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The Impact of ESG Integration on REITs Performance: A Comparative Study Based on Quantitative Analysis

Dazuo Tan*

Dongbei University of Finance and Economics, Dalian 116025, Liaoning, China

**Author to whom correspondence should be addressed.*

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Abstract: This paper systematically examines the impact of environmental, social, and governance (ESG) factors on the financial performance and long-term value of real estate investment trusts (REITs). Adopting comparative analysis as the quantitative research method, the paper selects representative cases of ESG-integrated REITs and traditional REITs at home and abroad, constructs a regression model, and compares projects from multiple key value dimensions, including yield, risk-adjusted returns, asset appreciation potential, financing costs, and market liquidity. The study finds that ESG-integrated REITs demonstrate significant advantages in long-term financial performance, risk resilience, and market valuation. Based on these findings, the paper proposes a series of policy recommendations, including improving ESG information disclosure standards, optimizing tax incentive mechanisms, and constructing an ESG evaluation system, to promote the high-quality and sustainable development of China's REIT market. The paper consists of five parts: introduction of the research problem, theoretical framework, research methods (data sources and model construction), quantitative comparative analysis between ESG-integrated REITs and traditional REITs, and conclusion with recommendations.

Keywords: Real estate; REITs; Regression model; Long-term performance; Sustainable development

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1. Introduction

In recent years, the significance of environmental, social, and governance (ESG) factors in the global capital market has become increasingly prominent. As an important tool connecting financial capital and physical assets, real estate investment trusts (REITs) have seen the impact of ESG integration on long-term performance become a focus of attention in both the academic and practical fields.

This study is based on two observations of the current REITs market: on the one hand, an increasing number of REIT managers are proactively disclosing ESG reports and implementing ESG strategies. On the other hand, some market participants remain skeptical about the actual returns of ESG investment, believing that it may

increase operating costs without necessarily bringing corresponding financial benefits. This divergence makes it necessary for us to conduct scientific research and objectively assess the true impact of ESG factors on the performance of REITs, providing a scientific basis for investment decisions and policy-making.

2. Research significance

China's REIT market has developed rapidly since the pilot program was launched in 2020, but ESG integration is still in its infancy. By the end of 2024, among the 54 publicly offered REITs that have been listed in China, only about 20% have released dedicated ESG reports, and the quality and depth of disclosure vary greatly. In contrast, in leading global REIT markets such as the United States, Singapore, and Japan, ESG has become a mainstream investment consideration factor. According to GRESB (Global Real Estate Sustainability Assessment System) data, among the REITs evaluated in the Asia Pacific region in 2023, the annual total return of funds with high ESG scores was 2–3 percentage points higher than the industry average. This gap highlights the significant importance of studying ESG integration for the development of China's REIT market [1].

This study employs a comparative analysis method to select representative ESG-integrated REITs and traditional REITs cases both at home and abroad, and conducts quantitative comparisons from multiple dimensions such as financial performance, risk-adjusted returns, asset appreciation, financing costs, and liquidity. By constructing an assessment framework, the influence and mechanism of ESG factors on various key indicators of REITs are analyzed. At the same time, based on the empirical results, targeted policy suggestions are put forward to provide references for promoting the high-quality development of China's REIT market [2].

3. Theoretical framework

The development of ESG investment theory provides a solid theoretical foundation for studying the performance of REITs. Modern portfolio theory holds that ESG factors can influence asset returns and risk characteristics through multiple channels. Specifically in the REITs field, existing research has identified three main value creation paths: operational efficiency improvement, risk premium reduction, and valuation multiplier expansion. In terms of operational efficiency, properties with green building certifications (such as LEED and BREEAM) typically have higher energy efficiency. Data shows that the operating costs of such properties can be reduced by 15–20%, while the rental premium can reach 5–10%. From a social perspective, REITs that focus on employee benefits and community impact often enjoy lower employee turnover rates and higher tenant retention rates, thereby reducing vacancy costs and rental expenses. Well-governed REITs can reduce agency costs and increase the return on capital through transparent decision-making mechanisms and effective capital allocation [3].

From a methodological perspective, the current research on ESG-REITs mainly faces three major challenges: The first is the issue of ESG data quality and consistency, as the assessment standards of different rating agencies vary significantly; The second is the issue of endogeneity. REITs with outstanding performance may have more resources invested in ESG rather than ESG bringing about excellent performance. Thirdly, the long-term impact is difficult to capture. The value of ESG is often fully manifested over a period of 5 to 10 years, while most studies are limited by data and can only analyze shorter periods. This study will control these interfering factors through a carefully designed comparative analysis framework to enhance the reliability of the research conclusions [4].

Based on the literature review, we have constructed a theoretical framework for the value impact of ESG-REITs, which includes four core dimensions: (1) Financial performance, examining the impact of ESG on yield,

dividend stability and growth potential; (2) Risk management, analyzing how ESG reduces operational risks, regulatory risks and reputation risks; (3) Capital acquisition: Research the role of ESG ratings in financing costs and investment attractiveness; (4) Long-term resilience, assessing the value of ESG integration in addressing climate change and market volatility. This multi-dimensional framework will guide subsequent empirical analysis to ensure that the research comprehensively captures the overall impact of ESG [5].

4. Research methods, data sources, and model construction

The sample selection criteria follow three principles: representativeness, data availability, and ESG diversity. The study selected 24 typical cases from major global REIT markets from 2019 to 2024, among which 12 were high ESG score REITs (experimental group) and 12 were ESG ordinary REITs (control group). The selection criteria for the high ESG group include: a GRESB rating of four stars or above, continuous release of ESG reports 4710, and obtaining green building certification or similar ESG honors. The selection of the control group ensures that it matches the experimental group in terms of asset type, region, and scale, but its ESG performance is at or below the industry average. The samples covered major REITs asset classes such as office, retail, logistics, industrial parks, and infrastructure to enhance the universality of the research conclusions [6].

The data collection work mainly relies on four sources: First, the publicly disclosed financial reports and ESG reports of REITs, which are used to extract data on financial performance and ESG practices. The second is the assessment results from professional ESG rating agencies (such as GRESB and MSCI), providing standardized ESG scores. The third type is market transaction data from financial databases (such as Bloomberg and Wind), which is used to calculate yields and valuation indicators. Fourth, secondary data from academic literature and industry research reports are used as supplementary references [7].

The Key Performance Indicators (KPI) system encompasses five dimensions and a total of 15 specific indicators: (1) Profitability, including return on equity (ROE), growth rate of working capital (FFO), and EBITDA margin; (2) Dividend performance: Examine the dividend yield rate, dividend growth rate and dividend stability (standard deviation); (3) Risk-adjusted return, calculate the Sharpe ratio, maximum drawdown and volatility; (4) Asset quality, assessing occupancy rate, rental growth rate and weighted average lease expiry (WALE); (5) Market valuation, analyzing the differences in stock price return rate, P/FFO multiplier and capitalization rate. These indicators together form a complete framework for evaluating the overall performance of REITs, capable of capturing the potential impact of ESG from various perspectives [8].

The statistical analysis method adopts a strategy combining descriptive statistics, correlation analysis, and multiple regression. Firstly, descriptive statistics are presented to show the mean, median, and distribution differences of the two groups of REITs in each performance indicator, and the potential impact of ESG is preliminarily observed. Then, Pearson and Spearman correlation tests were used to analyze the strength and direction of the association between ESG scores and various performance indicators. Finally, after constructing a multiple regression model to control for factors such as scale, leverage ratio, and asset type, the net impact of ESG on the performance of REITs was quantified. The model is set as follows:

$$P=\alpha+\beta_1 E+\beta_2 S+\beta_3 L+\beta_4 A+\varepsilon i$$

Among them, P (Performancei) represents various performance indicators of the *i*-th REITs, E (ESGScorei) is its standardized ESG score, S, L, A (Sizei, Leveragei, and AssetTypei) are control variables, and εi is the error term. By testing the significance and magnitude of the coefficient β1, the independent impact of ESG on

performance can be determined [9].

The research limitations are mainly reflected in three aspects: first, the sample size is relatively limited, constrained by the availability of high-quality ESG data; second, the observation period may not be sufficient to capture the long-term impact of ESG; third, there are methodological differences in ESG scores themselves, and results from different rating agencies may be inconsistent. Based on these limitations, this paper has mainly selected the following research samples (**Table 1**), which are quite representative in the current global REITs market [10].

Table 1. Overview of research samples (some representative REITs)

Name of REITs	Country/region	Asset type	ESG performance	GRESB rating (2024)	Data source
GLP China Logistics Fund III	China	Logistics and warehousing	High ESG	Five-star	GRESB Report, Prologis China
Guotai Junan Dongjiu REIT	China	Industrial park	High ESG	Did not participate in GRESB but published an ESG report	Guotai Junan Dongjiu Company's ESG Report, Company Annual Report
Huaxia Yuexiu Expressway REIT	China	Infrastructure	Medium to high ESG	Did not participate in GRESB but released an ESG report	Huaxia Company's ESG Report, Company Annual Report
Simon Property Group	United States	Retail	Low ESG	Samsung	GRESB Report, Simon Property Group Annual Report
Mitsui Fudosan Logistics Park REIT	Japan	Logistics and warehousing	Low ESG	Two stars	GRESB Report, Mitsui Fudosan Co., Ltd. Annual Report

5. Quantitative comparative analysis of ESG-integrated REITs and traditional REITs

The financial performance shows significant differences (Table 2). The comparison between dividend payout capacity and stability further confirms the value of ESG. Data shows that the average dividend yield of REITs in the high ESG group is 5.6%, which is basically the same as 5.8% of the control group. However, the dividend growth rate and stability of the former are significantly better. Over the past five years, the average annual dividend growth rate of ESG-integrated REITs has been 4.2%, with a volatility (standard deviation) of only 1.8%, while the dividend growth rate of traditional REITs is only 2.7%, with a volatility of 3.5%. The case of Guotai Junan Dongjiu REIT stands out particularly. This industrial park REIT, through distributed photovoltaic projects and water-saving equipment, not only reduced operating costs but also enhanced the stability of cash flow. As a result, its available allocation amount completion rate in 2023 reached 107.4%, exceeding the forecast [11]. This stable dividend performance is particularly attractive to institutional investors who pursue long-term income, such as pension funds and insurance funds [12].

Long-term resilience indicators further highlight the strategic value of ESG. By analyzing Climate-related Financial Disclosures (TCFD) data, it was found that REITs in the high ESG group are significantly better prepared for physical risks and transition risks: 85% have conducted climate scenario analysis, while the control group is only 35%. In terms of carbon reduction targets, 70% of high ESG REITs have set Science-based Carbon

targets (SBTi), while the proportion in traditional REITs is less than 20%. This forward-looking layout enables ESG-integrated REITs to take the initiative in the future low-carbon economy and reduces the risk of "stranded assets." The photovoltaic project of Guotai Junan Dongjiu REIT generates over 10 million kilowatt-hours of electricity annually [13]. It not only reduces carbon emissions but also creates a new source of income through green power trading. As carbon prices rise and environmental protection regulations become stricter, the relative value of such low-carbon assets is expected to increase further [14].

Table 2. Comparison of key performance indicators between ESG-integrated REITs and traditional REITs (average from 2019 to 2024)

Indicator category	Specific indicators	ESG integrated REITs	Traditional REITs	Difference value	Magnitude of difference	Statistical significance (*P*-value)
Profitability	Return on Equity (ROE)	9.2%	7.5%	+1.7%	+22.7%	0.023
	FFO Growth Rate (CAGR)	6.8%	4.3%	+2.5%	+58.1%	0.015
	EBITDA profit margin	68.4%	63.1%	+5.3%	+8.4%	0.008
Dividend performance	Current dividend yield rate	5.6%	5.8%	-0.2%	-3.4%	0.650
	Dividend growth rate (CAGR)	4.2%	2.7%	+1.5%	+55.6%	0.032
	Dividend volatility (standard deviation)	1.8%	3.5%	-1.7%	-48.6%	0.018
Risk-adjusted return	Sharpe ratio	0.82	0.51	+0.31	+60.8%	0.006
	Maximum drawdown (2022)	-9.8%	-15.3%	+5.5%	+35.9%	0.012
	Annualized volatility	12.3%	16.7%	-4.4%	-26.3%	0.009
Asset operation	Average occupancy rate	96.4%	92.1%	+4.3%	+4.7%	0.009
	Rental growth rate (CAGR)	3.9%	2.4%	+1.5%	+62.5%	0.014
	Weighted average lease expiry (WALE)	4.7 years	3.9 years	+0.8 years	+20.5%	0.021
	Tenant renewal rate	78%	65%	+13%	+20.0%	0.007
Market valuation	P/FFO multiple	18.7x	15.3x	+3.4x	+22.2%	0.011
	Capitalization rate	5.2%	5.8%	-0.6%	-10.3%	0.025
	Proportion of shares held by institutional investors	62%	45%	+17%	+37.8%	0.004
Financing cost	Average debt interest rate	3.8%	4.5%	-0.7%	-15.6%	0.017
	Proportion of green bonds	41%	12%	+29%	+241.7%	0.002
ESG-specific indicators	Proportion of green building certification area	58%	19%	+39%	+205.3%	0.001
	Carbon emission intensity (kg CO_2/m^2)	23.5	36.2	-12.7	-35.1%	0.003
	Number of ESG controversy incidents	0.7	2.3	-1.6	-69.6%	0.005

6. Conclusion and suggestions

The empirical research results clearly support the assumption that ESG integration creates substantial value for REITs [15]. Through systematic comparative analysis of 24 typical cases from major global REIT markets from 2019 to 2024, the research found that REITs with high ESG scores significantly outperformed traditional REITs in multiple dimensions, such as financial performance, dividend payout capacity, risk-adjusted returns, asset operation quality, and market valuation. Specifically, the average ROE of ESG leading REITs is 170 basis points higher, the FFO growth rate is 250 basis points ahead, and the Sharpe ratio advantage is 0.31. At the same time, it demonstrates stronger market downturn protection capabilities and long-term resilience. These findings are consistent with the "win-win" theory of sustainable investment, indicating that ESG factors not only bring social benefits but also can be transformed into financial returns, creating alpha returns for investors.

The analysis of the value creation mechanism reveals the deep-seated reasons behind ESG advantages. Firstly, green building measures (such as energy-saving renovations and the utilization of renewable energy) directly reduce operating costs and increase the EBITDA margin. Secondly, ESG practices have enhanced asset attractiveness and tenant stickiness, as reflected in higher occupancy rates and longer lease terms. Secondly, a sound governance structure and risk management have reduced systemic risks, enabling REITs to perform more stably during market turmoil. Finally, ESG labels expand the investor base, especially attracting long-term institutional funds and generating valuation premiums. These mechanisms work together to form a closed loop of competitive advantages for ESG-integrated REITs.

Based on the research findings, this paper puts forward the following policy suggestions to promote the healthy development of China's ESG-REITs market:

Improving the ESG information disclosure framework: It is suggested that the China Securities Regulatory Commission (CSRC) work with industry associations to formulate a unified ESG disclosure guideline for REITs, mandatorily requiring public REITs to disclose ESG information in accordance with the principle of "explain if not complied," with key points including: (1) Environmental indicators: energy consumption intensity, carbon emissions, and the proportion of green building area; (2) Social indicators: Employee training investment, community participation projects, tenant satisfaction; (3) Governance indicators: Board independence, the proportion of executive compensation linked to ESG performance, anti-corruption measures. In the initial stage, a relatively low disclosure threshold can be set for infrastructure REITs and gradually extended to all types.

Building incentive-compatible tax policies: Drawing on international experience, design tax incentives for REITs with outstanding ESG performance: (1) For properties that have obtained green building certification, reduce or exempt property tax or urban land use tax; (2) A pre-tax additional deduction of 150% will be granted for ESG investment expenditures at the REITs level (such as energy-saving renovations). (3) For institutional investors holding ESG-REIT shares, income tax or value-added tax will be reduced or exempted. These measures can balance the short-term costs and long-term benefits of ESG investment, and encourage the market to spontaneously transform towards sustainability.

Developing a localized ESG assessment system: Led by authoritative institutions such as China Securities Index Co., LTD., develop an ESG rating method for REITs suitable for China's national conditions, with a focus on: (1) ESG issues specific to infrastructure REITs, such as ecological protection and rural revitalization; (2) The transformation path under China's "dual carbon" goals (3) Governance features such as the protection of small and medium-sized investors. At the same time, encourage the development of third-party ESG data providers to form a healthy competitive market ecosystem.

In conclusion, the core conclusion of this study is that ESG integration can create significant economic value for REITs, and this value has been verified in multiple dimensions such as financial performance, risk management, and long-term resilience. For China's REITs market, systematically promoting ESG practices is not only a response to the country's sustainable development strategy but also an effective way to enhance asset quality and international competitiveness. By improving the policy framework, fostering a market ecosystem, and strengthening international collaboration, China is expected to shape a REITs development model with its own characteristics in the global green finance wave, providing strong financial support for the low-carbon transformation of the real economy.

Disclosure statement

The author declares no conflict of interest.

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