
WORKING PAPER 263/2024

**HOW GREEN (PERFORMANCE) ARE THE INDIAN
GREEN STOCKS – MYTH VS REALITY**

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July 2024

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Price : Rs. 35

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How Green (performance) are the Indian Green Stocks: Myth Vs Reality

Saumitra Bhaduri and Ekta Selarka

Abstract

Socially responsible investing gains attention following the perception of Covid-19 pandemic as the "sustainability" crisis. Environmental, Social, and Governance (ESG) characteristics emerge as essential factors for the assessment of sustainability and social impact of an investment leading investor focus in ESG-focused investment for meeting non-financial, societal values with investment objectives. This paper contributes to the ongoing debate on impact of ESG investing on firm value in the Indian context by analysing the risk-adjusted performance of the two ESG-focused indices – Nifty ESG100 and Nifty100 Enhanced - over a sample period of July 2018 to Dec 2022. The paper also examines whether ESG strategies of firms can reduce the downside risk sensitivity during crisis periods by testing the hypothesis that the socially responsible firms suffered less during the Coronavirus pandemic.

Keywords: *ESG, India, Risk-adjusted Performance, Pandemic, Crash risk.*

JEL Codes: *G30*

Acknowledgement

The authors are grateful for the feedback from the participants of 10th Seminar Series 2023, at Madras School of Economics and 24th Biennial International Conference, 2023, at Indian Institute of Technology Madras where earlier version of this paper was presented.

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INTRODUCTION

Responsible investment that consider Environmental, Social and Governance (ESG) criteria is pushing the conventional wisdom in finance from profit-maximizing to “doing well by doing good”. Post-COVID, ESG investing surged; 2/3 of investors prioritize ESG, emphasizing decarbonization.¹ While ESG disclosure showcases informational benefits, influencing foreign investors and reducing firms' cost of equity and information asymmetry, the empirical literature examining motivation, financial performance, and equity strategies, offers mixed results and measurement challenges. The literature contrasts social objective of businesses to use their resources solely to increase profits (Friedman,1970) with ESG providing an investment strategy that aligns personal values with investments, emphasizing stakeholder-centric strategies, fostering growth, and mitigating risks for potential higher returns.

To assess the objective that investing for purposes beyond shareholder value leads to unfavorable investor outcomes, existing research can be classified into three categories. The first explores firms' motivation for sustainability, emphasizing pro-social shareholder preferences or improvement in company's morale (Hart and Zingales 2017, Edmans 2011). These studies find that ESG aligns values with investments, asserting social impact, and talent attraction (Bénabou and Tirole (2010); Heal (2005); Kitzmueller and Shimshack (2012); Margolis *et. al.* (2009); Christensen *et. al.* (2017); Chowdhry *et. al.* (2017) as well as superior long-term financial performance, growth, profitability and flow of funds (Fabozzi *et. al.* (2008), Luo and Balvers (2017), Hartzmark and Sussman (2019) Pedersen *et. al.* (2020), Zerbib (2022), Glossner (2021), Baker *et. al.*

¹ Investment in portfolios based on ESG has grown to 4435 participating financial investors with more than \$150 trillion Asset Under Management as of March 31, 2021. The sustainable funds recorded an increase in the global AUM to 36 percent in 2020 from 28 percent in 2016. The AUM of \$35.3 trillion in 2020 is forecasted to reach \$60 trillion by 2025. https://www.ey.com/en_gl/news/2021/11/three-quarters-of-institutional-investors-say-they-may-divest-from-companies-with-poor-environmental-track-records.

(2018), Bolton and Kacperczyk (2020), Aragon *et. al.* (2023) and Pastor *et. al.* (2021). Second, building on the modern portfolio theory researchers ask if equity strategies utilizing ESG ratings result in outperformance, yielding improved risk-adjusted returns and positive alpha. These studies fail to find green firms or high ESG rating mutual funds outperforming their low ESG counterparts (Gorgen *et. al.* 2021, Hartzmark and Sussman 2019), Pedersen *et. al.* 2020). Positive returns for ESG stocks disappear due to correction in risk, sectoral biases, and investor attention (Bruno et al 2022, Hartzmark and Sussman [2019], Cornell 2020). Third, drawing from the agency theory perspective "greenwashing" is documented where public announcements of ESG are motivated by concealing poor performance, impacting investments (Flugum and Souther 2023, Kim and Yoon 2020, Brandon *et. al.* 2022, Raghunandan and Rajgopal 2022). The challenges empirical research arise due to diverse ESG ratings (Berg *et. al.* 2019, Chatterji, *et. al.* 2016, Dortfleitner *et. al.* 2015, Semenova and Hassel 2016, Li and Polychronopoulos 2020) and measurement issues involving the direction of causality due to endogeneity of performance. This unresolved issue questions ESG-focused companies' long-term financial performance and ethical behavior.

ESG stocks may outperform due to shift in investor attention to ESG strategies in short span of period (Pastor *et. al.* 2021). ESG firms, with low expected returns, outperform as a hedge against risk. For example, Lins, Servaes, and Tamayo (2017) find that socially responsible firms suffered less during the global financial crisis. More recently, Albuquerque, et al (2020) finds that the high ESG rating stocks suffered less during the downmarket in the first quarter of 2020.

Identifying hedge effects amid market outcomes related to firm attributes is challenging. Static factor models lack potential risk reduction benefits because downside risk reflects asymmetric exposure. Given the growing focus on responsible investing, it's crucial to challenge conventional finance wisdom. Our study contributes to the literature by examining whether responsible investing justifies risk-adjusted

performance using two Indian ESG-focused indices. By using a COVID-19 crisis as a natural experiment our study adds to study the causal effect of sustainability on downside risk sensitivity during crises.

Extending this inquiry of ESG's impact on firm outcomes, we study if ESG stocks experience reduced stock price crash risk. Crash risk is likely to be higher in firms with agency problems as management exploits information asymmetries to conceal, withhold or delay the bad news [Stein 1989]. Focusing on crash risk is crucial for its direct link to information disclosure's impact on real and financial outcomes (Jin and Myres 2006; Bleck and Liu 2007; Callen and Fang 2013; Kim and Zhang 2016). This is crucial, especially in emerging markets with insider control and poor corporate governance practices (Cao *et. al.* 2016, Li *et. al.* 2017, Kim *et. al.*, 2014). Competing literature argues that ESG's nonfinancial complexity may lack financial materiality for investors suggesting that ESG considerations, *per se*, do not have such effects (Kruger 2023). Our research design exploits COVID-19 as an exogenous shock, testing if ESG alleviates crash risk in ESG index firms.

Our study is closely related to Arora *et. al.* (2022), Buchanan *et. al.* (2018) and Lins *et. al.* (2017), exploring corporate social responsibility during global finance crisis. However, our research complements these studies by exploiting the unique aspects of COVID-19 pandemic being non-financial in nature as well as by explicitly focusing on ESG which continues to gain traction since pandemic.

The paper is organized as follows. Next section presents data and methodology followed by results, and conclusion.

DATA AND METHODOLOGY

Our results are derived from index and firm-level analyses, focusing on two National Stock Exchange (NSE) traded ESG indices, ESG100 (ESG) and ESG100-Enhanced (ESGE). The indices derive from NIFTY100 based on

MSCI ESG scores, with ESGE excluding companies with severe category risk. Daily returns for these indices, NIFTY, and their member firms are gathered from July 2008 to December 2022. Firm-level financial data is sourced from the Prowess database by CMIE, yielding a final sample of 85 firms after excluding missing information. Sectoral weights of these indices are detailed in Table 1.

Table 1: Sector Representation for ESG and ESGE

Sector Weight (percent)	ESG	ESGE
Financial Services	28.66	28.93
Information Technology	22.38	22.59
Automobile and Auto Components	10.9	11.02
Fast-Moving Consumer Goods	6.64	6.7
Consumer Durables	4.68	4.73
Healthcare	4.55	4.49
Consumer Services	3.86	3.78
Oil, Gas and Consumable Fuels	3.73	3.61
Telecommunication	3.36	3.39
Power	3.17	2.93
Construction Materials	2.44	2.15
Metals and Mining	1.82	1.84
Realty	1.12	1.13
Construction	1	1.01
Chemicals	0.94	0.95
Services	0.44	0.44
Capital Goods	0.3	0.31
Number of Firms	89	85

ESG Overperformance

As shown in Table 1, the ESG indices are dominated by the financial services and information technology sectors. Therefore, to eliminate biases due sector and factor exposures, and attention shifts we analyse ESG index performance by adopting both single index as well as factor based methodologies.

First, we calculate conventional risk-adjusted measures such as Sharpe Ratio, Adjusted Sharpe Ratio, Revised Sharpe Ratio, M-Squared,

Treynor Index, Jensen's Alpha, and Appraisal Ratio. to investigate if ESG indices outperform the natural benchmark of the NIFTY100 index. To account for the downside and tail risks, we use additional measures such as Arithmetic Tracking Error, Semi variance, K Ratio, Maximum Drawdown, Bias Ratio, VaR, Calmar Ratio (Abs), Ulcer Performance Index and Sterling Ratio.

By design, ESG indices are not more diversified than the NIFTY100 since the former is a subset of the latter and it is possible that ESG screening entails an increased risk due to the lack of diversification. To examine this, we calculate a measure of "net selectivity" (Fama, 1972) that reflects the required return to justify specific risks associated with the ESG screening. A positive net selectivity indicates that any loss of diversification due to ESG screening is offset by a significant alpha.

Finally, to account for factor exposures and attention shifts, we use the four-factor model [Fama and French 1993, Carhart, 1997] as our baseline model (equation 1) which augments the single index market model by three additional factors that capture the premium due to (i) high book to market ratios (value factor), (ii) small market capitalization (size factor), and (iii) winner stocks compared to loser stocks ("momentum factor).

$$r_{p,t} - r_{f,t} = \alpha + \beta_1(r_{M,t} - r_{f,t}) + \beta_2 HML_t + \beta_3 SMB_t + \beta_4 WML_t + \varepsilon_t \quad (1)$$

where $r_{p,t}$ is return on ESG (ESG-E) index stocks, $r_{f,t}$ the risk-free return, $r_{M,t}$ the return on NIFTY 100 index, HML_t the value factor portfolio return, SMB_t the size factor portfolio return, WML_t the momentum factor portfolio return on a day t . Factor data is obtained from the Indian Institute of Management Ahmedabad data library². Following Cahart (1997) we use a heteroscedasticity and autocorrelation consistent estimation for robust

² <https://faculty.iima.ac.in/~iffm/Indian-Fama-French-Momentum/>

statistical inference. The baseline model is then augmented with an attention shift by adding a dummy for pandemic periods.

ESG Crash Risk

Jin and Myers (2006) posit that stock price crash risk is measured as a remote, negative outlier in a firm's residual stock return. Extended market model (equation 2) is estimated to calculate weekly residual return for each member stock in ESG index (Hutton *et. al.* 2009, Kim *et. al.* (2014), Chang *et. al.* 2016):

$$r_{i,t} = \alpha_i + \beta_{1,i}r_{m,t-2} + \beta_{2,i}r_{m,t-1} + \beta_{3,i}r_{m,t} + \beta_{4,i}r_{m,t+1} + \beta_{5,i}r_{m,t+2} + \varepsilon_{i,t} \quad (2)$$

Where, $r_{i,t}$ the return i^{th} ESG stock, and $r_{m,t}$ is the return on Nifty100 in trading week t . Lead and lag terms of market returns in Eq. (2) account for the non-synchronous trading effects (Dimson 1979). The idiosyncratic weekly returns is then calculated as equation (3)

$$W_{i,t} = \ln(1 + \hat{\varepsilon}_{i,t}) \quad (3)$$

Subsequently, negative conditional skewness of daily stock returns (NCSKEW) and, the down-to-up volatility (DUVOL) are computed as equations (4) and (5).

$$NCSKEW = -\frac{n(n-1)^{3/2} \sum W_{i,t}^3}{(n-1)(n-2)(\sum W_{i,t}^2)^{3/2}} \quad (4)$$

$$DUVOL = \ln \frac{\sum_{down} \frac{W_{i,t}^2}{n_{down} - 1}}{\sum_{up} \frac{W_{i,t}^2}{n_{up} - 1}} \quad (5)$$

$NCSKEW$ is computed for each firm-year. For $DUVOL$, all the weeks with firm-specific returns below the average are separated from those firm-specific returns that are above the average as "down weeks" and "up weeks", respectively. n_{up} and n_{down} stand for the number of up and down weeks, respectively, over the specified firm-year.

To investigate if ESG stocks have lower stock price crash risk compared to non-ESG stocks, we estimate the equation (6):

$$AbnormalCrash_i = \beta_0 + \beta_1 d_ESG_i + \sum \theta_k Controls_i + \sum Industry_p + \varepsilon_i \quad (6)$$

where, the abnormal crash risk for i^{th} stock is defined as the change in crash risk (DNCSKEW $_i$ and DDUVOL $_i$) during the pandemic. Pre-COVID spans March 2018 to February 2020; COVID spans March 2020 to February 2021. We test robustness of our findings using alternative timelines. For brevity, we report the results for most widely accepted timelines. d_ESG_i (d_ESG_i) is the dummy variable that takes a value of 1 if the stock is included in the ESG (ESGE) index and 0 otherwise. $CONTROLS_i$ are the firm-specific characteristics to ensure that other firm characteristics do not drive our results. Following empirical literature, we incorporate Firm Size (natural log of total assets) and ROA. Larger, profitable firms face ESG investment pressure, influencing index membership (Wu, 2006). To account for risk, we include leverage, stock volatility (52 weeks moving average standard deviation). Riskier firms are less likely to commit their funds towards ESG (Orlitzky and Benjamin, 2001). Finally, we add industry dummies to control for industry specific variation. All the control variables are measured for the pre-pandemic period and all the variables are winsorized at 1 percent top and bottom to control for outliers.

RESULTS

ESG and Portfolio Performance

As discussed previously, our paper explores the value of ESG screening for investors through three levels of analysis: conventional risk and return, performance decomposition for portfolio diversification impact, and a multi-factor model assessment.

Figure 1 depicts cumulative ESG indices returns versus NIFTY 100. Before the pandemic (2018-2020), high correlation exists, contrasting with outperformance during the pandemic (2020-2021). Table 2 shows

attractive returns, with annualized returns up to 0.6 percent and a cumulative gain exceeding 3 percent over the holding period. Additionally, ESG portfolio annualized volatility is slightly lower than the benchmark.

Figure 1: Cumulative Returns of ESG – NIFTY 100, ESG – NIFTY 100, NIFTY 100 (2018-2022)

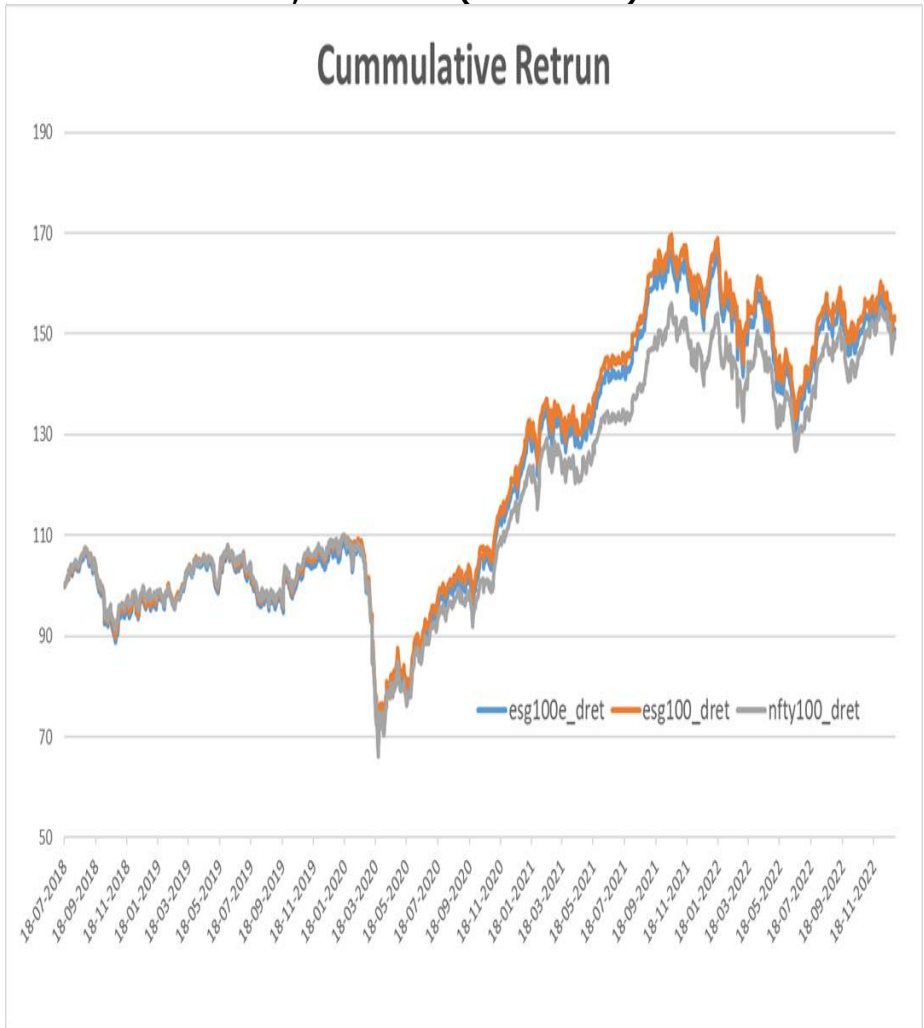


Table 2: Daily Return Statistics (2018-2022)

	ESG 100	ESG E 100	NIFTY 100
Annualized Return	10.11 percent	9.70 percent	9.49 percent
Cumulative Return	52.45 percent	49.99 percent	48.71 percent
Jarque-Bera Test	1612434.37	1619095.39	1682423.27
Annualized Risk	5.77 percent	5.74 percent	5.81 percent
Vol	19.97 percent	19.91 percent	20.03 percent

Table 3 details risk-return characteristics, showing ESG portfolios offer superior risk-adjusted performance than NIFTY 100. Metrics like Sharpe Ratio, M Squared, and Treynor Index support this finding, while Jensen's alpha and appraisal ratio affirm annual outperformance. The betas of ESG indices are close to one as expected due to the significant overlap with the benchmark index.

Table 3: Portfolio Level Risk-Return Characteristics (2018-2022)

Risk-Adjusted Measures	ESG 100	ESG E 100	NIFTY 100
Sharpe Ratio	0.266	0.245	0.233
Adjusted Sharpe Ratio	0.234	0.219	0.209
Revised Sharpe Ratio	0.266	0.244	0.233
M-Squared	0.101	0.097	0.095
Beta	0.984	0.986	1.000
Treynor Index	0.054	0.050	0.047
Jensen's Alpha	0.007	0.003	0.000
Appraisal Ratio	0.246	0.096	

Table 4 reveals minimal unique risk (0.11 percent of total) in ESG indices, with lower semi-variance and tracking error, affirming reduced tail risk compared to the benchmark. Various VaR and drawdown measures affirm lesser tail risk in ESG portfolios compared to the benchmark. For instance, the Sterling ratio indicates a 45 basis point improvement for ESG portfolios over the benchmark. Further, net selectivity is positive, justifying ESG screening's positive impact on diversification.

Table 4: Portfolio level Tail Risk characteristics (2018-2022)

	NIFTY ESG 100	NIFTY ESG E 100	NIFTY 100
Market Risk	5.6457 percent	5.6221 percent	5.8104 percent
Unique Risk	0.1236 percent	0.1162 percent	
Total Risk	5.7746 percent	5.7436 percent	5.8104 percent
Arithmetic Tracking Error	2.85 percent	0.56 percent	0.00 percent
Semi variance	2.32 percent	2.34 percent	2.37 percent
Maximum Drawdown	-38.655 percent	-38.753 percent	-39.665 percent
Parametric VaR 99 percent	-2.871 percent	-2.880 percent	-2.891 percent
Adj Par VaR 99 percent	-9.494 percent	-9.509 percent	-9.750 percent
Hist VaR	-3.626 percent	-3.650 percent	-3.730 percent
Average Drawdown	-1.722 percent	-1.771 percent	-1.781 percent
Drawdown based Risk-adjusted Performance Measure			
Ulcer Performance Index	0.549207172	0.502394999	0.475217975
Bias Ratio	0.846153846	2	1.142857143
Sterling Ratio	3.073877167	2.75854428	2.622538874
Fama Decomposition of Nifty ESG 100			
Risk Premium	7.9162 percent		
Due to Risk	6.8630 percent		
Due to Selectivity	1.0532 percent		
Diversification	0.1577 percent		
Net Selectivity	0.8955 percent		

Next, insignificant ESG portfolio excess return, and negative coefficient on the HML factor from Table 5 suggest that ESG funds are predisposed towards growth stocks. While the annualized alpha turns out to be 1 percent, it is statistically insignificant. To check the robustness of above findings, we re-estimate the Jensen alpha from our baseline four-factors model for the individual firms that constitute the ESG index. Most alphas are near zero as shown in Figure 2, indicating no significant outperformance for ESG index firms.³

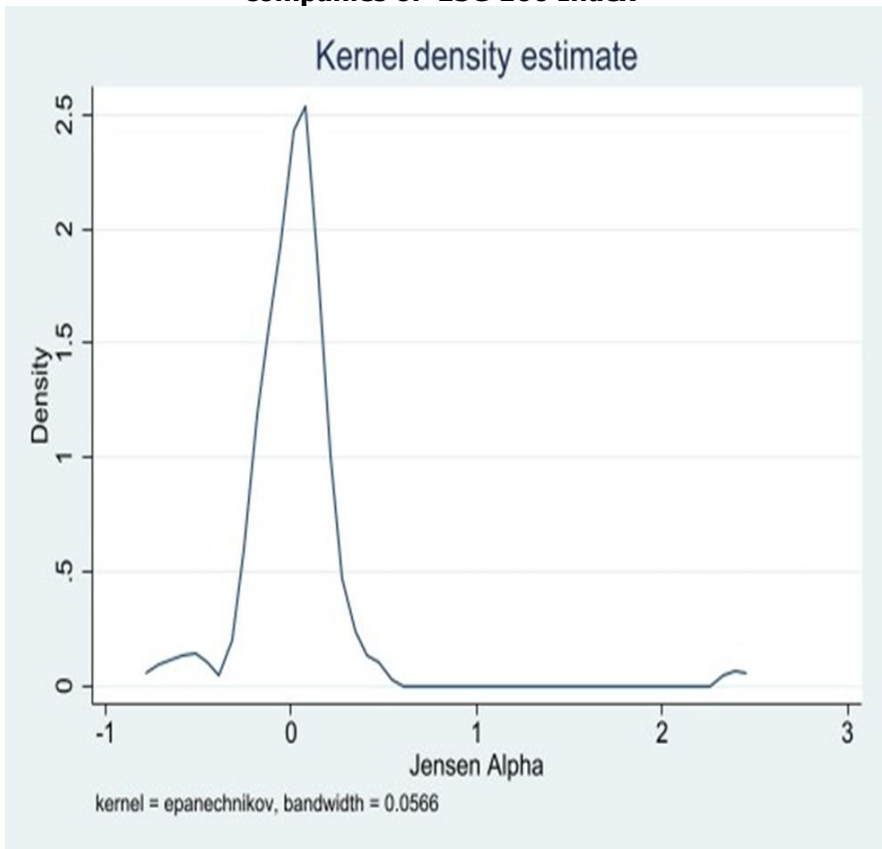
Table 5: The Four-Factor Baseline Model (2018-2022)

Variables	(1) ESG 100	(2) ESG-E 100
SMB	0.00473 (0.727)	0.00236 (0.354)
HML	-0.0401*** (-6.342)	-0.0472*** (-7.283)
WML	0.00960* (1.711)	0.00767 (1.333)
ExcessNifty100	0.992*** (229.0)	0.995*** (223.8)
Constant	3.26e-05 (0.620)	2.06e-05 (0.381)
Observations	1,103	1,103
R-squared	0.981	0.980
Annualized Jensen's Alpha	1 percent	1 percent

Note: t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

³ A similar trend is observed for ESGE constituent firms.

Figure 2: Density plot of Jensen Alpha of the constituent companies of ESG 100 Index



Finally, we examine whether socially responsible firms suffered less during the 2020 pandemic by augmenting our baseline four-factor model. Model 1 and 2 in Table 6 reports the estimates of the augmented model with the pandemic dummy (P_dum20-21) defined over the sample period of 2020-21. Models 3 and 4 in Table 6 decompose the level effect into two periods 2020 (P_dum 2020) and 2021 (P_dum 2021) separately. The results show that ESG screening yields significant excess return 6.5 percent, especially during the pandemic in 2020.

Table 6: The Augmented Four-Factor Regression With Attention Shift

VARIABLES	(1) NIFTY ESG 100	(2) NIFTY ESG E 100	(3) NIFTY ESG 100	(4) NIFTY ESG-E 100
SMB	0.00304 (0.470)	0.000570 (0.0858)	0.00309 (0.476)	0.000599 (0.0901)
HML	-0.0417*** (-6.624)	-0.0490*** (-7.582)	-0.0416*** (-6.600)	-0.0489*** (-7.560)
WML	0.00904 (1.622)	0.00708 (1.238)	0.00912 (1.633)	0.00714 (1.245)
ExcessNifty100	0.991*** (230.3)	0.994*** (225.1)	0.991*** (230.2)	0.994*** (225.0)
P_dum20-21	0.000400*** (3.794)	0.000424*** (3.926)		
P_dum 2020			0.000419*** (3.218)	0.000437*** (3.270)
P_dum 2021			0.000379*** (2.881)	0.000411*** (3.042)
Constant	-0.000148** (-2.090)	-0.000171** (-2.357)	-0.000148** (-2.089)	-0.000171** (-2.356)
Annualized Jensen Alpha	6.55 percent	6.58 percent	[7.067 5.993 percent]	[6.932 6.23 4 percent]
Observations	1,103	1,103	1,103	1,103
R-squared	0.981	0.980	0.981	0.980

Note: t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

Finally, following Ferson and Schadt (1996) and Chen and Knez (1996),

Table 7 reports the conditional four-factor model accounting for both the slope and the intercepts to adjust to the pandemic. Table 7 corroborates our earlier findings of the outperformance of ESG screening during the pandemic.

Table 7: The Augmented Four-Factor Regression With Pandemic Dummies (Conditional)

VARIABLES	(1) NIFTY ESG 100	(2) NIFTY ESG E 100
SMB	-0.00177 (-0.194)	-0.00442 (-0.470)
HML	-0.0491*** (-5.115)	-0.0545*** (-5.512)
WML	-0.0151** (-2.009)	-0.0155** (-1.993)
ExcessNifty100	1.002*** (138.3)	1.000*** (134.2)
p dum2021	0.000373*** (3.578)	0.000400*** (3.720)
SMB_p dum2021	0.00780 (0.605)	0.00886 (0.668)
HML_p dum2021	0.0115 (0.912)	0.00811 (0.623)
WML_p dum2021	0.0559*** (4.995)	0.0520*** (4.517)
ExcessNifty100_p dum2021	-0.0158* (-1.749)	-0.00939 (-1.013)
Constant	-0.000140** (-1.994)	-0.000164** (-2.269)
Annualized Jensen Alpha	6.047 percent	6.127 percent
Observations	1,103	1,103
R-squared	0.982	0.981

Note: t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

ESG Crash risk

Figures 3a and 3b presents the trends in the crash risk of ESG and non-ESG firms for the two measures – NCSKEW and DUVOL. Irrespective of the measure, on an average the ESG firms have lower crash risk than their non-ESG counterparts. While both groups witnessed an increase in the crash risk during the pandemic, the extent of this increase is higher for the

ESG companies. Therefore, to further investigate the statistical difference in crash risk of these companies, we estimate the Equation 6. Results presented in Table 8 show that after controlling for the firm-specific variables, the DESG (DESGE) dummy is insignificant irrespective of the crash risk measure, indicating that the change in crash risk during pandemic is not statistically different across the two groups ESG and non-ESG. Therefore, we conclude that while the ESG firms experience a lower crash risk compared to their non-ESG counterparts, they do not experience any additional hedge during the pandemic.

Figure 3a: Trends in Crash Risk - NCSKEW

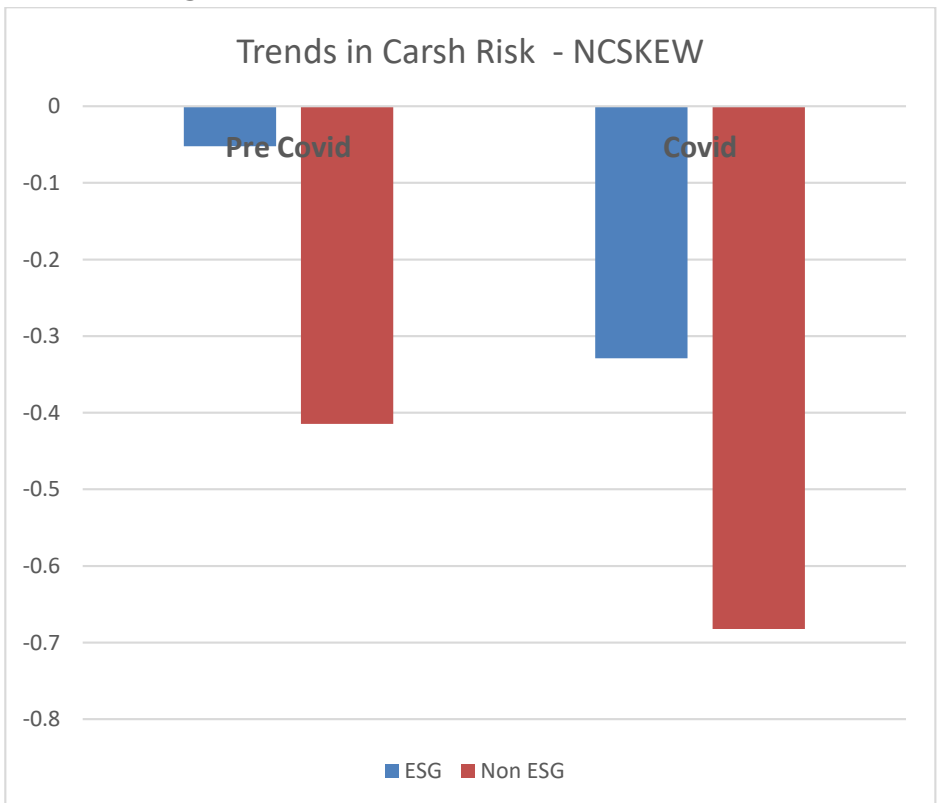


Figure 3b: Trends in Crash Risk - DUVOL

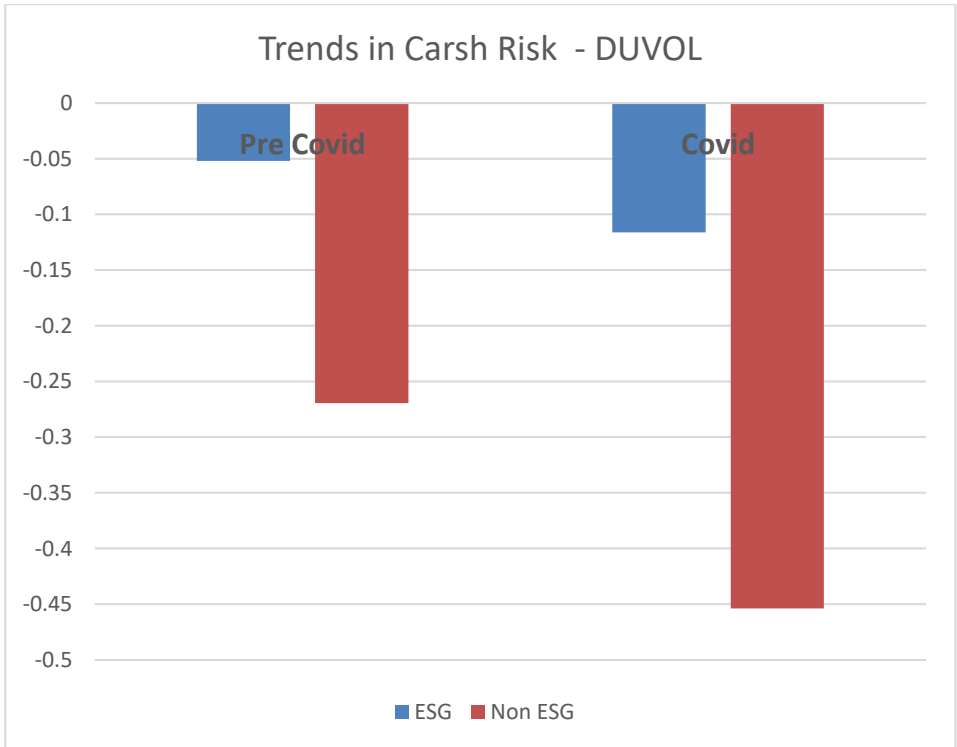


Table 8: Crash risk and ESG

Variables	(1)	(2)	(3)	(4)
	DNCSKEW	DNCSKEW	DDUVOL	DDUVOL
d_ESG	-0.178 (-0.748)		-0.0416 (-0.668)	
d_ESGE		-0.0264 (-0.111)		0.00300 (0.0487)
firm size	0.0302 (0.510)	0.0239 (0.404)	0.0203* (1.898)	0.0185* (1.723)
leverage	0.433* (1.717)	0.433* (1.730)	-0.0127 (-0.215)	-0.0124 (-0.211)
volatility	-9.580 (-1.209)	-9.569 (-1.210)	-1.366 (-1.131)	-1.362 (-1.130)
ROA	1.268* (1.774)	1.251* (1.757)	0.396*** (2.723)	0.391*** (2.705)
Constant	-0.183 (-0.240)	-0.126 (-0.165)	-0.0780 (-0.544)	-0.0611 (-0.426)
Industry Dummy	Yes	Yes	Yes	Yes
Observations	1,177	1,177	1,177	1,177
R-squared	0.042	0.042	0.058	0.058

Note Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

CONCLUSION

The paper examines ESG firms' outperformance claims in the context of an emerging economy, India. ESG indices outperform only in single index returns, disappearing with investor attention and firm attributes adjustment. The study fails to find significant downside-risk protection in ESG funds. The literature suggests ESG strategies might offer unique benefits during crises, like pandemics or climate risks, aiding in hedging exposure. However, these findings need confirmation through diverse crisis episodes, considering the ESG funds' significant rise in 2020-21, potentially influencing results. Investigating crash risk during the pandemic reveals no significant difference between ESG and non-ESG firms, indicating ESG firms don't provide additional protection against crash risk. Overall, our findings indicate that "doing well by doing good" with ESG might not materialize through outperformance. The "value" proposition of ESG companies may involve, for example, lower costs of equity capital or

encouraging investment in green technologies. By eliminating the portfolio outperformance, the ESG investors can target different sets of value adds such as a hedge against non-financial shocks and unexpected changes in environmental regulation and most importantly through a positive impact on society.

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