

# Is ESG Rating an Effective Tool for Addressing Mispricing of Corporate Assets?

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## Abstract

**This study employs a multi-period difference-in-differences model to empirically examine the impact of ESG ratings on asset mispricing, utilising data from Chinese A-share listed companies between 2009 and 2023 and treating ESG ratings as an exogenous shock variable. Findings indicate that ESG ratings significantly mitigate the degree of asset mispricing within firms. The research not only provides fresh empirical evidence for understanding the relationship between ESG ratings and asset pricing.**

## Keywords

**ESG Ratings; Asset Mispricing; Multi-period Double Difference.**

## 1. Introduction

As the concept of sustainable development continues to gain traction globally, China, as a major economy, must persistently advance alignment with international markets regarding ESG (Environmental, Social and Governance) disclosure standards. Against this backdrop, this paper focuses on Chinese A-share listed companies. Building upon existing research, it employs a multi-period difference-in-differences model to mitigate endogeneity concerns. The study aims to investigate the mechanism and impact of ESG ratings on asset mispricing, thereby providing new empirical evidence to clarify the role of ESG ratings in asset pricing.

## 2. Theoretical Analysis and Research Design

### 2.1. Theoretical Analysis

Based on the theory of information asymmetry, market participants rely on available information to value assets. ESG ratings, as non-financial information provided by third parties, help bridge the information gap between enterprises and investors. Through a signalling mechanism, they reveal the long-term value of enterprises to the market. Asset mispricing arises from deviations in price from intrinsic value, stemming from information asymmetry and irrational investor behaviour<sup>[1]</sup>. Although the Efficient Market Hypothesis posits that information can correct mispricing, information asymmetry and cognitive biases persist in practice. ESG ratings enhance transparency by providing standardised, comparable sustainability assessments, thereby aiding investors in more accurately identifying corporate intrinsic value and curbing asset mispricing<sup>[2]</sup>. Hence, this paper proposes Hypothesis 1: favourable ESG ratings reduce the degree of asset mispricing.

### 2.2. Research Design

#### 2.2.1. Data Sources and Sample Selection

The sample comprises Chinese A-share listed companies from 2009 to 2023, excluding financial sector firms and those designated as ST or PT. Missing values were removed, and all variables

underwent tail trimming at the 1% and 99% percentiles to eliminate the influence of extreme values. Data sources include the Wind database and the CSMAR database.

### 2.2.2. Model Design

To test the role of ESG ratings in asset mispricing (Hypothesis H1), the model was constructed using a multi-period double difference approach:

$$MISP_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 X_{it} + u_{it} + \gamma_{it} + \epsilon_{it} \quad (1)$$

Where MISP denotes the degree of mispricing of firm *i*'s assets in year *t*; ESG indicates whether Shangdao Ronglv published rating data for firm *i* in year *t* (Yes = 1, No = 0).

### 2.2.3. Variable Measure

1) Dependent variable: Asset mispricing

The industry regression valuation method proposed by Rhodes-Kropf et al.<sup>[3]</sup> was employed for estimation. The intrinsic value of enterprises was estimated through an annual industry regression model, with the asset mispricing indicator (MISP) measured by the difference between market value and intrinsic value. An asset mispricing measurement model (2) was constructed:

$$\ln M_{it} = \alpha_{0,j,t} + \alpha_{1,j,t} \ln B_{i,t} + \alpha_{2,j,t} \ln |NI|_{i,t} + \alpha_{3,j,t} \ln |NI|_{i,t}^{+I(<0)} + \alpha_{4,j,t} lev_{i,t} + \epsilon_{i,t} \quad (2)$$

2) Explanatory variable: ESG rating

The core explanatory variable in this study is whether Shangdao Ronglv issued an ESG rating for the enterprise. Following Tan and Zhu<sup>[4]</sup>, the treatment group is coded as 1 if the enterprise received a rating in the year in question, and 0 otherwise.

3) Control variables

This study employs corporate scale, debt-to-asset ratio, cash flow ratio, proportion of fixed assets, Tobin's Q ratio, and institutional investor shareholding ratio as control variables for empirical analysis.

## 3. Empirical Findings Analysis

### 3.1. Benchmark Regression

The regression results based on Model (1) (Table 1) indicate that the coefficient for ESG ratings is significantly negative at the 1% level. After incorporating control variables, this negative relationship remains statistically significant, with an improvement in model fit (adjusted  $R^2$ ), suggesting that ESG ratings mitigate asset mispricing. The findings support the mechanism whereby ESG ratings enhance asset pricing efficiency by improving information transparency and mitigating market information asymmetry, thereby providing preliminary validation for Hypothesis H1.

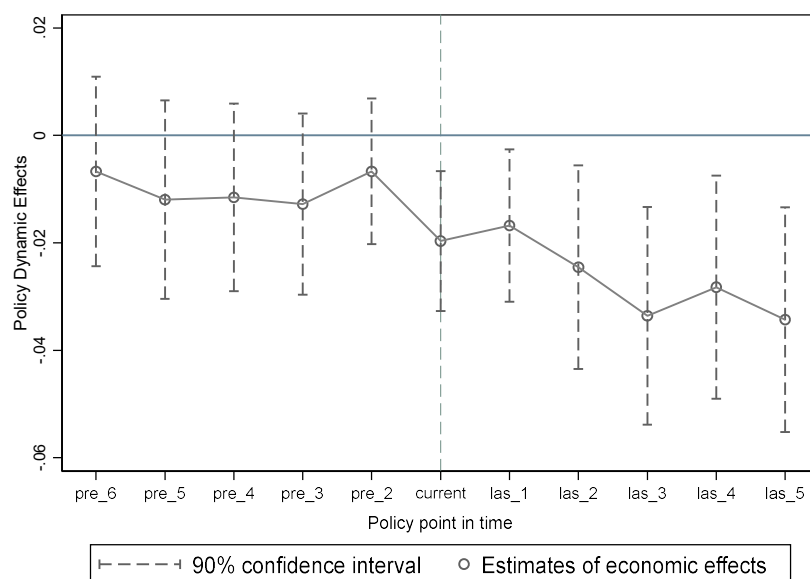
**Table 1. Benchmark Regression Analysis**

Variable	MISP	MISP	Variable	MISP
ESG	-0.015***	-0.030***	Top1	-0.025***
	(-3.71)	(-6.69)		(-3.02)
Size		-0.001	TobinQ	0.060***
		(-0.49)		(94.65)
Debt		-0.085***	SOE	-0.004
		(-13.07)		(-1.46)
Cashflow		-0.051***	ListAge	0.021***
		(-3.20)		(13.79)
Inv		-0.026**	FirmAge	0.009**
		(-2.36)		(2.23)
Fixed		0.002	Inst	0.067***
		(0.22)		(12.34)
Board		0.001	Employ	0.000***
		(0.09)		(12.09)
_cons	0.285***	0.124***	_cons	0.124***
	(241.16)	(3.70)		(3.70)
Individual fixed effect	Yes	Yes	Individual fixed effect	Yes
time fixed effect	Yes	Yes	time fixed effect	Yes
N	44079	44079	N	44079
Adjusted R <sup>2</sup>	0.061	0.257	Adjusted R <sup>2</sup>	0.257

Notes: Columns (1) and (2) show the results without and with control variables, respectively. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

### 3.2. Robustness Tests

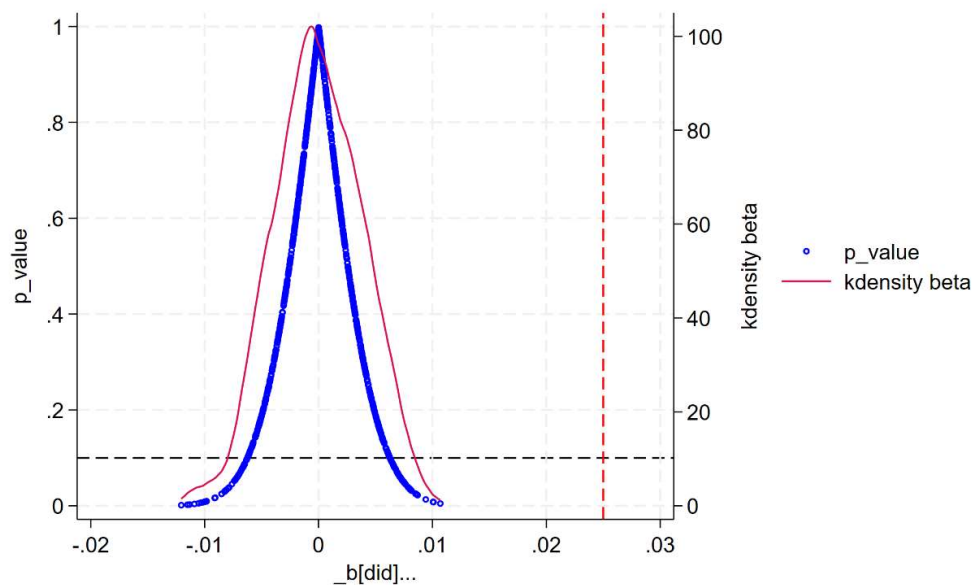
The effective application of the double difference method requires the parallel trend assumption to hold. The test results, as shown in Figure 1, suggest that the implementation of ESG ratings exerts a sustained positive effect on reducing asset mispricing.



**Figure 1. Parallel trend test**

### 3.3. Placebo Test

A placebo test was conducted by constructing simulated policy variables through 1,000 random samples. Results indicate that the mean coefficients of simulated variables approached zero and exhibited normal distribution, demonstrating that the impact of ESG ratings on asset mispricing stems from non-random factors. This validates the robustness of the benchmark regression findings.



**Figure 2.** Placebo Test

## 4. Conclusion

This study employs a multi-period DID model to examine the impact of ESG ratings on asset mispricing, utilising A-share market data from 2009 to 2023. Findings indicate that ESG ratings significantly mitigate asset mispricing, with this conclusion remaining robust following rigorous validity checks.

Research recommendations: Establish a China-specific ESG rating system and mandatory disclosure framework; encourage enterprises to integrate ESG into strategic governance and enhance the quality of information disclosure; guide investors to deepen their understanding of ESG and develop professional assessment capabilities to optimise capital allocation decisions.

## References

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