. They found that macroeconomic factors may have effect on the development of corporate social responsibility differently. Because of the long-term benefits of corporate social responsibility, firms carry on socially responsible actions even in negative macroeconomic periods. The analysis is conducted on the data taken from the selected countries' economic variables such as inflation rate, unemployment rate and real gross domestic product growth rate for the period of 2006-2016.

Xiaoyan, et al. (2020) analyzed the relation between firm level ESG practices and macroeconomic variables for developed and emerging countries by dynamic panel methods. Findings of the generalized method of moments (GMM) estimators indicate that increase in ESG performance can contribute to living standards which is measured by GDP per capita. They also set forth that positive interaction for social performance is valid for both emerging economies and developed economies. As for the environmental and governance components of ESG, it is found that these factors have significant effects on macroeconomic performance only for emerging economies.

As stated by Chih, Chih and Chen (2010), a positive macroeconomic environment and stronger legal enforcement levels can support the incorporation of corporate social responsibility.

Finally, Bernatonyte, Vilke and Keizeriene (2009) set forth that macroeconomic factors are not always correlated with the corporate social responsibility. The also found that economic depression has mostly negative influence on the development of corporate social responsibility practices.

As seen from the literature reviewed, it is seen that there is no consensus and/or enough research regarding the relationship between in macroeconomic variables and the sustainability in developing countries, and further research is needed. Hence this study is expected to make a meaningful contribution into the literature and shed light for future research.

3. DATA AND METHODOLOGY

The aim of this paper is to determine if there is an interaction between the SRI indices and selected macroeconomic variables from 2015 to 2021 in selected developing countries. The countries selected for the analysis are Brazil, China, India, Indonesia, Malaysia, South Korea and Turkiye. SRI Indices are provided by a stock exchange in developing markets, and they have been a driver for growing attention to responsible investment in developing countries. The SRI index for a country taken is employed in the analysis by calculating annual percentage change in the index (ESGCH), and the data regarding the indices are obtained from the investing.com. The macroeconomic variables which are obtained from the database of World Development Indicators in World Bank are change in consumer price index (CPICH) and change in dollar-based exchange rates (EXCHG). The countries and the time span is determined so as to obtain maximum amount of regularly available data.

The panel data analysis will utilize the following model:

$$ESGCH_{it} = \alpha_0 + \beta_1 CPICH_{it} + \beta_2 EXCHG_{it} + \varepsilon_i \quad (1)$$

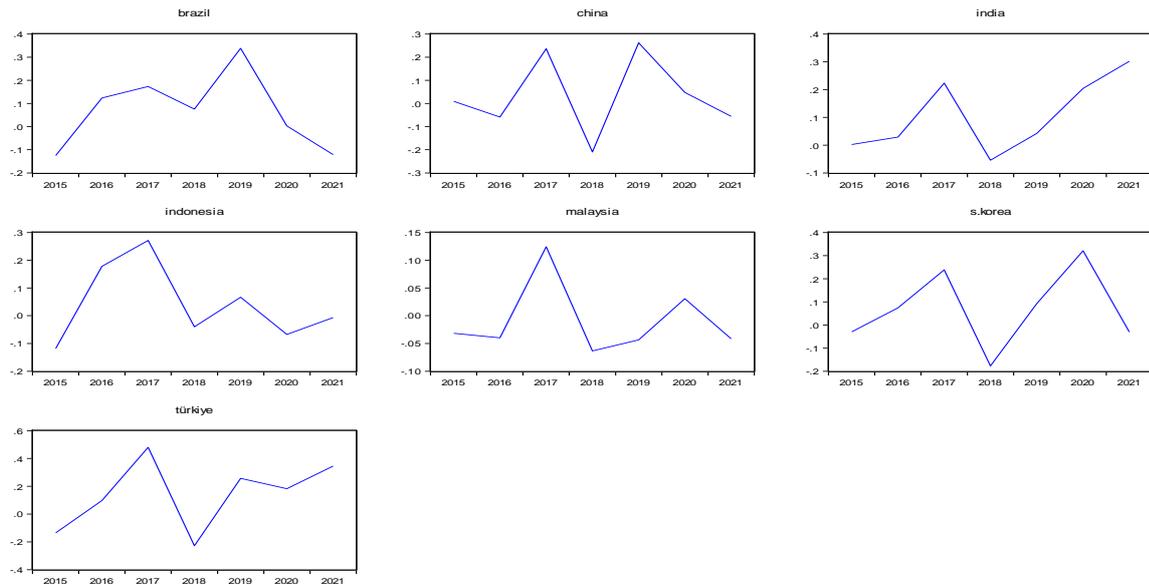
Here i and t represent the related country and the year respectively. α , β_1 , β_2 , β_3 and β_4 , are the parameters to be estimated and ε represents the random error term. The null and alternative hypotheses are set as below:

H_0 : The selected macroeconomic variable does not have a statistically significant effect on the SRI index.

H_A : The selected macroeconomic variable has a statistically significant effect on the SRI index.

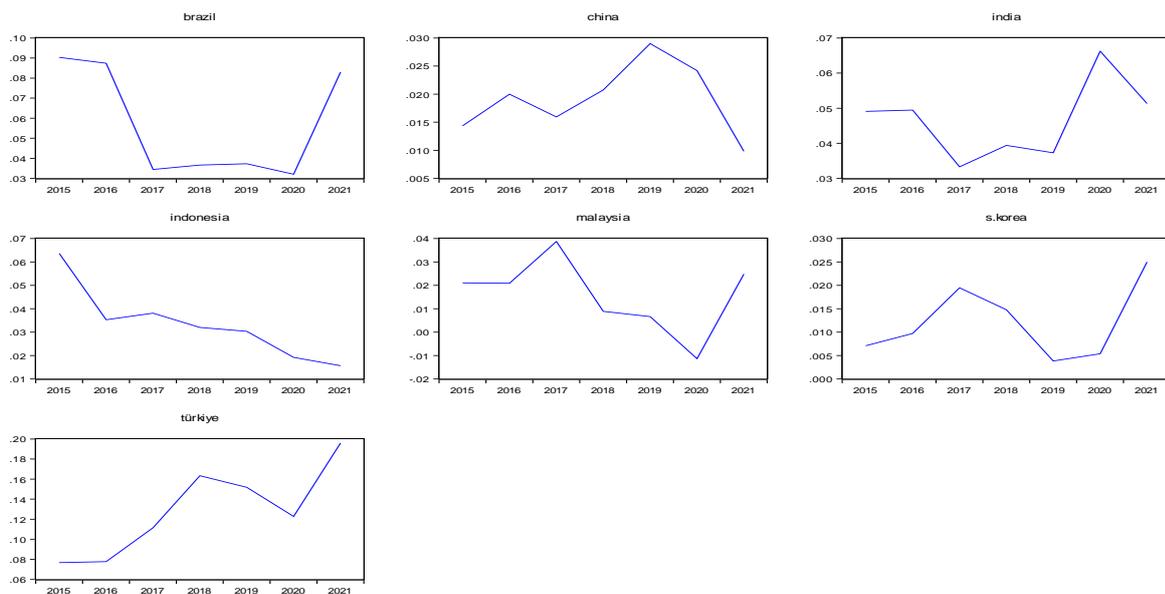
Figure 3, Figure 4 and Figure 5 represent the progress of the variables of Esgch, Cpich and Exchg respectively. Accordingly, the indices tend to decline after 2016 and they mostly increase beginning from 2018. Despite it was the year the pandemic boomed all over the world, it is seen that the change in the indices was on the rise for India, Indonesia and Türkiye in 2020 (Figure 3).

Figure 3: Progress of the esgch during 2015-2021 in the Selected Countries



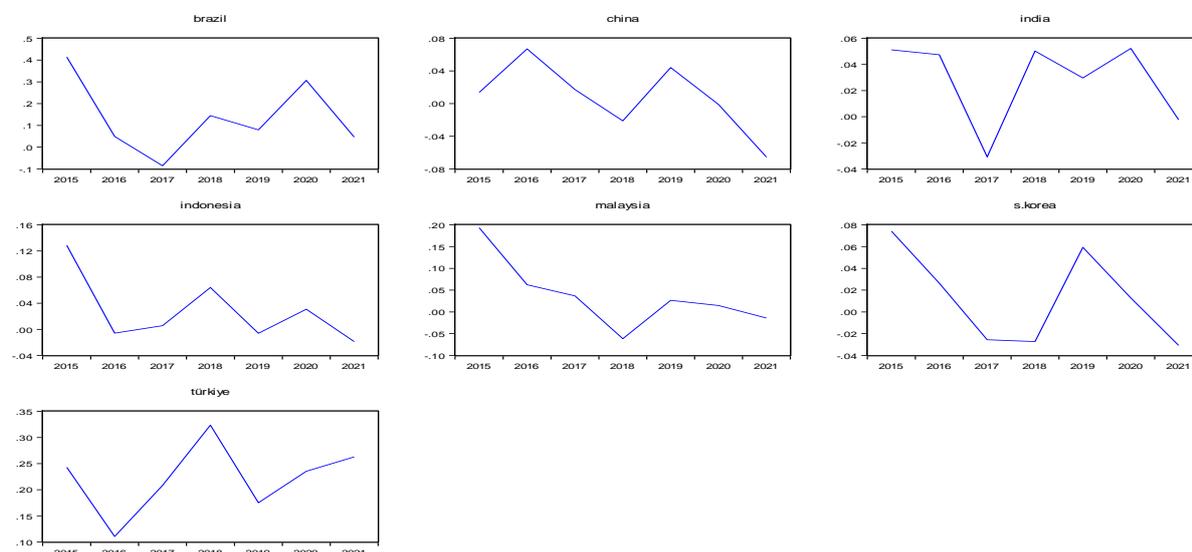
As seen in Figure 4, change in consumer price indices are quite variable and inconsistent for the countries included in the analysis. The most salient point is that while the index is consistently decreasing in Indonesia, it keeps rising sharply in Türkiye. Also Brazil has experiencing a dramatic increase in the index since 2020.

Figure 4: Progress of the cpich during 2015-2021 in the Selected Countries



Change in dollar-based exchange rates has a similar and volatile pattern in the selected developing countries. In contrast to the rest of the countries, the exchange rate in Türkiye has been increasing since 2019 (Figure 5).

Figure 5: Progress of the Exchg during 2015-2021 in the Selected Countries



4. FINDINGS AND DISCUSSIONS

Before panel regression analysis conducted, descriptive statistics and correlation coefficients are presented in Table 3 and Table 4 respectively. The average *Esgch* is negative only in Malaysia (-0.009) during the analysis period. On the other hand, the mean value for *Esgch* is higher than the overall mean values in Türkiye (0.143), India (0.107), South Korea (0.070), and Brazil (0.067) for the analysis period which means that sustainability practices are given more importance in aforementioned countries. Average change in consumer price indices (*Cpich*) and exchange rates (*Exchg*) are all positive for the countries. The highest change in *Cpich* in average is for Türkiye (0.129), Brazil (0.057), and India (0.047). On the other hand, change in consumer price index is below overall average values in South Korea (0.012), Malaysia (0.016), China (0.019), and Indonesia (0.033) respectively. Finally, change in exchange rates is dramatically above overall mean values only in Türkiye (0.223) and Brazil (0.136).

Table 3: Descriptive Statistics (2015-2021)

Brazil	Mean	Max.	Min.	Std. Dev.	Malaysia	Mean	Max.	Min.	Std. Dev.
<i>esgch</i>	0.067	0.338	-0.125	0.165	<i>esgch</i>	-0.009	0.124	-0.063	0.066
<i>cpich</i>	0.057	0.090	0.032	0.028	<i>cpich</i>	0.016	0.039	-0.011	0.016
<i>exchg</i>	0.136	0.414	-0.086	0.171	<i>exchg</i>	0.037	0.193	-0.062	0.080
China	Mean	Max.	Min.	Std. Dev.	S.Korea	Mean	Max.	Min.	Std. Dev.
<i>esgch</i>	0.033	0.262	-0.210	0.168	<i>esgch</i>	0.070	0.320	-0.178	0.170
<i>cpich</i>	0.019	0.029	0.010	0.006	<i>cpich</i>	0.012	0.025	0.004	0.008
<i>exchg</i>	0.008	0.067	-0.065	0.043	<i>exchg</i>	0.013	0.074	-0.031	0.043
India	Mean	Max.	Min.	Std. Dev.	Türkiye	Mean	Max.	Min.	Std. Dev.
<i>esgch</i>	0.107	0.302	-0.054	0.134	<i>esgch</i>	0.143	0.481	-0.228	0.254
<i>cpich</i>	0.047	0.066	0.033	0.011	<i>cpich</i>	0.129	0.196	0.077	0.045
<i>exchg</i>	0.028	0.052	-0.031	0.033	<i>exchg</i>	0.223	0.324	0.110	0.068
Indonesia	Mean	Max.	Min.	Std. Dev.	Total	Mean	Max.	Min.	Std. Dev.
<i>esgch</i>	0.040	0.271	-0.118	0.140	<i>esgch</i>	0.064	0.481	-0.228	0.162

cpich	0.033	0.064	0.016	0.016	cpich	0.045	0.196	-0.011	0.043
exchg	0.028	0.128	-0.019	0.052	exchg	0.068	0.414	-0.086	0.108

Table 4 represents the Pearson correlation coefficients for the variables. Accordingly, the correlation between Cpich and Exchg is strong and positive, and this finding is statistically significant at 1% significance level. Correlation between esgch and other variables is poorer and statistically insignificant. However, these findings cannot explain the impact level and cause and effect interaction between the indicators. For this purpose, panel data regression analysis is conducted.

Table 4: Pearson Correlation Coefficients

	esgch	cpich	exchg
esgch	1.000000		
cpich	0.209013	1.000000	
exchg	-0.053924	0.671614*	1.000000

* indicates statistical significance at the 1% level.

The panel regression analysis findings for the significant variables are given in Table 6. According to the Hausman test statistics the random effects model is the suitable model. The model is statistically significant according to the F-stat findings and the Durbin Watson statistics indicate that there is no autocorrelation problem in the data. Findings indicate that both effect of Exchg and Cpich is statistically significant. While Exchg has negative effect (-0.52818), Cpich has positive effect (1.666244) on Eschg.

Table 6: Interaction between SRI Index and the Significant Macroeconomic Variables

(Dependent Variable: E.sgch; 2015-2021).

Variable	Pooled	Fixed	Random
c	0.025596	0.072453	0.025596
exchg	-0.528818***	-0.592972***	-0.52818***
cpich	1.666244**	0.714725	1.666244**
Hausman Test			1.111472
Adjusted R2	0.073872	-0.010619	0.073872
F-stat	2.914334***	0.936953	2.914334***
Durbin-Watson	2.690432	2.725848	2.690432

*, ** and *** indicate statistical significance at the 1, 5 and 10% levels respectively.

According to the analysis findings, the model can be estimated as Equation (2). In this respect, the null hypotheses for change in consumer price index and exchange rates can be rejected. While positive changes in consumer price indices cause an increase in the SRI indices of countries, the same change in the exchange rates results in the opposite way for the indices.

$$ESGCH_{it} = 0.025596 + 1.666244 * CPICH_{it} - 0.528818EXCHG_{it} + \varepsilon_i \quad (2)$$

5. CONCLUSION AND IMPLICATIONS

In the last few decades, socially responsible investments have growingly become a relevant issue. Socially responsible investment, as an investment process that combines investment decision making and environmental, social and governance considerations together in order to provide positive societal impact and long-term competing financial gains. The study reported in this article investigated the interaction between selected macroeconomic indicators and the SRI in seven developing countries for the period of 2015-2021 by the panel data analysis.

Findings indicate that changes in consumer price indices increase SRI index. This finding may mean that increasing inflation rates cannot have negative effect on sustainability practices. And even under high inflation the developing countries can carry on investing in socially responsible investment. The other significant finding that the increase in dollar-based exchange rates causes a decrease in SRI indices, which is a reasonable finding for the developing countries.

Findings of this research are compatible with those of Muzindutsi and Sekhampu (2013) which could set forth significant effect of selected macroeconomic variables on SRI indices in South Africa. Similarly, Krajnakova et al. (2018) concludes that economic conditions may diversely affect different dimensions of socially responsible actions. On the other hand, findings are found to be contradicting with those of Zadek (2006) asserting responsible business practices can contribute to national and regional competitiveness. Other contradicting studies are of Chih et al. (2010), and Bernatonyte et al. (2009). They conclude respectively that a favourable macro environment contribute to the sustainability and effect of economic depression on the development of sustainability is mostly seen in negative way.

This study indicates that sustainability practices and the macroeconomic environment is interacting with each other despite the limited available observation. Hence, the findings and the issue is open for and need to be supported by further research.

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