

Expectations, Believes, And Perceptions Of Investors Towards Environmental, Social, Governance (ESG) Investment For Sustainability

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ABSTRACT

Investors capital role to fuel the transition to sustainable economy attracts the large number of economists. Evidence suggests that investors perception, expectation, and belief for the Environmental, Social, Governance (ESG) while making investment decision, not only offer better performance but also create an impact on society. Equilibrium models with diverse ESG investments, reveals that although green assets may offer low return in longer run in comparison to non-ESG (n-ESG), but ESG investment would outpace the n-ESG investment via different channels in shorter run. Present study highlights that ESG preference through engagement offers positive impact on society, and shift for sustaining policies due to rising market values and investors choice for low capital cost green organizations.

Keywords: Expectation, Belief, Perception, Investors, ESG, Investment, Sustainability

INTRODUCTION

Last two decades witnessed significant rise in responsible investment of institutional investors. From year 2006 to 2021, United Nations Principles for Responsible Investment (UNPRI) exhibited high rise in committed/responsible signatories and asset owners with combined Assets Under Management (AUM) that was from USD 6.5 trillion to 121.3 trillion respectively [1]. This withdrawn investors' attention over ESG, that may offer imperative valuation while determining risk premium and associated structure. Initial observation of finance industry reveals that there is no agreement among industrial experts over performance and benefits of ESG based investments. Some consider ESG investment offer better performance, some recognise this to have social impact at the cost of relinquished financial performance, whereas some see this as unfair way to generate funds [2]. There could be three facets of ESG over social impact and performance of investment, such as: firstly, perform high by executing good (achieve high performance benefit and gain positive social impact by ESG); secondly perform low by executing good (achieve low performance benefit and gain positive social impact by ESG); and thirdly perform neutral by executing good (achieve neutral performance benefit and gain positive societal impact by ESG) [3]. Many studies included modelling of economists' choices, to study their implication on production decision, asset price, and society; and it was revealed that there is no single motivation element that influences investor choice to consider ESG got their allocation decision. Evidence suggests investors reputation, moral values, legal duties, and financial purposes are the factors that affect their decision to include environmental risk in portfolio decision [4]. Therefore, current study was intended to review the perception, expectation, and belief of investors regarding ESG investments. Current review involved evaluation of assets pricing implication of ESG based investment decisions. Previous studies on sustainable investment revealed application of exclusion screening in portfolio decisions, featuring high capital cost of brown firms in comparison to green firms to reduce risk-sharing [5]. This review also highlights the price power of firms with social responsibility, and nonfinancial benefits related to holding of green assets [6,7].

Investors with such motives invests more in green firms, which push up the price of green assets and thus lowers the expected returns. Hence, the green assets reflect negative Capital Asset Pricing Model (CAPM) alphas in comparison to brown assets which generally offer high returns due to hedging (investment intended to reduce risk of effect of adverse price movement). The unanticipated ESG risk like climate change, tends green assets to underperform in comparison to brown assets (that hedges against climate risk). ESG based investment also involves risk of uncertainty about true green nature of assets (based on ESG scores), that in turn can reduce the negative return prediction of assets ESG score as high risk of ESG uncertainty offer high premium risk [8].

Uncertainty of ESGs also assists information channel in describing how preference of ESG affects the capital cost of any firm. A study revealed that capital cost indicates the information risk of investors on one hand; and varies in ESG-interested investors share in market on the other hand, although it increases when both investor groups are uniformly represented (Goldstein et al., 2022). Reduction in domination of market by n-ESG investors, leads to an increase in capital cost. These models assist in reconciling the investor to sacrifice the financial returns while investment in green assets and mixed evidence on capital cost of green firms. ESG investment performance can be determined using dynamic or static equilibrium models. Although several investigations found negative relationship of ESG-predicted returns in one-period equilibrium model, however ESG investments may outperform in short run [8,9]. An investigation highlighted the outperformance of ESG investments via consumer and investor channels. Study highlighted that positive shift in investors and consumers tastes can manifest in green assets outperformance [10]. The ESG investments relative performance depends upon the prevalence of type of investors in the market, such that market wherein ESG-driven investors prevails there the green assets price is driven up leading to low expected returns [11]. Facts suggest that dynamic equilibrium model can confront the negative relation of ESG-alpha via risk premium channel. Study highlights that brown averse investors (BAI) ready to lose expected returns while holding green assets may be based on the ESG demand and supply [1]. Since positive demand and supply troubles are linked to declining marginal utility, the BAI may need high risk premium to hold green turning market. Troubles in ESG demand, imply positive risk premium for green assets, therefore inhibits negative -expected ESG return relation in static setting.

Evaluation of studies over evidence for investors preference for green assets and holding of green assets to serve as hedge against ESG-associated risk, revealed large consensus over investors preferences for sustainability [12-14]. Investigations confirmed the economic agents support for sustainable investments, such that investors are ready to sacrifice returns ESG investment engagement and thereby values sustainability [15,16]. Evidence reveals that sustainable investment support is based on investors social preferences, and also the individual investor social preferences are countable in portfolio decisions.

Facts suggest that for climate risk, ESG based investment acts as hedge, such that firms with good ESG performance not only offers low returns and low climate risk, but also exhibits consistency in augmented investor demand due to high potential of hedge against climate risk [17-19]. Evidence also accounts premium in options market to hedge the ESG related uncertainty or climate risk [20, 21]. Era between 2000 and 2011 witnessed that during market prices, the socially responsible mutual funds outperformed the conventional mutual funds (Nofsinger and Varma, 2014). This fact was also supported by the other study wherein low-carbon mutual funds were less exposed to climate risks [13].

Although, Literary evidence suggests ESG investment to underperform, however these evidences are mixed, such that some of the studies highlights that in comparison to brown firms the green firms underperforms [22-25]. Whereas some studies suggests positive relation between firms ESG profile and its returns [26-28]. Also, some studies found no significant relationship [1,29]. Surprisingly, the Positive ESG demand upsets can reconcile such evidence [8], alternatively, unexpected rise in environmental concerns may also manifest in high realized returns [26].

Current study also contemplates ESG-inspired investments ability in making a social impact through various channels such as environmental activism, shareholder coordination, institutional commitment, divestment, and two-tier engagement [30,31]. Although ability of these channels to have intended impact may vary. One of the studies highlighted that divested ESG strategies imposes less impact on investment decision of the firms. Recent study highlighted to assist in engaging to generate social impact [3]. Rather than divestment, the investors may engage brown firms (low ESG performance) to get converted to green or motivate green firms to be further green for high valuation and low capital cost for transition.

INVESTOR PREFERENCES FOR SUSTAINABILITY

The models classically assume green assets as consumable goods, for inclusion of investor preference for sustainable investment [8,9,11]. In theoretical models, the investors exhibit different preference for sustainability, such that one group of investors prefers green assets unrelated with their returns and extracts non-pecuniary benefits such as: they receive direct utility from holding green assets that is more than what they could extract on consumption by payoffs of such assets. These are distinct from standard assets price assumption wherein investors are concerned solely with payoffs from investment and not with investment characteristics.

A candid method to model investor preference for green assets is by exclusion screening based on firm characteristics. One form of investors (exclusionary ethical) may deny holding assets that violates ethical standards; whereas other group of investors may be neutral regarding greenish nature of firms. A study involved modeling preference, wherein exclusionary green investors presence changed risk sharing prospects in market. As undesirable firms could be hold by less investors than green firms, thereby their share price may drop. As risk sharing declines with greater number of green investors, the capital cost of polluting firms may rise [32]. For exclusion screening another approach can be assimilation of the investor preference comprising positive screening. To hold polluting assets generally investor utility is punished, whereas to hold green assets little utility is obtained. Investigation highlights that investor utility is based on holding of assets and related environment [22]. The green investors' non-monetary preference for assets bearing high environment score, raise the price with which green assets exhibits low expected returns compare to brown assets. These model causes green assets preference-based investors to hold green assets with higher weightage that in turn results in more contemplated ownership of green assets.

Alternate to exclusionary screening to assimilate investor preference also comprises positive screening. To hold polluting assets generally the investor utility is penalized, whereas to hold green assets some utility is gained. Investigation highlights that investor utility depends upon holding of assets and environment [22]. Apart from it, the green investors non-monetary choice for assets bearing high environment score causes rising of its price, thereby in comparison to brown assets the green assets exhibits low expected return. Such model causes green taste investors to hold green assets thereby resulting in highly concentrated ownership for green assets.

Although few investors do not prefer sustain assets, however yet they collect information about firms ESG scores for updating themselves about risk and return of assets. One of the studies reported inclusion of ESG-aware investors along green assets non-preferring and preferring investors. Study indicates key for investors portfolio problem based on frontiers' ESG-efficiency. Assets bearing high ESG scores exhibit hump shape for frontier & low Sharpe ratio, whereas ESG-aware investors which includes ESG information in investment decision without ESG preference exhibit High Sharpe ratio. The higher demand of ESG-motivated investors causes high ESG scores assets to exhibit low expected returns [11].

Performance of ESG investment is also affected by the ESG industry size or ESG investors fraction in economy. Investigation reveals that for ESG industry existence, the dispersion of ESG preference is must [10]. Evidence suggests that of ESG investments outperforms based on market prevalence of investors type. When whole investors are sustainability non-preferring and ESG aware, then ESG scores will not predict abnormal return, as information is incorporated in prices. Whereas when whole investors are sustainability preferring, then high ESG scores indicates low capital cost of firm that may issue shares at high price. Market containing all type of agents results in different equilibria based on prevalence of agents' type, which may cause positive, negative, or neutral relation amongst ESG score and expected return [11].

In all models, investor utility was modelled as function which included non-monetary benefits that subgroup of agents gained after green asset holding. As concern for change in climate is agent specific (taste for green assets), so agents' utility in economy could be changed unexpected understanding of ESG-associated risks like change in climate. A study included risk of climate as its preference, and investors utility was assessed on climate risk, stock holdings, wealth, and non-monetary gains on holding stocks [10]. With such preference, the expected downperformance for green assets was also based on supposition to act as hedge for risk of climate the investors worry. Investors pay more for sustainable assets that earn low alphas. Portfolio decisions of ESG investors causes inclination for green assets and low expected returns related to agents with no sustainability preference. Stronger green assets taste causes larger deviation from market portfolio (hold by agents when no dispersal in preference). Also, as investors averts unexpected indecency of climate, the high expected returns on holding brown assets indicates high exposure of brown firms to climate risk.

It is probable that compare to green (non-polluting) firms the brown firms serve as hedge. it is assumed that while polluting firm is exposed to positive climate shocks to the outcomes, the high negative climate shock could be realized, this cause such firms to exhibit high rise in unexpected returns thereby make them as hedge against climate. The BAI which suffers high disutility loss have strong intent to hedge, so inclines the portfolios to polluting firms. High prevalence of BAI fraction in economy causes declination of capital cost of polluting firms, which leads to more capital in brown firms. So, possibility of both mechanisms, creates a doubt whether clean or polluting stocks hedges against climate risk [7].

The CAPM assume investors are aware about distribution probability of future payoffs for assets and optimize choice of portfolio using laws of probability. Due to probability laws uncertainty, agents update their beliefs over probability of future payoffs distribution based on new data. The ambiguity of model is relevant for ESG preference, such that it is difficult for economic agents to know about degree of certainty about severity of climate risks [33-36].

A study determined the effect of such uncertainty over assets pricing. Study highlighted that BAI obtains non-monetary gains by holding of ESG score-based assets, but ESG score of firms were erroneous to which investors perceived such uncertainty as risk. Study reported that equity demand based on absence of ESG preferences and asset demand with negative payoff for brown market and positive payoff for green market. Non-monetary gains obtained by investors to hold green asset reduces the risk premium, whereas asset is risky due to uncertainty of ESG which imposes high risk premium. So, ESG-alpha relationship is nonconclusive. Study

revealed numerous assets to have different ESG uncertainty levels, such that alpha increases with ESG uncertainty that in turn weakens that alpha-ESG relation [1].

Reports suggest ESG uncertainty effect on ESG investment [37]. Investigation reports importance of investors knowledge, beliefs, and ambiguity on probability of future payoff distribution, and consequence for ESG investors survival [38]. Evidence highlights conditions for agents' survival and impact on long term price. Based on time preference, study established that selection of market does not hold agents with poor forecasts and cannot survive, also their price impact is destroyed when they are out from market. Agents poor forecast may accumulate under some utility circumstances, thereby agents may survive and affect the price [39]. As significance of findings related to ESG investments have not been investigated, therefore it is prospect for future research. Investors interest on sustainable investment prospects shifts over time, and such shift in recent years witnessed involvement of preference shocks while modelling of investor choices and behaviors. Non-monetary gains from green assets investment may vary based on economy, that generates model which involves change in demand and supply of ESG assets. Along with asset pricing model and demand shock, there is rise in preference shock for sustainable investment [40-42]. Dynamic model that involves ESG investor preference shock may justify relationship of ESG-alpha which changes over time, sign and magnitude. Study highlighted time-variation of abnormal return of brown and green firms in various economy states, and counter preference of investor for sustainability to shape ESG-alpha relationship dynamics [43].

An investigation highlighted asset pricing consequence of time-changing ESG preference. Study revealed that BAI are highly sensitive to ESG supply and demand shocks for green market and needs high risk premium to hold market. This risk causes fluctuation of ESG-alpha relationship over time [44]. The dynamic and two period economy models reflected prospects for ESG investment outperformance related to returns realized. Positive shocks for investor ESG preference in model bearing high non-monetary benefits on holding green assets, causes rise in green assets prices which results in positive un-expected returns during decrease in brown assets price; thereby realized return for green and brown assets long-short portfolio correspondingly turns positive. Whereas two period economy models [10], reveals ESG choice to shift for agents associated with positive unexpected return for green assets.

Other than consequence of asset prices, the taste of investor for green assets (in turn readiness in paying more for sustainable investment) may affect the investment decisions of firms. The green firms' capital cost get low when investors extracts non-monetary benefits while holding equity. As a result, the green firm valuation rises when compared to identical brown firm, due to this value difference the brown firms are induced to become green [10,32]. Such an effect and high growing rate of green firms attributed to low capital cost might cause green firms to contribute to large fraction of whole economy.

Study highlighted that presence of profit and ESG-inspired investors market may also affect the capital cost via information channel [44]. Socially responsible investors generally fund green firms, this fact is supported by several reports that highlights investors willingness to pay sustainable investment (Table 1).

Table 1: Recent investigations on investors willingness for payment for sustainability

Study Area	Study conclusion	Time	References
Willingness for payment for sustainable investment	Significant rise in per month net flow of low carbon funds in comparison to conventional funds after labelling "low carbon".	Year 2017 to 2019	[13]
Willingness of impacting investors for payment of sustainable investments	Allocation decisions of investors with significant willingness for payment of sustainable investment are insensitive for impact.	Year 2020	[14]
Impact of preference of ESG investors on market prices of bonds	Pro-environmental preference of investors produces less impact on the price of bonds.	Year 2013 to 2017	[24]
Objective of investors to hold mutual funds of social responsibility.	Social signalling and preference describe investment decisions social responsibility.	Year 2006 to 2012	[45]
Willingness for payment for municipal bonds market	Investors are willing for nonmonetary benefits in the bonds market.	Year 2010 to 2016	[46]
Investors value for sustainability.	Investors of mutual fund give value to sustainability. Funds market demand depends upon rating of sustainability.	Year 2016 to 2017	[47]
Investors willingness to pay for market of municipal securities	Investors are unwilling to sacrifice their wealth to invest in projects that are environmentally sustained.	Year 2013 to 2018	[48]
Drivers and behaviour for investors willingness for sustainable investment	Growing pension funds engagement is favoured by 67.9% participants to enhance the portfolio firms sustainability. Social preference is the driver for sustainability.	Year 2018 and 2020	[49]

Evidence on investors modelling preference related to ESG investment focused on treatment of ESG-inclined investors as homogenous set. Although when socially responsible investors preferences are aligned over direction, there could disagreement over importance of various aspects of sustainability of any firm and the responsible investors purposes might be nonaligned. Based on the various studies findings it is revealed that heterogeneity of ESG investors preference is a promising research avenue in near future.

SUSTAINABILITY AND INVESTMENT PERFORMANCE

Recent investigation reveals that at firm level, compare to brown firms the green firms offers low returns [17,24,25,46]. Studies highlight positive relation between ESG profile and equity returns of a firm [26,27,50], whereas one of the study determined that there is no significant relation [51]. Another study highlighted that ESG investment-based returns described in literature are close to conventional investment based average returns [52].

Facts suggest that sustainability of corporate improvises its financial performance. Study highlights positive relation between sustainability of corporate and its financial performance [52]. Disseminating the sustainability of corporate into various components such as environmental, social and governance gives a deep insight into ESG-performance relations. Evidence suggests that good governance is related to good financial performance and high values of firm firm value [27,50]. Although the argument “do well by doing good” over environment and social components is well supported by studies, but this offers positive and slightly weak relation with firm value [53]. It is confusing that firm financial performance of corporate and values exhibits positive relation to ESG, whereas investors are not able to achieve high performance through ESG investment strategies.

Study explained, that as performance of investor is related to strategy, so performance result determines the level to which investment strategy will reflect the information about firms ESG profile. Additionally, the ESG investment-based benefits are state-dependable and well understood while crisis time. Apart from it metrics of ESG are not consistent in quality and widely distributed with providers of data. Also, market would be pricing the strategies for ESG in correct manner, so that abnormal returns are not realized [52]. Also, additionally the reports suggest that performance of ESG investment can be described based on the perspective of risk or models for preference and beliefs of investors.

About perspective of risk, there are conflicts in literary reports, whether green or brown firms investments serve as hedge against risk. The n-ESG firms investment generates added risk like: risks of biodiversity, carbon emission, environment regulation, physical, transition or lawsuit [17,25,54]. Demand of Investors to compensate exposure to such added risks leads to high risk premium to hold brown asset. So, n-ESG based investments demands high expected returns in comparison to ESG based investments. Importantly, polluting firm provides hedge against climate risk, as when negative climate shock is realized then positive shock to their output may occur, thus they may pay off during high pollution. Study states that investors firms that suffer high disutility due to adverse climate shocks will keep strong objective to hedge, thereby increase the polluting stocks holdings [7].

Regarding perspective of investor preference, as per supposition that few investors prefer sustainable investments and derive non-monetary utility on green asset holding, such investors may willingly sacrifice returns to hold ESG investments, this reveals negative relation about ESG-performance. One of the study supports such yield of effect while holding liquid safe assets [55]. Prevalence of green assets preference-based investors market results in under ESG investment under performance, whereas, shift in investor taste for green assets may cause out performance of ESG investment [10].

Importantly, convenience generated on yield of holding green assets can vary over time, off-setting the negative ESG expected return relationship [8]. The BAI in the green market are sensitive to shocks for ESG demand and supply, and require high risk premium which implies positive relationship of ESG-expected return. Study reveal that uncertainty of ESG may manipulate the relationship of ESG-performance, which further supports that green firms may under perform [8,52]. Empirical studies reach largely opposing conclusions on the relationship between ESG performance and investment returns. The table 2, summarizes latest evidences for relation between sustainability and investment performance.

Table 2: Recent evidences for relation between sustainability and investment performance

Study Area	Study conclusion	Time	References
Costs and benefits of mutual funds of low carbon	Funds for low carbon are less exposed to risk of climate change and outperform conventional funds with high climate change risks.	2017–2019	[13]
Willingness of investors for accepting trade-off between nonmonetary benefits and financial returns	Impacting funds exhibit low internal rates of return and investors accept low internal rates of return for impacting funds.	1995–2014	[15]
Perception and willingness to pay by Investors for sustainable investment	Investor takes sustainability as firms’ positive attribute, and funds with high sustainability does not outperform the funds with low sustainability.	2016–2017	[16]
Stock return and carbon emission	Firms stock with high carbon emission earn high return and investors demand compensates for exposure to risk of carbon emission.	2005–2017	[17]
Carbon intensity, global warming, and returns	Firms with high carbon-intensity under performs when compared with low carbon intensity firms in abnormal warm weather.	2001–2017	[23]
Pricing of bonds	Green bonds yield is low when compared to conventional bonds.	2013–2017	[24]

Premium of pollution	High toxic emission firm intensity offers high return when compared to firms having low toxic emission intensity within the same industry. Exposure to environmental-related risks.	1991–2016	[25]
Premium of green firms in the equity market	Unexpected rise in environment concerns drives the green firms stocks to out-perform the brown firms stocks.	2012–2020	[26]
Firms with carbon efficiency and their returns	Firms with carbon efficiency outperforms when compared with firm of carbon-inefficiency	2005–2015	[56]
Risk of climate is revealed by stock price	High climate beta stocks out performs low climate beta stocks.	2000–2018	[57]
ES ratings and Stock return	Average stock returns and ES ratings exhibited no significant relations.	1991–2016	[58]
Carbon emission and stocks return	Unlike firms with unscaled emission, the estimation of raw emission (unscaled) by sellers/vendors correlated with stocks return.	2005–2019	[51]
Price of carbon risk in markets of corporate bond	Firms having more carbon intensive bonds obtains low return.	2006–2019	[59]
Ownership and pricing of green bonds	In comparison to conventional bonds, the green bonds are given at premium (low yield)	2010–2016	[46]
Going green price	No evidence for premium yield or discount over green bonds	2010–2017	[29]
Performance of conventional funds versus socially responsible funds while market crises	While market crises, mutual funds that are socially responsible outperforms the conventional one.	2000–2011	[60]
Fee performance of mutual funds that are socially responsible	Funds that are socially responsible exhibits low return and request high fees of management in comparison to conventional funds.	2006–2012	[61]

A study analysed mutual funds and ESG performance, however study couldn't evident that high sustainability mutual funds outperform the peers with low ESG after adjusting risk factors [16]. On the contrary another study reported improved performance for sustainable funds evaluated for long time period [62]. Both investigations revealed that high sustainability funds obtains high inflow of funds in comparison to low sustainability funds and investors generally prefers sustainable investments. Evidence suggests that sustainable investments are motivated by future expectations of performance of sustainable funds and non-monetary objectives for sustainable investments.

Investigations on performance of ESG funds investment in private equity or investigations involving alternative investment reports under performance of ESG based funds. In case of ventured funds of capital, it is noticed that impacting funds under perform the ventured capital funds [15]. Whereas in case of endowment funds, the responsible investment endowment offers low portfolio performance in comparison to investment endowment that is non-responsible [63]. Importantly, the relationship of ESG-performance is also state-dependent and may change over time. Studies assumes performance of green firms or funds with high sustainability in crisis. Firms with high social capital offers high returns when compared to firms having low social capital financial crisis [64]. Investigation reports that during Covid19 crisis in 2020, the high sustainability funds performed well as investors focused on sustainability during crisis time.

Facts suggest ESG investment under performance is also risk-based, such that Investors holding n-ESG investments when exposed to additional risk demands for risk premium. There is positive relationship between sustainability and less risk, and there are re less reports over ESG investment underperformance. Study determined that engagement of ESG firm is correlated with reducing risk and scores of ESG have less impact on risk accustomed financial performances [65]. Study highlighted that low-carbon funds are less exposed to future risk of climate change [13]. During high risk of climate change, mutual funds with low carbon outperform the conventional funds and exhibits high unknown volatility. Study reveals that low-ESG firms offers high operational risk [66]; and firms with high carbon emission offer more tail and variance risks [67]. It has been determined that high polluted firms faces more environmental regulation risks [25]. Study revealed that ESG engagement of investors reduces downside risk of portfolio firms [68]. It is revealed that uncertainty stemming from ESG related regulation policies can impact the economic agents investment decisions.

The regulation uncertainty of ESG policies can be observed in investors hedging behaviour. Determination of implications of requirements to hedge against ESG-based uncertainty over high-order moment of return of assets is considered as important for future research.

SUSTAINABILITY AND SOCIAL IMPACT

Although the ESG investment might not offer high return, however they might offer social impact positively. The achievement of impact can be obtained using various channels, such as: ESG investors proportion in market [11], friction of capital [69], low capital cost and high valuation [10], and constraints of finance and coordination (Oehmke & Opp, 2022).

Study reveal that rise in number of ESG investors in financial market causes reduction in ESG firms expected returns. So, green firms may raise capital at low cost and high valuation, with the rise in growth of ESG investors. This forces brown firms to turn green and green to be further greener [70]. Large number of ESG investors reduces the brown firms probability to get financed, thereby pressurises the firms to internalize their

external choice, so create an impact. Facts suggest that financial investors and socially responsible coordination may cause an impact. In the conditions of financial constraints, responsible investors elevate the green firms financing capacity beyond the level of sole financial investors, which creates an impact. Several evidences suggests the various channels (divesting strategies to engagement) by which ESG investments could create a societal impact [70]. A summary of recent finding over ESG investment ability to create a social impact is given in table 3.

Table 3: Recent evidences for relation between sustainability and investment performance

Study Area	Study conclusion	Time	References
Perception of investors and engagement	Investors consider the approach of engaging as compare to divesting for addressing climate risk.	2017–2018	[3]
CSR and Institutional shareholders	Institutional holdings exogenous rise improves performance of portfolio firms CSR.	2003–2006	[58]
Engagement of shareholders and downside risks	Engagement of ESG decreases firms subjected to downside risk.	2005–2018	[68]
Ownership of big three and reduction of emission of carbon	There is negative relation between ownership of big three and related emission of carbon	2005–2018	[71]
ES risk and shareholder voice	There is a negative relationship among funds support for ES proposal and related abnormal return.	2004–2019	[72]
Environment activists investment real effects	Negative relation between environmental Activism and financial performance	2010–2018	[73]

One of the studies determined effect of environment activist investment choice (channel) over target firms. Study revealed negative relation among firms' financial performance and ESG performance and found social impact evidence. Study suggests that engagement is effective approach to make long-term investors to achieve social outcomes [73]. Institute pledged for sustainable investment may cause positive social impact. Channel for institution commitment may undergo distortion through greenwashing.

Study reported that in comparison to divestment, the large, long-term, and ESG-based institutional investors considers management of risk and engagement to address the climate risk [3]. The ESG initiatives of shareholder are motivated by aim of value maximization, however they could be driven by non-financial outcomes that may harm value of shareholder sometime [75]. Investigation suggests that major shareholders opposes the proposal of environment and society [72]. Study reported proposal of environment and society reduces the chances of value deteriorating issues. Study on perception of climate risk reports that institute investors assumes risk of environmental and climate to be less important in comparison to financial risks for portfolio decisions, whereas on same time have substantial finances implication for portfolio firms. Study reports that institute investors are directed by incentive for ethics, curator duties and reputa protection [3]. Another study highlighted outperformance of institutional investors with improved ESG paths to rising preference of investor for ESG investment and demand-based price burden created through institute investors over stocks with high environment scores [34]. Study highlights that societal-based investors achieve high impact and returns on shifting of capital to firms which needs subsidy for viability [76]. Facts establishes that sustainable mutual funds portfolio allocation decision exhibits consistency with value alignment.

CONCLUSION

Present study reveals that sustainability and climate variation defines the society issues, and recent years witnessed that knowledge about investors capital role in sustainment of economy attracted massive financial economists' efforts.

Several studies modelled investors preference for sustainability and determined how preferences directs investment choices and affects firm production decisions, behavior and financial performance of firms. Although investigations over ESG investors preference modeling principally assumed ESG investors as homogenous cohort, however socially responsible investors, differs in preferences over various aspects of sustainability. Like in concern to ESG they might have heterogeneous priority and different belief regarding firms' sustainability performance. Such deviation in firms over various aspects of sustainability, the exploration of consequences of heterogenic beliefs or preferences over economic agent choice of investment is considered as avenue for the future investigations. To have good empirical models for investor belief, the investigations should focus to measure investors' perceptions regarding sustainability performance of firms and expectations for future cash flows related to the ESG stand of firms. Compilation of data over belief regarding risk or perception of investors regarding downside events related to sustainability stand of firms will further add to advancement. Since facts suggested ESG preference shock as risk source, so determination of dynamics of beliefs regarding firms ESG performance is also important. ESG investors misinformation and their acts on inaccurate expectations instead of sustainability taste are also crucial issues. Importantly, the heterogenous belief of Investors regarding probability of future payoff for sustainability performance offers relevant implications for ESG investors survival in long-term. The investors with preference for sustainability and willingness to forgo returns for social impact faces greenwashing problem that hampers reallocation of

capital from brown to green investments. Hence in future research should be aimed to determine the ways to detect greenwashing and design mechanism to punish firms or funds that are engaged in greenwashing.

AUTHOR CONTRIBUTIONS

Conceptualization, R.P., H.K., and N.K.F.; Resources, R.P., H.K., and N.K.F.; Data curation, R.P., H.K., and N.K.F.; Writing—original draft preparation, R.P., H.K., and N.K.F.; Writing—review and editing, R.P., H.K., and N.K.F. All authors have read and agreed to the published version of the manuscript.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest. References

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