Analysis of Historical Trend and Determinants of ESG Index Performance in India

Amit Kumar Singh[1] and Sheetal Maurya[2]

Abstract

The present study examines the historical growth rate in the ESG index and the determinants affecting the performance for the period April 2011 to December 2021. Based on the results of historical trend analysis the present study reports that there is a statistically significant and positive growth trend in the Nifty 100 ESG index over the study period. In long run, investment based on ESG parameters adds to the investor's wealth. Also, return on the ESG index and market index are highly positively correlated and the return on the ESG index is positive during the period of high market volatility and rising fear in the market. The study reports a statistically significant negative impact of broad market valuation on ESG index return. ESG index tends to perform better during the economic and financial crisis as these are viewed as safer investments. Further, this paper emphasizes the need for a reform that gives equal weightage to all aspects of ESG in the disclosure norms with special attention to the social factors which is the most neglected factor.

KEYWORDS: Socially Responsible Investment (SRI), ESG Index, Sustainable Investing, Triple-Bottom-Line.

JEL: G3, G10, G30.

---

[1] Professor, Department of Commerce, Delhi School of Economics, University of Delhi,
Email ID: aksingh1@commerce.du.ac.in

[2] Research Scholar, Department of Commerce, Delhi School of Economics, University of Delhi
Email ID: Sheetal.maurya17@gmail.com

1.Introduction

ESG, as it stands for environmental, social, and governance are the non-financial factors that affect investment decisions. There are several issues that are identified under the umbrella of ESG as presented below in Table 1. Having been addressed and integrated effectively, these issues provide a means to manage the risk effectively and identify the growth opportunities.

Table 1: ESG Issues

Environmental Issues	Social Issues	Governance Issues
Climate change and carbon emissions	Customer satisfaction	Board composition
Air and water pollution	Data protection and privacy	Audit committee structure
Biodiversity	Gender and diversity	Bribery and corruption
Deforestation	Employee engagement	Executive compensation
Energy efficiency	Community relations	Lobbying
Waste management	Human rights	Political contributions
Water scarcity	Labour standards	Whistle-blower schemes

Source: CFA Institute

Recently, there has been a growing focus on ESG practices of the companies as the investors and analysts are increasingly becoming interested in such disclosure to pick the right securities for their portfolios. Security selection these days is not only focused on the traditional disclosures report in financial statements. Screening of securities requires data on ESG disclosures along with financial disclosure due to risk arising from environmental, social, and governance flaws, such as the Deepwater Horizon oil spill, Volkswagen's breaching of environmental norms, and Facebook's data privacy disclosure, etc. (Bhavani & Sharma, 2019).

SEBI's new proposed disclosure norm, the Business Responsibility and Sustainability Report (BRSR) is an effort in direction of making the quantifiable data available related to the environment, social, and governance disclosures. The objective is to equip the investment analyst with the required data to better select the companies which mark their performance on ESG metrics. Also, to enable individual investors to shortlist the companies based on parameters related to sustainable or Socially Responsible Investment (SRI). According to a report by PwC, 2020; ESG related disclosure information has become very crucial for investors to gauge the company risk. Historically, the major challenge for researchers and analysts has been the lack of quantitative data in the area of sustainable investing and ESG disclosures. Disclosure norms on ESG factors are comparatively more widely accepted in other countries such as CDP (Carbon Disclosure Project) or Global Reporting Initiative (GRI). BRSR can prove a promising step in direction of making the Indian ESG funds comparable with foreign funds based on sustainable investing.

BRSR are disclosure norms applicable on Indian ESG mutual funds requiring these funds only to invest in companies that have Business Responsibility and Sustainability Report (BRSR) disclosures or equivalent in case of overseas securities. Unarguably, incorporating the ESG factors in investment, security selection, and portfolio and risk management is ethically and sustainably correct practice. However, some barrier remains to be there in this path. According to the latest survey report by the CFA institute, unfavorable company culture, limited understanding of ESG issues and low client demand are among the key barriers to ESG integration. On the other hand, Risk management and regulations are the prime drivers of ESG integration. This implies that asset managers do acknowledge the risk associated with poor environmental, social, and governance practices of companies. They want to factor in these risks in their investment decision.

Table 2: Drivers to ESG Integration

	Equity Securities	**Fixed Income Securities**
Risk management	63%	55%
Regulation	39%	50%
Client demand	26%	23%
Fiduciary responsibility	26%	23%
Generate Alpha Return	24%	14%

Source: CFA Institute survey report on ESG integration in Asia pacific: markets, practices, and data.

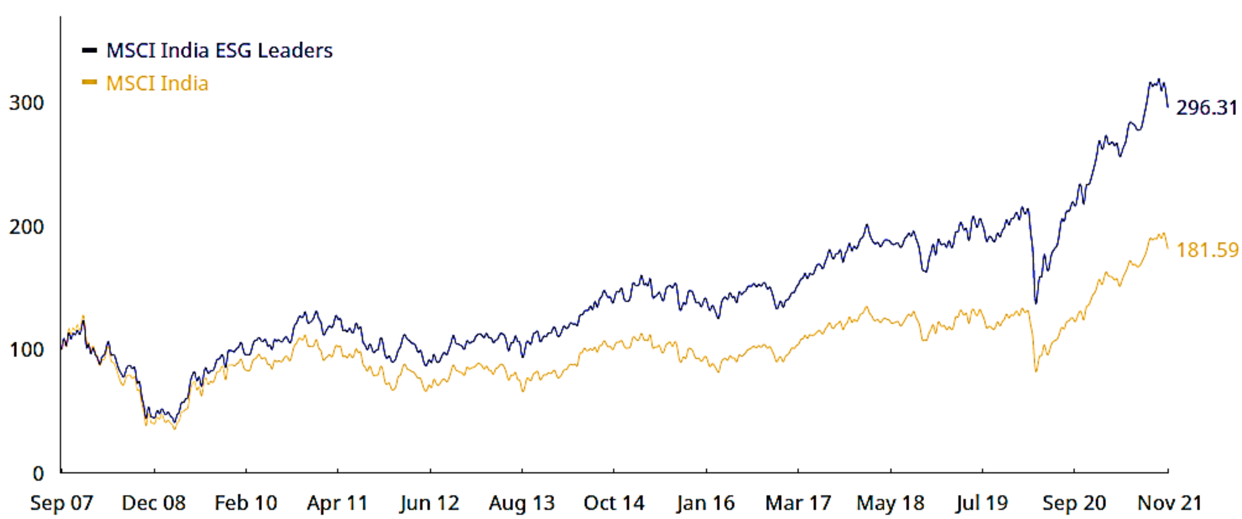
Table 3: Barriers to ESG Integration

	Equity Securities	Fixed Income Securities
Lack of company culture	45%	45%
Limited understanding of ESG issues	42%	45%
Low client demand	42%	36%
Lack of comparable and historical data	34%	32%
Low amount of ESG research	29%	32%

Source: CFA Institute survey report on ESG integration in Asia pacific: markets, practices, and data.

Though ESG investments are at a very nascent stage in India, it's picking up the pace. In India, as on January 2022, there are a total of fifty ESG thematic equity funds with an average market capitalization of approximately 95 million. As per the recent data released by MSCI, the MSCI India ESG leaders index has been outperforming the MSCI India index ever since September 2007. The trend even persisted during the recent COVID-19 pandemic when the global markets were down. There is a high degree of association between the performance of the two indices, however, MSCI India ESG Leaders continue to beat the MSCI India in terms of net returns in USD (MSCI, 2021) (Figure 1).

Figure 1: Cumulative Index Performance: Net Returns (USD) (September 2007 to November 2021)



Source: MSCI (2021)

Table 4: Annual Performance (%)

Year	MSCI India ESG Leaders	MSCI India
2020	22.81	15.55
2019	11.66	7.58
2018	-2.84	-7.30
2017	37.74	38.76
2016	-2.25	-1.43
2015	2.32	-6.12
2014	21.91	23.87
2013	7.60	-3.83
2012	17.86	25.97
2011	-31.04	-37.17
2010	28.73	20.95
2009	113.86	102.81
2008	-60.19	-64.63

Source: MSCI (2021)

Among these, the top leaders are Reliance industries (energy), Infosys (IT), Housing Development Finance Corporation (Finance), and Tata consultancy (IT). Therefore, among all the sectors, information technology contributes most in integrating the ESG practices into its business model and decision-making process (Bhatt 2020).

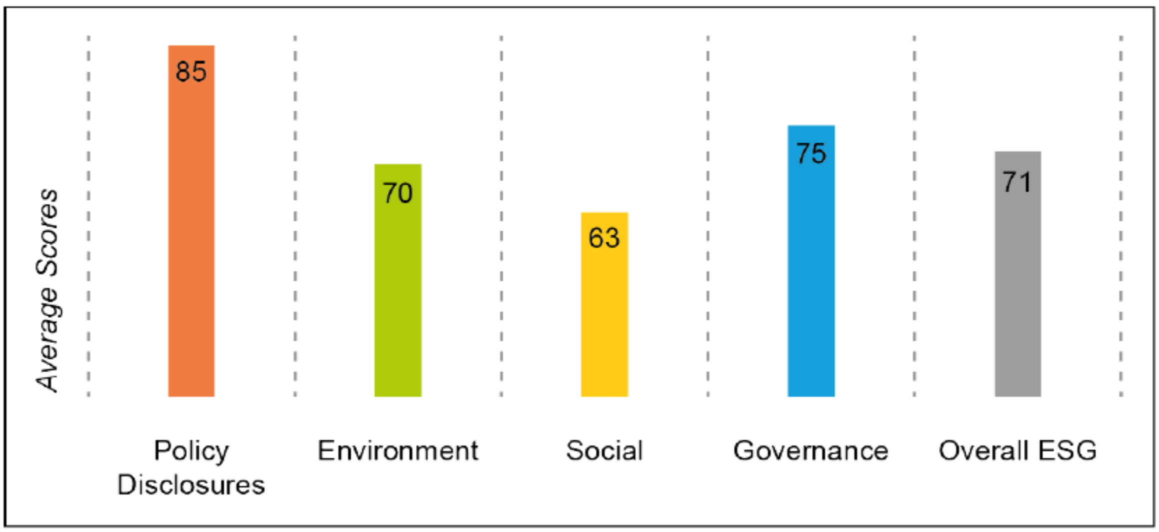
Table 5: Top 10 Constituents

Companies	Index Wt. (%)	Parent Index Wt. (%)	Sector
Reliance Industries	17.84	9.91	Energy
Infosys	15.18	8.43	IT
HDFC	11.91	6.61	Financials
TCS	8.48	4.71	IT
Hindustan Unilever	4.95	2.75	Cons Staples
Axis Bank	3.86	2.15	Financials
HCL Technologies	3.21	1.78	IT
Asian Paints	3.14	1.74	Materials
Wipro	2.27	1.26	IT
Titan Company	2.19	1.22	Cons Discr
Total	**73.03**	**40.56**	

Source: MSCI (2021)

In a recent study on "ESG Analysis on 50 Listed Companies in India" by National Stock Exchange (NSE) in the year 2020, it has been documented that Indian companies score quite well on the policy disclosure and governance parameters of overall ESG measurement. However, one should not be surprised as most of these disclosure requirements are made mandatory and not voluntary. ESG integration in its true sense calls for more than just box-ticking and compliance with existing regulatory norms. Social disclosure on the other hand, which is still a voluntary practice is the most neglected area. This implies the need for reform to give equal weightage to all aspects of ESG.

Figure 2: Indian Companies' Average score for various ESG factors



Source: NSE (2020)

2.Literature Review

Recently. there has been a growing focus on ESG practices of the companies as the investors and analysts are increasingly becoming interested in such disclosure to pick the right securities for their portfolios. Investors' focus on the long-term sustainable firm has grown significantly post-COVID period.

The extant literature on sustainable investing, ESG investing, and SRI is clustered around two focal points. One group of research efforts focused on comparing the performance of socially responsible investing with conventional ones. In this, the performance of socially responsible mutual funds was compared with the traditional ones in studies such as Hamilton, Jo, & Statman

(1993); Bauer, Koedijk, & Otten (2005); Scholtens (2005); and Renneboog, Horst, & Zhang (2008). The second group of research directly uses the various indexes constituting companies that perform well on ESG metrics, for instance, Hoti and Benson, Gupta, & Mateti (2010).

In India, the S&P ESG index has been used by several researchers such as Vasal (2009), Gupta D. (2011), and Ghosh (2013) to name a few. The results from these researches have been mixed. There are some shreds of evidence in favor of socially responsible investing and others are contradictory. Sudha (2014) compared the performance of S&P ESG index performance with Nifty and S&P CNX 500 for the period 3 January 2005 to 14 September 2012. The study did not find any statistically significant difference in daily compounded rerun performance of broad market index and ESG index for the study period. However, annualized returns of the ESG index outperformed the broad market return. It has also been documented that the ESG indices are less volatile than the broad market indices. Similar results have been documented in a comparative study of 137 socially conscious mutual funds and traditional funds by Mittal & Bhasin (2019). Wadhwa (2017) analyzed the performance of the nifty and ESG index through a relative index by combining the two indices. The study has been oriented to examine the performance of relative index during the sample period which has been segregated into three periods based on the event of economic crisis viz. pre-crisis, crisis, and post-crisis period. The results indicate that the general market index performed better during the pre-crisis period and the ESG index performed better during the post-crisis period.

In a similar study, Vadithala & Tadoori (2021) divided the study period into the pre-COVID and post-COVID period. The study examined the performance of the ESG index during the two distinguished period of time by comparing all three ESG indices by NSE viz. Nifty 100 ESG Index, Nifty 100 Enhanced ESG, and & Nifty 100 ESG Sector Leaders. The results of the study confirm that the ESG indices performed better in post-COVID time as compared to pre-COVID time. Implying that, during the period of economic distress investors lay greater faith in the ethically strong and sustainable firm.

Although the indices formed on the triple-bottom-line approach equally weights all three pillars of sustainable investing i.e., environment, social, and governance; studies in past have reported that companies do well in terms of reporting on the governance parameters, however, they lack on reporting the environment and social factors. As a result of which with the widening scope of ESG policies, regulators are turning toward making environment-related disclosure mandatory to companies Sarangi (2021). SEBI's new proposed disclosure norm in a consultation paper, the Business Responsibility and Sustainability Report (BRSR) is an effort in direction of making the quantifiable data available related to the environment, social, and governance disclosures. This is not only beneficial for the investors but also to the corporate houses. Korwatanasakul & Majoe (2019) have reported that the corporate houses that effectively integrate the ESG into their business model generate a higher return than a non-ESG integrated company. In the present paper, we try to examine the historical growth rate in the ESG index and the determinants affecting the performance from April 2011 to December 2021.

3. Objective and Hypotheses Development

Following are the objectives of the present paper:

1. To study the present state of ESG investment in India.
2. To analyze the historical performance of ESG index in India.
3. To identify the factors influencing the ESG index return.

Consistent with the above objective of the paper following null hypotheses are tested for their significance:

H_{01}: There is no significant growth trend in return of ESG index during the sample period.

H_{02}: Market volatility has no significant impact on ESG index return.

H_{03}: Present market valuation has no significant impact on ESG index return.

H_{04}: Return on broad market index is not related to the performance of ESG index.

4.Data and Sample

The data is collected for the period of 1 April 2011 to 28 December 2021. The sample comprises of total 2660 observations on variables namely, Nifty 100 ESG index, Nifty 50, NSE VIX index, and NSE P/E. Data before 1 April 2011 could not be collected due to the unavailability of it for NSE 100 ESG.

The data has a daily frequency. Daily indices closing values and daily market P/E ratio are collected from the official website of the National Stock Exchange (NSE). The data has been analyzed through IBM SPSS 20 and Eviews 10 jointly results of which are reported in the following tables.

5.Model

To examine the historical growth trend in Nifty 100 ESG and factors influencing the historical performance following equation is applied.

$$LnESGR = \alpha + \beta_1(time) + \beta_2(\text{LnNIFTYR}) + \beta_3(lnPE) + \beta_4 D\_VIX + u_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Equation (1) describes the log return on the Nifty 100 ESG index as a linear function of the time component, log return on the broad market index, present market valuation, and market sentiment.

In India, BSE and NSE as well, have ESG based indices. BSE has S&P BSE 100 ESG Index, whereas NSE has Nifty 100 ESG Index, Nifty 100 Enhanced ESG, and & Nifty 100 ESG Sector Leaders. The present study selects Nifty 100 ESG to measure the performance of companies selected on ESG metrics. Since the data of the three indices are highly correlated, it does not add value to consider them individually. NSE 50 has been used as a measure of broad market performance.

Variable "time" is measured on ordinal scale data to account for the changes in Nifty 100 ESG purely due to the passage of time. The percentage change in the dependent variables due to one-unit change in time (i.e., day-to-day) is calculated by [exp(β_i) – 1) *100]. This represents the daily compounded growth/decline rate in Nifty 100 ESG.

Since the markets are highly sensitive to any unexpected events and uncertainty, the index returns are directly influenced by the fear caused by such uncertainty about the future. NSE VIX index gauges the market fear and investor sentiment and it is used as a measure of volatility. A higher than normal or average value of VIX indicates growing panic among investors. During the period marked by high VIX markets perform poorly. Hence there is an inverse relationship between the two. Since there is no standard benchmark to which VIX can be compared in equation 1 VIX variable is entered as a dummy variable which takes the value 1 if the daily VIX is greater than 21(average VIX for the sample period) and zero otherwise. Because it is only the two states i.e., pacific state and panic state that drives the market for the rest of the period market remains in a stable state where VIX trends on its average value.

Literature has reported that there is a high degree of association between the ESG based indices and broad market indices. On this background, it can be proposed that the variation in ESG index return can partly be explained by how the broad market is performing. Hence the model includes log return on Nifty 50 as an explanatory variable among others. There is expected to be a statistically significant association between the Nifty 100 ESG Index and the Nifty 50 index.

The current state of market valuation is measured via the P/E ratio of the broad market index. A higher P/E ratio may be interpreted as overvalued market or expectation of future growth. The variable lnPE is the log transformation of the daily P/E ratio of the Nifty 50 index. The highest Sensex PE ratio was reported in 1992 at approx. 57.42 and the lowest was reported in 1998 at 9.83 (Gupta & Maurya, 2021). Economically, a higher P/E ratio should correspond to better index performance.

6.Empirical Results

The following table reports the results of historical trend analysis. Table 4 exhibits the explanatory power of the model along with Durbin Watson statistics. The overall model explains 98% variation in the dependent variable i.e. log return on daily Nifty 100 ESG index. This allows us to proceed with the analysis and see whether the explained variance is statistically significant or not.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	0.984	0.969	0.969	.00193874698	1.944

Source: Author's calculation

Reported Durbin Watson statistics examine the autocorrelation in the residual terms from the regression. It can lead to underestimates of the standard error and can cause you to think predictors are significant when they are not. Since the reported Durbin Watson statistics is close to 2 there is no first-order AR(1)) autocorrelation in residual terms.

Further to check for any possible occurrence of multicollinearity in independent variables, VIF statistics are reported in Table 8. Since all VIF statistics are well below 10 for all the independent variables there is no problem of multicollinearity as well.

Reported F statistics and the p-value (F=20779.342, p =0.00) confirm that the model is statistically significant at a 1% level of significance.

Table 7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.312	4	0.078	20779.342	0.000
	Residual	0.010	2654	0.000		
	Total	0.322	2658			

Source: Author's calculation

Finally, Table 8 reports the regression slope coefficients and their significance level. Among all the explanatory variables, log return on Nifty 50 is the most significant factor, it significant at 1% (p=0.00). The sign of the regression coefficient for lnNIFTYR is also positive which means the ESG index return and broad market returns are positively correlated. Therefore, H_{04} stands rejected.

All other explanatory variables are also statistically significant at varying degrees of significance level. The time factor is statistically significant at 5% (p=0.015) and the positive sign of the slope coefficient indicates a positive growth trend in the Nifty 100 ESG index over the study period. This supports the growing awareness of ESG based investment and accruing benefits. Hence H_{01} is rejected.

Dummy variable D_VIX is significant at 10% (p=0.076). the positive sign of regression coefficient indicates the return on the ESG index continues to be positive even during the period of high market volatility and rising fear in the market. This result is consistent with previous studies which have reported similar evidence of outperformance of the ESG index in the post-COVID period or economic crisis historically (Vadithala & Tadoori 2021). Hence, statistically significant evidence to reject the H_{02}.

The level of market valuation measured by the NSE P/E ratio is reported to be significant at 5% (p=0.03). Also, the partial regression slope coefficient has a negative sign which means that the log return on the Nifty 100 ESG index is inversely related to the current market valuation. During a period characterized by a high Index P/E ratio, ESG index returns are lower. It has been reported in extant literature that ESG indices outperform the broad market indices during the period of crisis. Wadhwa (2017) documented that the ESG index performed better during the post-crisis period. Post-crisis period is marked by the low P/E ratios due to market correction and recovery phase. The results of the present study are found to be consistent because log-return on the Nifty 100 ESG index is inversely related to the current market valuation. During the period of low market P/E ratios, the ESG index performs better. Similar evidences have been reported by Vadithala & Tadoori (2021). A high broad market P/E ratio means an optimist outlook of investors for the broad market because of which the proportion of fund allocation moves from the sustainability-based investment to the broad market. Due to the statistically significant negative impact of broad market valuation on ESG index return, H_{03} is rejected.

Table 8: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.002	0.001		2.178	0.030		
Time	2.411E-007	0.000	0.017	2.433	0.015	0.244	4.094
LnNIFTYR	0.991	0.003	0.984	287.439	0.000	0.994	1.006
LnPE	-0.001	0.000	-0.015	-2.174	0.030	0.236	4.235
D_VIX	0.000	0.000	-0.006	-1.773	0.076	0.882	1.134

Source: Author's calculation

7.Conclusion

The present study examines the historical growth rate in the ESG index and the determinants affecting the performance for the period April 2011 to December 2021. ESG, as it stands for environmental, social, and governance are the non-financial factors that affect investment decisions. Recently, there has been a growing focus on ESG practices of the companies as the investors and analysts are increasingly becoming interested in such disclosure to pick the right securities for their portfolios. Security selection these days is not only focused on the traditional disclosures report in financial statements. Due to risks arising from environmental, social, and governance flaws, such as the Deepwater Horizon oil spill, Volkswagen's breaching of environmental norms, Facebook's data privacy disclosure, etc.; screening of securities requires data on ESG disclosures along with financial disclosure.

In India ESG investments are at a very nascent stage however, it's picking up the pace with assets under management under ESG funds growing at a lucrative rate. In India, as on January 2022, there are a total of fifty ESG thematic equity funds with an average market capitalization of approximately 95 million. However, several hindrances are yet to be overcome before a complete and effective ESG integration is achieved. There is a need for a reform that gives equal weightage to all aspects of ESG in the disclosure norms. Indian companies score quite well on the policy disclosure and governance parameters of overall ESG measurement. However, companies still report minimal if any, disclosures on social factors. This is not only beneficial for the investors but also to the corporate houses as the Investors' focus on long-term sustainable firms has grown significantly post-COVID period.

Based on the results of historical trend analysis the present study reports that there is a statistically significant and positive growth trend in the Nifty 100 ESG index over the study period. In the long-term investing based on ESG parameters adds to the investor wealth. Moreover, return on the ESG index and broad market index are highly positively correlated. In fact, return on ESG index continues to be positive even during the period of high market volatility and rising fear in the market. The study reports a statistically significant negative impact of broad market valuation on ESG index return. ESG index tends to perform better during the economic and financial crisis as these are viewed as safer investments that generate wealth in long term.

References

Bauer, R., Koedijk, K., & Otten, R. (2005). International evidence on ethical mutual fund performance and investment style. Journal of Banking & Finance, 29, 1751–1767. doi: 10.1016/j.jbankfin.2004.06.035.

Benson, C. C., Gupta, N. J., & Mateti, R. S. (2010). Does risk reduction mitigate the costs of going green? An empirical study of sustainable investing. Southern Journal of Business and Ethics, 2, 7-25. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2037556

Bhatt, K. 2020. "ESG Investing Part 3: MSCI Exclusive—Dissecting the Indices." https://www.timesnownews.com/business-economy/companies/article/esginvesting- part-3-msci-exclusive-dissecting-the-indices/657646.

Bhavani, C., & Sharma, A. (2019). ESG Investment Scenario in India: Co-creating a Better Future, Responsible Banking. Mumbai.: YES Bank. Retrieved from https://www.yesbank.in/pdf/esg_investing_scenario_in_India

Ghosh, A. (2013). Corporate sustainability and corporate financial performance: The Indian context. Indian Institute of Management, Calcutta, Working paper series, WPS No. 721.

Gupta, D. (2011). Socially responsible investing in India: Myth or reality, Working paper. The future of responsible investment.

Gupta, L., & Maurya, S. (2021). Trends and Determinants of Primary Market Activities: Evidences from India. Orissa Journal of Commerce, 42(3), 27-41. doi: https://doi.org/10.54063/ojc.2021.v42i03.03

Hamilton, S., Jo, H., & Statman, M. (1993). Doing well while doing good? The investment performance of socially responsible Mutual Funds. Financial Analysts Journal, 49, 62-66.

Hoti, S., McAleer, M., & Pauwels, L. (2005). Modelling environmental risk. Environmental Modelling and Software, 20, 1289–1298.

Korwatanasakul, U., & Majoe, A. (2019). ESG Investment: Towards Sustainable Development in ASEAN and Japan. Tokyo: ASEA—Japan Centre.

Mittal, S., & Bhasin, N. (2019). Performance Of ESG Funds in Emerging Asian Countries: A Comparative Analysis. Corporate Governance Insight, 3(1), 39-64.

MSCI. 2021. *MSCI India ESG Leaders Index (USD)*. Retrieved from https://www.msci.com/documents/10199/06d20a9e-bd6b-4ea8-a7a2-31cfb0444273

Pricewaterhouse Coopers LLP (PWC). 2020. *Mind the Gap: The Continued Divide between Investors and Corporates on ESG*. Retrieved from https://www.pwc.com/us/en/services/assets/pwc-esg-divide-investors-corporates.pdf.

Renneboog, L., Horst, J. T., & Zhang, C. (2008). The price of ethics and stakeholder governance: Evidence from socially responsible mutual funds. Journal of Corporate Finance, 14(3), 302–322.

Sarangi, G. K. (2021). Resurgence of ESG Investments in India: Toward a Sustainable Economy. ADBI Working Paper 1284. Tokyo: Asian Development Bank Institute. Retrieved from https://www.adb.org/publications/resurgence-esg-investments-india-toward-sustainable-economy

Scholtens, B. (2005). Style and performance of Dutch Socially Responsible Investment Funds. The Journal of Investing, 63-72.

Sudha, S. (2014). Risk-return and Volatility analysis of Sustainability Index in India. Environment, Development and Sustainability: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development, 16(6). doi: 10.1007/s10668-014-9608-8

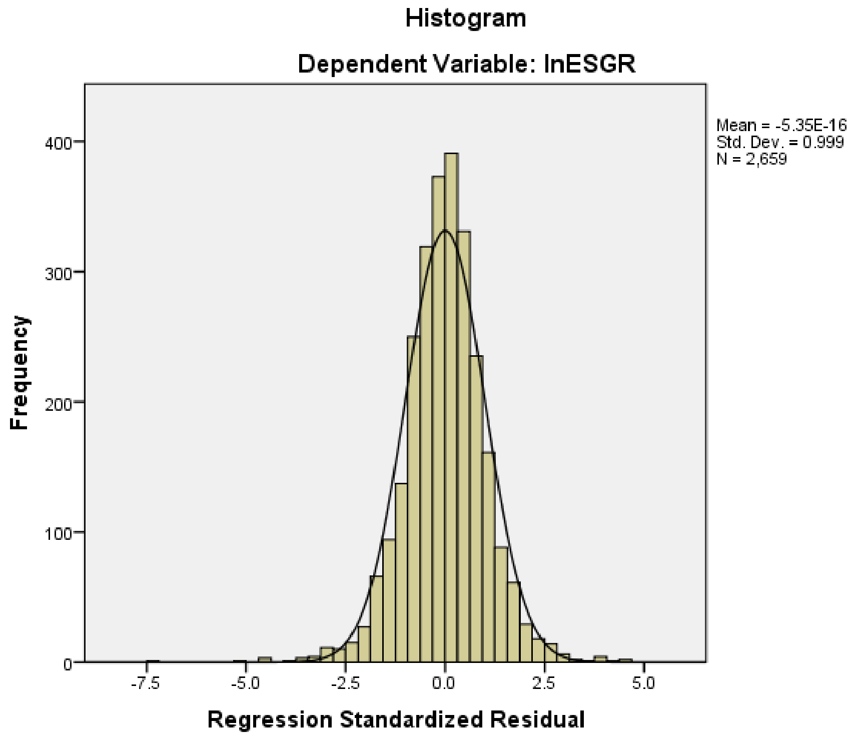
Vadithala, U. K., & Tadoori, G. (2021). Market Efficiency of ESG and Traditional Indices -Pre and Post COVID Analysis of NSE Indices. International Journal of Creative Research Thoughts, 9(3), 2712-2726. Retrieved from http://www.ijcrt.org/papers/IJCRT2103332.pdf

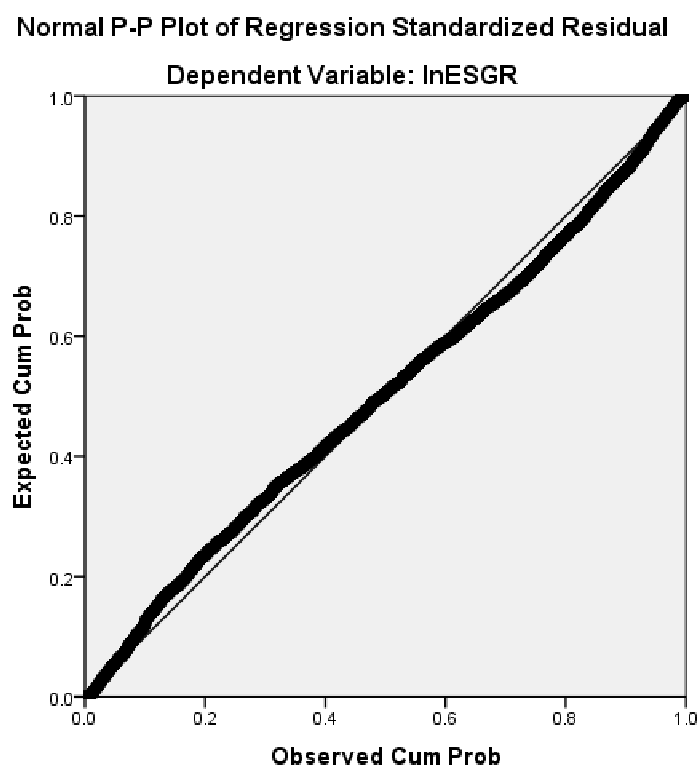
Vasal, V. K. (2009). Corporate social responsibility and shareholder returns—Evidence from the Indian capital market. Indian Journal of Industrial Relations, 44(2),. Indian Journal of Industrial Relations, 44(2), 376–385. Retrieved from http://www.jstor.org/stable/27768210

Wadhwa, P. (2017). Performance of Nifty and ESG Index: A Relative Approach to Non-financial Reporting. Ramanujan International Journal of Business and Research, 2(1), 123–136. doi: https://doi.org/10.51245/rijbr.v2i1.2017.129

National Stock Exchange (NSE). 2020. ESG Analysis on 50 Listed Companies in India. Mumbai, India.

Appendix


Histogram
Dependent Variable: lnESGR
Mean = -5.35E-16
Std. Dev. = 0.999
N = 2,659
Frequency
400
300
200
100
0
-7.5
-5.0
-2.5
0.0
2.5
5.0
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: lnESGR
Expected Cum Prob
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
Observed Cum Prob