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# *The Impact of ESG Performance on the Value of Chinese Firms*

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***Abstract:*** Environmental, Social, and Governance (ESG) measures and ratings are more and more important as sustainable investing takes center stage in many markets for capital allocation recently. This study empirically analyzes the effects of ESG performance on corporate value. The paper chooses data from 1375 A-share listed companies in China between 2011 and 2021 and sets up a four-factor capital asset pricing model to analyse ESG factor's effect. According to the findings, an enterprise's value increases as its ESG performance increases, but the effect of ESG on companies' value is not marked. The heterogeneity analysis reports that ESG performance has a varying effect on enterprise value depending on the industry, and it has a more significant effect on enterprise value when there is policy intervention in an industry. This study provides empirical support for listed firms to pay attention to and enhance ESG performance, as well as clarifies the economic impact of ESG performance.

***Keywords:*** ESG investing, enterprise value, industries heterogeneity

## 1. Introduction

ESG investing is an investment strategy that takes the into consideration a corporate's performance in terms of its governance, social, and environmental responsibilities. It develops and improves the concept of responsible investing.

Sustainable investing is rapidly gaining popularity, propelled by a rising consciousness about climate risk, driven by landmark events like the Paris Climate Agreement in 2015, as well as socioeconomic challenges. Over 35% of the assets managed globally are sustainable investments, according to a 2021 report from the Global Sustainable Investment Alliance. Even if the numbers differ each nation, the upward tendency is obvious.

A growing number of asset managers use some kind of an ESG (Environmental, Social, and Governance) strategy and modify their service as a result. The capital markets now provide a wide variety of innovative investment vehicles that enable investors to become green, adopt social responsibility, support a sustainable economy, or make a difference. Never before has investing been this. Up until recently, the main factor dictating whether an investment is passive or active, into market indexing or absolute return, etc., was the degree of risk the investor was willing to accept.

Listed firms are now expressly required to report environmental, social, and corporate governance information, according to a new version of the Corporate Governance Code for Listed firms that the China Securities Regulatory Commission (CSRC) released on June 15, 2018. A company's ESG

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performance will have a big impact on society, and how the public reacts will affect the company's market value and profitability. Therefore, investors have started to value an organization's ESG performance recently. Compared to China, foreign ESG investment is more developed. The Global Sustainable Investment Alliance estimates that $28.6 trillion worth of ESG assets were managed globally in 2017, making almost 30% of the total asset-management market. Foreign experience demonstrates that funds may get greater profits by investing in excellent ESG companies. Chinese ESG investment is still in its infancy, but it has already attracted a lot of investor interest and is growing quickly. The MSCI index was recognized for its ESG performance and included in China's A-share in 2018. So, can Chinese listed companies improve their ESG performance to generate a positive investor response and increase their market value?

The current research, which has mostly concentrated on how one aspect of governance, social, and environment influences corporate value, is divided on the subject.

The current prevailing view is that enterprise value is positively impacted by environmental performance. Song et al.'s found that environmental management is considerably and favorably associated to financial value in the following year, but it is not significantly related to the improvement of financial performance in the present year [1]. Wu Mengyun and Zhang Linrong found that implementing corporate environmental responsibility significantly shows society that a firm is capable of operating responsibly, which boosts the value of the company [2].

There are no consensus on social performance. In reaction to a shock to the salience of sustainability, Hartzmark and Sussman discovered that investors actively switched their investments from funds with low portfolio sustainability ratings to those with high ratings. Additionally, they found no evidence to support the claim that funds with higher or lower sustainability levels outperform one another, supporting the notion that investors view socially responsible investing as having inherent non-financial enterprise value [3]. And Yu Xiaohong and Wu Wenjing found that current company value is significantly impacted negatively by social responsibility, whereas future corporate worth is significantly correlated positively [4].

In terms of governance, Rahman Aulia Fuad et al. selected 271 non-financial companies listed on the Indonesian Stock Exchange between 2015 and 2018 as samples to examine how governance performance effect enterprise value using the TobinQ index, and found that governance performance has a positive effect on corporate value [5]. Qin Zhigang et al. studied China's A-share manufacturing listed companies from 2010 to 2017 as research objects, and the research conclusion showed that corporate governance related factors were positively correlated with corporate value [6]. Liu Yinguo and Zhu Long found that better corporate governance will increase the company's financial security in the long run, which will increase its profitability. In turn, this raises the value of the company because investors are willing to pay more for the company with good governance performance [7].

Numerous research have been conducted on the connection between ESG performance and business value, but no agreement has been found. Wang Linlin et al. used Chinese listed firms as research samples and obtained the conclusion through empirical analysis that the ESG performance has a substantial impact on the advancement of enterprise value and that the better an enterprise's ESG performance, the higher its enterprise value [8]. Yu et al. found that for most listed companies, the benefits brought by ESG activities are greater than the costs [9]. However, Sassen et al. investigated how environmental, social, and governance issues affect corporate risk in Europe and found that stronger ESG performance lowers firm value performance [10]. Using a sample of Malaysian companies, Atan et al. showed no significant correlation between firms' ESG performance and return on net worth and company value [11]. The discrepancies in the current literature may be due to different types of enterprises in different countries and different methods of calculating ESG measurements. There is limited literature that summarizes the connection between ESG performance

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and enterprise value of Chinese enterprises, where as the majority of Chinese research concentrate on one component of environmental, social, and governance.

## 2. Hypothesis

According to resource dependency theory and stakeholder theory, actively carrying out social and environmental duties is helpful for boosting business value. In theory, businesses' commitment to environmental and social responsibility can signal to stakeholders that they are reliable, reduce the cost of business-to-stakeholder interactions, and enhance the efficacy of stakeholders' involvement in business value creation [12]. Based on the resource dependence theory, firms must obtain a wide range of resources from the outside world in order to survive and grow [13]. Enterprises can acquire crucial strategic resources held by stakeholders to create their own competitive advantages by exercising social and environmental responsibility. A strong ESG performance enables businesses to execute high-quality agreements with their stakeholders, gaining their confidence and support, as well as the tools and surroundings needed for sustained development. In order to determine if ESG influences business value, this article initially suggests the following study hypothesis:

H1: Good ESG performance helps to increase enterprise value.

## 3. Method

### 3.1. Research Objects

The present study examines the monthly data of Chinese A-share listed companies in Shanghai and Shenzhen from 2011 to 2021, leaving out the sample of businesses in the financial sector as well as those whose data lack ESG disclosures and have atypical ST, *ST-trading statuses.

### 3.2. Data Sources

The ESG data of this paper comes from Bloomberg News ESG scores, and other data comes from WIND database.

### 3.3. Model Setting and Variable Interpretation

This study is based on Liu et al.'s proposal for the Chinese version of the Fama-French three-factor model ($CH-3$), which eliminates the 30 smallest stocks by market capitalization to reduce shell value contamination. The $CH-3$ model is significantly stronger than the Fama-French three-factor model in explaining the Chinese stock market, and this paper added ESG score as a new factor into $CH-3$ model. Numerous studies that replicated the Fama-French three variables in the Chinese A-share market did not produce very satisfactory outcomes. Liu et al. believe that the effect of these commonplace elements in asset pricing is hampered by the shell value problem brought on by the IPO rule peculiar to the Chinese market; this occurrence is known as "shell-value contamination" [14]. They demonstrate how shell-value contamination can have a significant impact on the 30% of Chinese listed businesses with the smallest market capitalization, which prevents the asset pricing model from accurately reflecting the variations in the projected returns of the stock cross-section.

This paper sets up the following model:

$$R_{it} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i(SMB_t) + v_i(VMG_t) + e_i(ESG_{it}) + \varepsilon_{it} \quad (1)$$

Where $R_{it}$ is the long-short return spread for the anomaly in month $t$. Market return $R_{mt}$ minus risk-free return $R_{ft}$ is what is meant by market excess return $MKT_t$. $CH-3$'s size factor is $SMB_t$. The EP-based value factor is denoted as $VMG_t$. $ESG_{it}$ refers to Bloomberg ESG ratings.

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The construction method of the $\mathrm{CH}-3$ model is as follows: First, the 30% with the smallest market value is excluded, and the remaining 70% stocks are the stock pool of the evaluation factor model. Small and Big groups are created based on market value, whereas Value, Middle, and Growth groups are created based on EP (see Table 1).

Table 1: Group.

| | | Value | | |
|---|---|---|---|---|
| | | Value (Top30%) | Middle (middle40%) | Growth (bottom30%) |
| Size | small(bottom50%) | $S/V$ | $S/M$ | $S/G$ |
| | big(top50%) | $\mathrm{B}/V$ | $\mathrm{B}/M$ | $\mathrm{B}/G$ |

In Chinese three factor model, $SMB$ (Size-Big Minus Small) and $VMG$ (Value-Value Minus Growth) factors are the rates of return for a portfolio constructed as defined below:

$$\mathrm{SMB} = 1/3(\mathrm{S/V} + \mathrm{S/M} + \mathrm{S/G}) - 1/3(\mathrm{B/V} + \mathrm{B/M} + \mathrm{B/G}) \quad (2)$$

$$VMG = 1/2(S/V + B/V) - 1/2(S/G + B/G) \quad (3)$$

Similar to the Fama-French three factors, the $MKT$ factor is created by weighting the excess return of the portfolio yield based on the market value of the companies in the stock pool in comparison to the interest rate on a one-year deposit.

Table 2: Descriptive stats.

| MKT | | SMB | | VMG | | ESG | | Excess Ret | |
|---|---|---|---|---|---|---|---|---|---|
| Avg | 1.248519 | Avg | -1.73691 | Avg | 1.318668 | Avg | 28.20646 | Avg | 0.012383 |
| Standard Error | 0.021588 | Standard Error | 0.016563 | Standard Error | 0.015472 | Standard Error | 0.024451 | Standard Error | 0.000413 |
| Mid | 0.483231 | Mid | -0.76776 | Mid | 0.805675 | Mid | 27.3011 | Mid | -0.0016 |
| StDev | 7.906823 | StDev | 6.066403 | StDev | 5.666777 | StDev | 8.955746 | StDev | 0.151238 |
| Variance | 62.51785 | Variance | 36.80125 | Variance | 32.11236 | Variance | 80.20539 | Variance | 0.022873 |
| Kurtosis | 2.036139 | Kurtosis | 1.637536 | Kurtosis | 0.794019 | Kurtosis | 1.231613 | Kurtosis | 842.4063 |
| Skewness | -0.34605 | Skewness | -0.91096 | Skewness | 0.674214 | Skewness | 0.880043 | Skewness | 12.87048 |
| Range | 41.04473 | Range | 34.50173 | Range | 27.62921 | Range | 62.7183 | Range | 13.44149 |

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Table 2: (continued).

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Min | -24.2258 | Min | -18.3567 | Min | -11.6059 | Min | 6.1983 | Min | -0.6909 |
| Max | 16.81897 | Max | 16.14504 | Max | 16.02334 | Max | 68.9166 | Max | 12.7506 |
| Sum | 167490.1 | Sum | -233008 | Sum | 176900.7 | Sum | 3783925 | Sum | 1661.167 |
| Observed number | 134151 | Observed number | 134151 | Observed number | 134151 | Observed number | 134151 | Observed number | 134151 |

Table 2 reports the main continuous variables. After data screening and processing, there are 134151 observed statistics, the mean $MKT$ factor is 1.248519, the variance is 62.51785, the maximum value is 16.81897, and the minimum value is -24.2258, indicating that the market return fluctuated greatly. $SMB$ is a processed factor that reflects the impact of scale on enterprise value. Its mean value is -1.73691, its variance is 36.80125, its maximum value is 16.14504, and its minimum value is -18.3567. $VMG$ is a processed value factor that reflects the impact of future value on current value. Its mean value is 1.318668, its variance is 32.11236, its maximum value is 16.02334, and its minimum value is -11.6059. The mean value of $ESG$ factor is 28.20646, the variance is 80.20539, the maximum value is 68.9166, and the minimum value is 6.1983, indicating that the ESG performance of different enterprises also has great differences.

## 4. Result

Table 3: Panel A.

| | Coefficients | Standard Error | t Stat | P-value |
|---|---|---|---|---|
| Intercept | 0.007292 | 0.001376 | 5.299038 | 1.17E-07 |
| MKT | 0.00476 | 5.21E-05 | 91.42151 | 0 |
| SMB | 0.001632 | 8.59E-05 | 19.013 | 1.7E-80 |
| VMG | -0.0036 | 9.16E-05 | -39.2991 | 0 |
| ESG | 0.000239 | 4.59E-05 | 5.195431 | 2.05E-07 |

As shown in Table 3, Panel A is regression result of $CH-3$ including ESG, and $ESG$'s coefficient $e_{it}$ is significant positive, which affirms the $H1$.

In the original $CH-3$ model, $MKT$ factor coefficient is very significant and positive, $SMB$ factor coefficient is significantly positive, and $VMG$ factor coefficient is significantly negative. Although the $ESG$ factor coefficient is significant, it is less significant than the three factors of the original model $CH-3$. As shown in Table 4, Panel B is the result of R squares of different factors.

The addition of $SMB$ factor and $VMG$ factor can significantly improve the fit degree of the model, but the model composed of $ESG$ factor and $MKT$ factor has little improvement in fit degree compared with the single $MKT$ factor. The $CH-3$ model with $ESG$ factor also has a slight improvement in fit compared with the original model. In summary, the previous hypothesis $H1$: Good ESG performance helps to increase enterprise value, is confirmed, but the positive impact of ESG on enterprise valuation is not too significant.

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Table 4: Panel B.

| Factors | R Square |
|---|---|
| MKT | 0.04776 |
| MKT, ESG | 0.04921 |
| MKT, SMB | 0.069258 |
| MKT, VMG | 0.078763 |
| MKT, SMB, VMG | 0.081097 |
| MKT, SMB, VMG, ESG | 0.081282 |

## 5. Heterogeneity Analysis: Different Sectors' ESG Performance's Impact on Company Value

The overall panel data regression can be concluded: good ESG performance can help enhance enterprise value. However, in China, there are huge differences among different industries. Due to factors such as policies, industry competition and industry nature, ESG scores of enterprises in different industries have different impacts on enterprise value. Therefore, this paper selected 14 industries in the following table for heterogeneity analysis.

Table 5 shows the analysis results. Among these industries, the $ESG$ factors of mining, manufacturing, energy, transportation and construction are significantly positive, while the ESG factors of information software, culture and entertainment, leasing and business services are significantly negative. In other industries, the $ESG$ factor coefficient of agriculture, sales industry, real estate industry, science and technology service industry, water conservancy and public facilities management industry, public administration and social security industry is positive but not significant, while the $ESG$ factor coefficient of real estate industry is negative but not significant.

Surprisingly, in the above industries, the $ESG$ factor coefficient is significantly positive, but the public impression of ESG performance is not good in the industry, while the public impression of ESG performance of the industry is positive, but not significant. This is because China's environmental protection policies and public policies have strict environmental protection supervision, emission restriction and environmental protection subsidies for high-emission industries such as manufacturing. A good ESG score in all these industries can bring direct benefits to enterprises and has a significant impact on enterprise value.

Table 5: ESG regressions based on CH-3 in different industries.

| | Intercept | MKT | SMB | VMG | ESG |
|---|---|---|---|---|---|
| Agriculture, forestry, husbandry and fishery | -0.0045 | 0.0046 | 0.0029 | -0.0014 | 0.0007 |
| | (-0.3827) | (-11.4875) | (-4.4026) | (-1.9290) | (1.5289) |
| Mining | -0.0216 | 0.0043 | 0.0020 | -0.0006 | 0.0008 |
| | (-4.3363) | (21.2301) | (5.7313) | (-1.5667) | (5.3882) |
| Manufacturing | 0.0088 | 0.0046 | 0.0009 | -0.0049 | 0.0003 |
| | (5.0072) | (67.7223) | (7.6803) | (-41.0745) | (4.6235) |
| Electricity, heat, gas and water supply industries | -0.0127 | 0.0046 | 0.0042 | 0.0015 | 0.0007 |
| | (-2.5614) | (25.8495) | (14.0456) | (4.8270) | (4.3148) |

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Table 5: (continued).

| | | | | | |
|---|---|---|---|---|---|
| Construction industry | -0.0054 | 0.0052 | 0.0024 | -0.0010 | 0.0004 |
| | (-0.7693) | (20.2742) | (5.3007) | (-2.0822) | (1.6250) |
| Wholesale and retail | 0.0038 | 0.0047 | 0.0028 | -0.0022 | 0.0002 |
| | (0.6743) | (25.1085) | (8.8178) | (-6.5509) | (0.7751) |
| Transportation, storage, and postal services | -0.0043 | 0.0045 | 0.0025 | 0.0001 | 0.0003 |
| | (-0.9215) | (23.6882) | (7.7760) | (0.4256) | (2.0764) |
| Information, software, and technology services | 0.0481 | 0.0060 | 0.0031 | -0.0064 | -0.0009 |
| | (6.1095) | (24.0798) | (7.9801) | (-15.0614) | (-3.3013) |
| Real estate | 0.0095 | 0.0052 | 0.0030 | -0.0004 | -0.0001 |
| | (1.2020) | (20.2692) | (6.8793) | (-0.7923) | (-0.2114) |
| Leasing and business services | 0.0294 | 0.0046 | 0.0022 | -0.0031 | -0.0006 |
| | (2.4862) | (11.1647) | (3.3141) | (-4.4157) | (-1.4952) |
| Scientific and technical services | 0.0225 | 0.0069 | 0.0020 | -0.0051 | 0.0002 |
| | (1.3073) | (8.9876) | (1.8025) | (-4.2674) | (0.4505) |
| Water conservancy, public facilities management | 0.0038 | 0.0049 | 0.0043 | -0.0011 | 0.0002 |
| | (0.3225) | (11.9778) | (6.4332) | (-1.5913) | (0.5405) |
| Culture, sports and entertainment | 0.0545 | 0.0047 | 0.0025 | -0.0035 | -0.0015 |
| | (2.6090) | (6.8519) | (2.2257) | (-2.8930) | (-1.9292) |
| Public administration and social security | -0.0075 | 0.0056 | 0.0033 | -0.0033 | 0.0007 |
| | (-0.3404) | (9.1059) | (3.2215) | (-2.9762) | (0.8746) |

## 6. Conclusion

This study uses a sample of 1375 Chinese A-share listed businesses' monthly data from 2011 to 2021 to examine the impact of ESG performance on enterprise value empirically. The findings demonstrate that an enterprise's worth increases with its ESG performance. ESG performance has a different effect on enterprise value depending on the industry, and it has a more favorable effect on enterprise value in sectors with policy support.

The following policy implications are suggested by this paper based on the aforementioned research findings:

Firstly, companies should enhance their ESG performance and reinforce their ESG procedures. Businesses should adopt the ESG concept in project investment, staff training, product development, and other areas to raise environmental awareness, actively engage in social responsibility, improve internal governance, and achieve high-quality enterprise development. Enterprises should improve information disclosure in order to increase the return on ESG investments and help them continue to grow by giving creditors, investors, and other stakeholders a more timely and accurate understanding of their ESG performance.

Secondly, outside participants like analysts should monitor corporate ESG conduct by providing information. The judgment and opinion of the media and analysts serve as the primary foundation for external investors' investment decisions in cases of insufficient disclosure of business information. External participants should actively play the role of an information intermediary by monitoring the ESG behavior of businesses as well, conducting timely, objective analysis, and reporting, directing capital flow to those businesses that perform well in this area, and promoting the enhancement of capital allocation efficiency.

Thirdly, the government can strengthen the system for disclosing ESG information and award businesses based on their ESG performance. On the one hand, government should provide targeted incentives for ESG-performing companies through tax policy, public contracting, project bidding,

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and green credit, such as decreasing loan rates, removing mortgage restrictions, tax exemptions, or tax reductions. On the other hand, commercial banks are instructed to lower their lending quotas or increase their borrowing limits in order to penalize companies who do poorly in ESG by the government compiling a negative list of companies with poor ESG performance. In addition to fully utilizing the market system, the government should establish a trustworthy system for ESG disclosure.

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