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The Impact of ESG Factors on Equity Investment Returns: An Empirical Study Based on the Chinese Stock Market

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Abstract: As the issue of sustainable development is progressively valued, financial institutions increasingly incorporate ESG (Environmental, Social, and Governance) factors into portfolio construction to achieve risk management and return maximization. This study investigates how ESG factors influence stock investment returns and performance, while analyzing their implications for investment strategies. This study employs a two-way fixed effects model to analyze the relationship between ESG criteria and equity performance in China's stock market, identifying a meaningful and statistically robust positive association. The findings emphasize the material marginal effects of ESG factors, as incremental improvements in corporate ESG practices systematically translate into measurable financial gains. Notably, firms with superior ESG ratings exhibit persistent long-term outperformance relative to market benchmarks, suggesting that ESG integration serves as a robust predictor of sustainable value creation. This evidence underscores the growing economic relevance of ESG factors considerations in emerging equity markets. As ESG factors serve as critical indicators of corporate sustainability, ESG principles should be proactively incorporated into enterprises' top-level strategic planning to achieve long-term value creation. Investors are advised to incorporate ESG standards into their strategic decision-making processes to enhance risk mitigation, achieve financial objectives, and incentivize enterprises to advance their ESG practices.

Keywords: ESG Factors, Equity Investment, Two-Way Fixed Effects Model, Stock Returns, Comprehensive Risk Management.

1. Introduction

The prevalence of ESG (Environmental, Social, and Governance) metrics is closely intertwined with the transformation of the global economic structure. As the escalating severity of worldwide issues like biodiversity collapse, environmental contamination, and systemic healthcare disparities underscores the urgency of contemporary crises, ESG investment strategies reflect not only investors' growing concern for environmental and social issues but also their emphasis on corporate governance structures and practices. This not only supplements traditional financial metrics but also represents a reassessment of a firm's capacity for long-term value creation.

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The adoption of ESG investment approaches can incentivize enterprises to enhance their performance in ecological conservation, societal accountability, and organizational oversight, thereby enhancing risk management capabilities and offering investors more resilient returns in uncertain market environments. Recent academic findings show that enterprises with strong ESG performance deliver stable long-term returns [1] and are associated with lower risk levels [2]. Furthermore, empirical studies on ESG investments demonstrate positive trends in risk-adjusted returns [3]. Recent studies increasingly demonstrate that ESG considerations contribute significantly to boosting firm valuation and strengthening stakeholder trust [4].

Regarding how ESG factors influence stock returns, agency theory, initially proposed by Jensen and Meckling, posits that improved corporate governance reduces agency costs and increases shareholder value [5]. The "green competitive advantage" theory, proposed by Michael Porter and Claas van der Linde, posits that integrating environmental and social responsibility into business strategies enhances sustained organizational competitiveness, thereby improving profitability outcomes [6]. Bauer et al. argue that the primary mechanism through which ESG factors affect equity returns lies in risk management, as firms with superior ESG performance exhibit stronger risk mitigation capabilities, leading to higher risk-adjusted returns by preemptively addressing market risks [7]. These theories provide a foundational framework for subsequent empirical research. In prior empirical studies, scholars have conducted comprehensive investigations into the correlation between ESG indicators and equity performance. Friede et al. performed a comprehensive meta-analytical review encompassing more than 2,000 empirical studies on ESG, demonstrating a predominantly favorable association between ESG metrics and corporate financial outcomes [8]. Eccles et al. validated through longitudinal data analysis that firms prioritizing ESG outperform in long-term shareholder returns [9].

This study employs two-way fixed effects model to examine the influence of ESG factors on investment returns within China's domestic equity market. First, by constructing a fixed effects model, the research evaluates how incorporating ESG factors dynamically influences stock returns in investment decision-making. Subsequently, significance and stationarity tests are conducted to validate the model’s representativeness and robustness. Finally, the study explores the economic implications of corporate ESG performance—specifically, whether firms with higher ESG ratings possess stronger sustainable development capabilities. Through these methodologies, this research aims to provide financial institutions with theoretical foundations and practical guidance for constructing more sustainable and stable investment strategies.

2. Research Sample Design

2.1. Data Sources and Sample Selection

This study draws on a comprehensive dataset encompassing all A-share listed firms in China spanning the period 2018–2023 to form the empirical sample. ESG annual ratings and monthly stock returns are sourced from the Wind database, while financial control variables are obtained from the CSMAR database. The data underwent the following cleaning procedures:

(1) Exclusion of incomplete samples: Observations with missing variables were removed.

(2) Winsorization: Continuous variables underwent winsorization at the 1% and 99% to minimize distortions caused by extreme outliers.

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2.2. Variable Definitions

2.2.1. Dependent Variable

Annualized Return(R): To align with the annual frequency of ESG ratings, monthly stock returns are converted into annualized returns using the following formula:

$$R_{annual} = \left(\prod_{t=1}^{n} (1 + R_t) \right)^{\frac{12}{n}} - 1 \quad (1)$$

where $R_t$denotes the monthly return in period t and $n$represents the total number of months in the sample period. This formula standardizes returns to an annualized frequency using compound interest principles, enabling a clearer assessment of ESG factors' impact on equity investment returns.

2.2.2. Independent Variable

Corporate ESG Score(ESG): The Wind ESG Annual Total Score is selected as the independent variable. This metric is widely adopted by institutional investors globally and quantifies ESG performance in a standardized format, facilitating its integration into regression models.

2.2.3. Control Variables

Control variables, sourced from the CSMAR database, include:

(1) Quick Ratio (QR): Quantifies an organization's capacity to fulfill immediate liabilities through its most liquid financial holdings.

(2) Cash Ratio (CR): Reflects a firm's capacity to repay short-term liabilities directly with cash and equivalents.

(3) Corporate Size (CS): Natural logarithm of total assets.

(4) Operating Income Growth Rate (OIGR): Year-on-year percentage growth in operating revenue.

The descriptive statistics of the variables can be found in Table 1.

Table 1: Variable Definitions

Variable Category	Variable Name	Symbol	Definition
Dependent Variable	Annualized Return	R	Investment return of the stock
Independent Variable	Corporate ESG Score	ESG	Firm's ESG performance
Control Variables	Quick Ratio	QR	Ability to repay short-term debt using liquid assets
	Cash Ratio	CR	Capacity to settle short-term liabilities with cash and equivalents
	Corporate Size	CS	Natural logarithm of total assets
	Operating Income Growth Rate	OIGR	Year-on-year percentage growth in operating revenue

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3. Panel Model Design and Empirical Results

3.1. Model Assumptions

Based on existing research, there is a noted positive correlation between historical ESG scores and investment returns. For instance, Renneboog, through the use of the CAPM model and traditional asset pricing models, found that although there was no significant correlation between ESG fund scores and returns, ESG funds generally outperformed non-ESG funds. Leveraging ESG factors can assist investors in better identifying specific portfolio risks, thereby reducing market risks or mitigating tail risks, ultimately enhancing investor returns [10]. Furthermore, research by Ulrich et al. also indicates that ESG investments offer asymmetric returns during social or economic crises, and ESG integration as an investment strategy outperforms ESG screening or exclusion in terms of performance [11]. These findings suggest that incorporating historical ESG scores into investment analysis may help improve investment returns.

Consequently, the following hypothesis is proposed for this paper:

H1: Incorporating historical ESG scores of companies into investment analysis will enhance investment returns.

Given the research objectives and the initial hypothesis, this paper selects the fixed-effects model as the baseline regression model. By fixing individual effects and year effects, it controls for individual characteristics that do not change over time and time trends experienced by all individuals. The specific model is outlined below:

$$R_{i,t} = \beta_1 ESG_{i,t-1} + \sum \beta_j Controls_{i,t-1} + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

In Equation (3),$Controls_{i,t-1}$represents the control variables; $\gamma_i$is the fixed individual effect; δ_t is the fixed time effect, which is the year fixed effect. The model uses lagged variables (such as ESG score from period t-1) instead of current variables (period t) primarily to control for endogeneity issues, avoiding reverse causality and simultaneity bias in causal relationships. Specifically, the current ESG score may be influenced by factors such as the current financial performance of the enterprise and market conditions, which themselves may also be correlated with investment returns, leading to confusion in causality. Using lagged data for ESG scores can better represent the causal impact of ESG performance on future investment returns, thereby reducing the interference of endogenous factors on the estimation results.

3.2. Descriptive Statistics Results

Table 2 depicts the descriptive statistics of main variables including stock returns, ESG scores, current ratios, etc. There are 16,698 observations, with the dependent variable, stock return, having an estimated value of 0.0684, ranging from [-0.5570, 1.8700], and the unit is percentage, all within a reasonable range, consistent with the financial meaning of returns. The core explanatory variable, Wind ESG score, has a mean of 5.9898 and a standard deviation of 0.7881, indicating that the average ESG score of the sample companies from 2018 to 2023 is around 6. Upon a more detailed examination of the control variables, it becomes evident that the quick ratio varies considerably. The quick ratio's lowest value is 0.2023, and its highest value is 10.3132. The substantial difference in the quick ratio among the sample companies underscores the considerable variation in this specific financial metric across different businesses. This implies that certain companies possess a considerably higher proportion of liquid assets to their current liabilities than others, which might affect their financial stability and capacity to fulfill short - term financial commitments. Likewise, examining the lowest and highest values of the cash ratio reveals that there are considerable disparities among the sample companies in this particular metric. The following data are all balanced panel data.

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Table 2: Summary of variable

variable	Obs	Mean	Std.Dev	Min	Max
R	16,698	0.0684	0.4281	-0.5570	1.8700
ESG	16,698	5.9898	0.7881	4.3600	8.2500
QR	16,698	1.7545	1.6580	0.2023	10.3132
CR	16,698	0.6646	0.8526	0.0245	5.2155
CS	16,698	22.4927	1.3547	20.0035	26.5988
OIGR	16,698	0.2865	0.7781	-0.6873	5.3395

3.3. Regression Analysis Results

To test the null hypothesis that considering a company's historical ESG score in investment analysis improves investment returns, this paper uses Model (1) for hypothesis testing. The regression results are shown in Table 3.

In the initial Model (1), the estimated coefficient for ESG stands at 0.01202, accompanied by a standard error of 0.0034 and a p-value that is below 0.0001. It is indicated that there exists a notable positive correlation that is statistically significant between ESG rating and investment return rate. Nevertheless, given the absence of control variables, this observed correlation could potentially be attributed to other unaccounted endogenous factors.

Upon the inclusion of control variables in Model (2), the ESG coefficient is determined to be 0.0148, accompanied by a standard error of 0.0036 and a p - value lower than 0.0001. This signifies that the parameter estimate for the core explanatory variable still holds significance. For Model (2), the within - group R - squared value is 0.0012, the between - group R - squared value is 0.0197, and the overall R - squared value is 0.0012. These figures suggest that after adding control variables, there has been an improvement in the model's explanatory power both within groups and overall.

Moving on to Model (3), after incorporating industry fixed effects, year fixed effects, and between - group R - squared, the ESG coefficient is 0.0072, having a standard error of 0.0035, a t - value of 2.05, and a p - value of 0.04. This indicates a significant positive correlation between ESG rating and investment return rate. The between - group R - squared for Model (3) is 0.0112. When compared with the first three models, Model (3) explains a relatively small proportion of the mean differences among different groups.

After taking into consideration all the factors in Model (3), a significant positive correlation between ESG rating and investment return rate is observed once more. This implies that, after controlling for industry, year, and other relevant factors, a company's ESG performance is an important element that has an impact on the investment return rate.

Table 3: Regression Results

	(1)	(2)	(3)
Dependent Variable	R	R	R
ESG	0.0120***	0.0148***	0.0072**
	(0.0034)	(0.0036)	(0.0035)
Control Variables	No	Yes	Yes
Year Fixed Effects	Yes	No	Yes
Entity Fixed Effects	Yes	No	Yes
Between-group R^2	0.0272	0.0197	0.0112
Overall R^2	0.0005	0.0012	0.2327
Sample Size	16698	16698	16698

Note: The symbols ***, **, and * correspondingly denote significance at the 1 %, 5 %, and 10 % levels; the robust standard errors are presented within parentheses.

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4. Conclusion

Drawing from the comprehensive regression analysis results meticulously detailed in this paper, it is determined that the regression coefficient for ESG factors stands at 0.00715. According to the principle of significance testing, this value is statistically significant at the 5% significance level, indicating a strong and reliable correlation. Therefore, a well-founded conclusion can be drawn: a significant positive correlation between a company's ESG performance and its equity investment returns. This finding can help us make more scientific investment decisions. For example, when conducting stock investment analysis, one can first check the overall ESG score of the target company from authoritative institutions such as Wind, Huazheng, MSCI, and Sustainalytics. By examining the company's capabilities and true performance in terms of social value, risk management and control, supply chain responsibility, and governance responsibility, investors can enhance the accuracy of investment decisions and reduce risks.

However, the fixed-effects model used in this paper has limited explanatory power for equity investment returns, and the research findings still need further verification. The following suggestions are made for future research directions: (1) The current paper solely investigates the influence of overall ESG scores on investment returns. Going forward, the three dimensions of environment (E), social (S), and governance (G) can be more precisely analyzed to examine the distinct effects of each component on investment returns. (2) Considering that ESG driving factors may vary significantly across different industries and regions, future research can conduct analysis by industry or region to capture the specific contexts of ESG's impact on equity investment. (3) The current study does not fully distinguish between the short-term and long-term effects of ESG. In the future, a phased or dynamic panel model can be used to explore the timeliness of ESG more deeply. (4) Given the important role of policy effects in China's A-share market, future research can consider incorporating relevant macro-policy variables to explore their moderating effects. (5) From a risk perspective, future research can explore how ESG factors affect stock volatility and whether the strength and mechanisms of this impact vary significantly across different industries.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

[1] *Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: First evidence on materiality. Accounting Review, 91(6), 1697-1724.*

[2] *Scholtens, B., & Dam, L. (2007). Banking on the poor: Financial services for the poor, banking with the poor. Journal of Banking & Finance, 31(7), 1997-2023.*

[3] *Clark, R., Feiner, A., & Viehs, M. (2015). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. Journal of Applied Corporate Finance, 27(2), 42-57.*

[4] *Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. Journal of Financial Economics, 101(3), 621-640.*

[5] *Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305-360.*

[6] *Porter, M. E., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. Journal of Economic Perspectives, 9(4), 97-118.*

[7] *Bauer, R., Guenster, N., & Otten, R. (2004). Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value and performance. Journal of Asset Management, 5(2), 91-104.*

[8] *Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance & Investment, 5(4), 210-233.*

[9] *Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. Management Science, 60(11), 2835-2857.*

DOI: 10.54254/2754-1169/174/2025.21836

[10] *Renneboog, L., et al. (2008). Socially Responsible Investments: Institutional Aspects, Performance, and Investor Behavior.*
[11] *Ulrich, M., et al. (2024). The Impact of ESG Performance During Times of Financial Crisis: Evidence from COVID-19 in China.*