The Impact of ESG Ratings on Corporate Debt Financing Costs: A Cross-Regional Comparison of the European Union, the United States, and China

Bohan Xu*

School of Business, The Hang Seng University of Hong Kong, Hong Kong, China

*Corresponding author: s235138@hsu.edu.hk

Abstract. This study aims to explore how the environmental, social and governance (ESG) performance of enterprises affects their debt financing costs, and to conduct a cross-regional comparative analysis of the European Union (EU), the United States (US), and China from the perspectives of policies, markets, and mechanisms. Research has found a significant negative correlation between ESG performance and the cost of corporate debt financing. Specifically, the European Union, with its strict and precise rule-oriented regulation and mature ESG market system, has the strongest inhibitory effect of ESG on debt costs; the United States, due to the differentiation of federal and state-level regulation, highly politicized market, and rating differences, has a slightly weaker impact of ESG; China's ESG market is still in its early stage of development, characterized by policy-driven approaches. The impact of ESG on debt costs mainly manifests in the availability of financing and interest rate discounts, and its overall intensity is weaker than the former two. This study can provide reference for the improvement of China's ESG market and corporate debt financing decisions.

Keywords: ESG; Cost of Debt Financing; Cross-Regional Comparison.

1. Introduction

Under the backdrop of global sustainable development, environmental (E), social (S) and governance (G) factors have become the key determinants of a company's debt financing costs, connecting the company's sustainable development with the allocation of resources in the market. They have attracted widespread attention. However, the current global ESG development shows significant regional differences: The EU has formed a mandatory compliance-oriented approach with its mature regulatory system, the United States has presented a market-bargaining-oriented approach due to conflicts between federal and state-level regulations, and China is in the stage of rapid cultivation, driven by policies. These differences have led to inherent differences in the impact mechanism and intensity of ESG ratings on debt financing costs in different regions, and existing studies lack systematic comparisons of these differences among the three economies. Specifically, the EU has established the world's most stringent mandatory disclosure and rating regulatory system through regulations such as the Corporate Sustainability Reporting Directive (CSRD). The US federal government shows a trend of "de-regulation" , but states like California have set strict emission disclosure requirements through Senate Bill 253, and the market has an “anti-ESG” movement. China, with the "dual carbon" target as its core driving force, has shifted its ESG policy from "voluntary encouragement" to "mandatory regulation" but the maturity of the market and the consistency of rating standards still need to be improved.

This study aims to introduce the development of ESG in these three regions, and by analyzing the policy environment, market characteristics and impact mechanisms of the three regions, combined with case studies, to clarify the impact intensity and identify the constraints of the Chinese ESG market, providing references for related fields in China.

2. European Union: Guided by Rules

2.1. Policy and Environmental Analysis

As a pioneer in the global ESG field, the EU's policy framework is always in a process of self-improvement. However, facing intensified global economic competition and ricing corporate compliance burdens, the EU has recently made significant strategic adjustments to its ESG agenda. The core feature of this adjustment is a shift in "core coverage" and a move towards "targeted output", aiming to ensure that the rules focus on larger enterprises with greater environmental and climate impacts, thereby promoting the achievement of sustainable development goals. This shift was prominently reflected in the Omnibus Package proposed in February 2025, which revised several key regulations, marking the entry of the EU ESG into a stage of precise regulation.

The most representative adjustment is reflected in the Corporate Sustainability Reporting Directive (CSRD). After the revision, the mandatory reporting threshold for CSRD has been significantly raised. The new regulations state that only large enterprises with more than 1,000 employees and meeting either a turnover of over 50 million euros or an asset total of over 25 million euros must submit CSRD. Approximately 80% of the companies, which are mostly small and medium-sized enterprises, are exempted. This change has significantly alleviated the compliance pressure on small and medium-sized listed companies as well as large non-listed companies [1].

In addition, the EU also released regulations on ESG rating activities in December 2024, which is the world's first comprehensive framework for regulating the ESG rating market. The core content of this regulation consists of three main pillars: Firstly, an access mechanism for rating agencies has been established, emphasizing their independence and the management of conflicts of interest. Secondly, the transparency and reliability of information disclosure have been significantly enhanced. Finally, a unified regulatory system centered around the European Securities and Markets Authority (ESMA) has been established, aiming to promote the coordination of global regulatory standards [2].

After the release of this regulation, the reliability, comparability and consistency of ESG ratings have significantly improved, helping investors more accurately identify the real sustainable development performance of enterprises. Moreover, as the first judicial framework globally regulating ESG rating activities, the EU can promote the convergence of global ESG rating standards, providing important references for the construction of a global consistent sustainable financial classification and disclosure system.

Overall, the EU ESG regulations are very strict in nature and are guided by the rules, but they exhibit a precise and hierarchical characteristic. The EU has established the world's most stringent mandatory legal framework, internalizing ESG as the compliance cost and operational bottom line for enterprises, thereby directly enhancing the value of ESG performance.

2.2. Characteristics of the European Union Market

The ESG market of the EU is the most advanced and institutionalized market globally. Its main characteristics can be reflected in the investor structure, product innovation and service industry chain.

The ESG investment in the EU are not driven by individual investors, but are led by large and professional institutional investors. Some pension funds and insurance companies have long-term liability obligations, so they focus on systemic risks such as climate risks and social issues to identify factors that affect long-term investment returns. The investment decisions of these companies have also been influenced by Sustainable Finance Disclosures Regulation (SFDR), which requires financial institutions to clearly classify their products based on their ESG characteristics and disclose the risks. This regulation has led to a large amount of capital being allocated to assets with high ESG ratings, thereby creating a stable and large-scale demand-side pressure market [3]. It also confirms the phenomenon that investors in the European market consider ESG as an important indicator for risk mitigation.

In terms of financial product innovation, the EU's green and sustainable financial instruments are highly developed. Sustainability-linked loans (SLLs) in Europe are particularly active. These

instruments directly link the specific environmental, social, and governance (ESG) key performance indicators (KPIs) achieved by borrowers to the interest rates of the loans. This design is the first to establish a quantifiable financial connection between a company's ESG performance and financing costs, creating a powerful market-based incentive.

The mature service industry chain of the EU is also not to be overlooked. The huge regulatory and disclosure requirements have given rise to a mature market for ESG data, ratings and verification services. Meanwhile, third-party auditing and verification services ensure the reliability of ESG information, laying a solid foundation for financial institutions to conduct precise ESG risk pricing. The chaos of ESG data is a major challenge faced by global ESG investment [4]. The well-established industrial chain services in the EU have fundamentally improved the comparability and reliability of data through precise pricing and unified standards.

2.3. The Mechanism of Influence on Debt Costs and Case Analysis

2.3.1 Risk pricing mechanism

ESG ratings reduce the imbalance of information held between investors and issuers by disclosing the performance of enterprises in the dimensions of environment (E), society (S) and governance (G), and thereby influence the pricing of debt risks.

In terms of the environment (E), effective management of climate change risks and pollution costs helps avoid potential fines and cleanup expenses. In terms of the society (S), good employee relations, relationships with other departments, and customer satisfaction can effectively reduce risks such as strikes and lawsuits. In terms of the governance (G), High-quality corporate governance can reduce risks such as internal control issues and financial fraud, thereby enhancing the debt repayment capacity. Nobili et al. found that in the sample of EU banks, governance (G) is the most significant factor among the three ESG dimensions in terms of its impact on debt costs [5]. Banks with a high G rating have bond spreads that are 0.1-0.14 percentage points lower than those with a low rating, as investors believe that a good governance structure can effectively avoid moral risks.

2.3.2 Investor preference mechanism

In the EU market, the ESG investment concept is widely adopted. For instance, the promotion of SFRD has led many institutional investors to incorporate ESG factors into their investment decisions, creating an excess demand for assets with high ESG ratings, which has consequently lowered their financing costs.

Hvid et al. mentioned that the EU accounts for 50% of global green bond issuance [6]. Green bonds with high ESG ratings are in high demand as they align with investors' sustainable investment goals. When issued, they can often be priced at lower yields. For instance, the issuance spread of green bonds issued by EU enterprises is on average 2-5 basis points lower than that of traditional bonds with the same rating. In addition, bonds with a high ESG rating usually attract more long-term investors to hold them, thereby increasing trading activity and reducing liquidity risks. Nobili et al. found that among the banks in the European Union, the bond liquidity premium of the top 20% ESG-rated banks is 0.08-0.12 percentage points lower than that of the bottom 20% of banks, further reducing the debt cost [5].

2.3.3 Case analysis: the EU bank bond market

Nobili et al. analyzed a sample covering 134 banks in 13 euro-zone countries from 2015 to 2022, including 50 systemically important banks [5]. The study precisely isolated the independent impact of ESG ratings on the bond issuance spreads of banks by controlling for bond characteristics, bank fundamentals, and macro variables. The core data sources included authoritative ESG rating agencies such as Morgan Stanley Capital International (MSCl) and Morningstar, as well as bond market databases.

Table 1. The impact coefficient of ESG ratings on the spread of EU bank bond issuance

Influencing Factors	Rating system and Dimensions	Rating Range	Applicable Scenarios	Impact Coefficient of Interest Margin (per one-point increase)
Overall ESG Rating	MSCI ESG	0-10 points	All types of bank bonds	Spread decreases by 0.11-0.14 percentage points
Overall ESG Rating	Morningstar ESG	0-100 points	All types of bank bonds	Spread decreases by 0.03-0.04 percentage points
ESG Sub-dimension-Environment (E)	MSCI E	0-10 points	Only green bonds	Spread decreases by 0.04-0.05 percentage points
ESG Sub-dimension-Social (S)	MSCI S	0-10 points	All types of bank bonds	Spread decreases by 0.06-0.08 percentage points
ESG Sub-dimension-Governance (G)	MSCI G	0-10 points	All types of bank bonds	Spread decreases by 0.13-0.15 percentage points
ESG Rating Upgrade	MSCI ESG	-	The rating has been upgraded from BBB and below to A and above	Cumulative spread decrease of 0.10-0.11 percentage points over 4 months
ESG Rating Downgrade	MSCI ESG	-	The rating has been lowered from A and above to BBB and below	Short-term (within 1 month) spread increase of 0.05-0.06 percentage points

As can be seen from Table 1, the ESG rating is negatively correlated with the cost of EU banks on the whole. Among the three dimensions of E, S, and G, G is the core driver, the influence of S is second, and the influence of E is the weakest, with only in green bonds it is significant. It is also worth noting that the adverse effect of the increase in ESG rating spreads is more persistent, while the adverse effect of the downgrade is short-term.

Table 2. Typical cases of changes in ESG ratings of EU banks and their bond spread

Case Bank	Country	Changes in ESG Ratings	Bond Type/Maturity Period	Interest Rate Spread Changes	Core Driving Factors
Deutsche Bank	Germany	MSCI ESG: 5.4 points-7.1 points (2019-2021)	Unsecured bond/5-year term	0.85%→0.73% (decreased by 0.12 percentage points)	Improvement in the overall ESG rating
KBC Bank	Belgium	MSCI E: 4.8 points-5.3 points (2021-2022)	Green bond/4-year term	0.82%→0.78% (decreased by 0.04 percentage points)	Improvement in the environment dimension
Nordea Bank	Sweden	MSCI S: 4.7 points-5.3 points (2021-2022)	Subordinated bond/3-year term	1.02%→0.95% (decreased by 0.07 percentage points)	Improvement in the social dimension
BNP Paribas	France	MSCI G: 4.1 points-5.9 points (2019-2020)	Guaranteed bond/10-year term	1.25%→1.10% (decreased by 0.15 percentage points)	Improvement in the governance dimension

Based on the case studies of the four EU banks in Table 2, it can be seen that changes in each ESG dimension and the overall rating all have an impact on the bond spreads of banks. This is consistent

with the quantitative conclusions in Table 1. Among them, the G dimension has the most significant effect. After the G rating of BNP Paribas improved, the bond spread decreased by 0.15 percentage points, which was higher than the cases of E and S dimensions. The improvement of the overall ESG rating also effectively reduced costs. After Deutsche Bank's overall rating improved, the spread decreased by 0.12 percentage points. At the same time, the impact of the E dimension is limited to green bonds, while the S, G dimensions and the overall rating cover multiple types of bonds. This confirms that in the EU bank bond market, ESG improvement can reduce debt costs.

3. The United States: A Complex and Challenging Landscape

3.1. Policy and Environmental Analysis

3.1.1 Deregulation at the federal level

In recent years, the US federal government has shown a trend of deregulation in the ESG field, particularly in the regulation of environment (E) aspects, aiming to reduce the burden on enterprises and support the traditional energy industry. This phenomenon can be demonstrated from two aspects.

The first one is that the US Environmental Protection Agency (EPA) has proposed to terminate the greenhouse gas reporting program (GHGRP). On September 12, 2025, the US EPA proposed to permanently abolish the reporting obligations for 46 types of enterprises and institutions under the GHGRP. Entities in this category will no longer be required to report greenhouse gas data after 2024. This move is in accordance with the executive order Release Prosperity through Regulatory Relief issued by Trump, and the EPA determined reporting is not mandatory except for oil and gas sources.

Secondly, the United States has repeatedly withdrawn from the Paris Agreement. The Paris Agreement, adopted in Paris in December 2015, took effect in November 2016. Over 190 countries became parties to the agreement, aiming to address global climate change, limit temperature rise, and promote sustainable development. In April 2016, the United States signed and accepted the constraints, but the Trump administration withdrew from it. The Biden administration resumed participation in 2020. However, in January 2025, Trump submitted a formal application for withdrawal again.

The underlying principle behind this series of lenient policies is the belief that economic development takes precedence over environmental protection. The United States believes that strict environmental regulations will have an impact on employment, energy prices, and economic competitiveness. While this approach may save costs for enterprises and enhance their economic competitiveness in the short term, in the long run, it will prevent investors and the public from accurately tracking emission trajectories, resulting in the loss of a reliable foundation for enterprises' emission reduction targets and potentially putting American enterprises at a disadvantage when participating in global green trade.

3.1.2 Stringent regulations at the state level

In sharp contrast to the federal government, several states led by the Democratic Party, particularly California, are at the forefront in policy-making, actively implementing ESG-related regulations that are more stringent than the federal standards.

The strict ESG regulations in California are fully reflected in Senate Bill No. 253 submitted in 2023. Firstly, this bill requires specific enterprises conducting business in California and with an annual revenue of over 1 billion US dollars to publicly disclose their scope 1 (Direct discharge) and scope 2 (Indirect emissions from purchased energy) greenhouse gas emissions starting from 2026, and to publicly disclose their scope 3 (Other indirect emissions) greenhouse gas emissions starting from 2027. This regulation helps investors and other stakeholders gain a comprehensive understanding of the environmental impact of the enterprises. Secondly, enterprises must measure and report their greenhouse gas emissions in accordance with the standards of the greenhouse gas protocol to ensure the consistency and comparability of the data. At the same time, enterprises should

disclose the information in an easily understandable and accessible manner, maximizing the access to detailed data.

3.2. Characteristics of the United States Market

The US ESG market mainly features two characteristics, one is its high degree of politicization, and the other is the prominent issue of rating divergence.

The highly politicized nature is the most distinctive feature that distinguishes the US market from other regions around the world. The anti-ESG movement is a topic that is frequently discussed in the US, those who support ESG believe that ESG risks are significant financial risks, and ignoring them is a breach of fiduciary duty towards customers. On the other hand, those who oppose ESG argue that considering ESG factors may sacrifice financial returns in pursuit of political goals, and this action violates the fiduciary responsibility. Among them, the anti-ESG movement particularly focuses on the social (S) aspect of ESG. For instance, issues such as the opposition of social groups may arise, and the focus on the S dimension for specific groups may directly harm the interests of other social groups. Some conservative critics believe that this will divide employees and damage the competitiveness of the enterprise. This makes the promotion of S issues in the US market face greater resistance and risks compared to other regions.

The ESG rating divergence refers to the significant discrepancies in the ESG scores or ratings given by different ESG rating agencies to the same company. In the research of F. Berg et al., the rating discrepancies in the US ESG market were particularly severe [4]. Among the 6 mainstream ESG rating agencies selected in the paper, there were significant differences between the US-based institutions and those serving the US market. For instance, the correlation between the major US-based institution KLD and MSCl, which belongs to the MSCI group, was only 0.38, the lowest among all the institutions; the average correlation in the governance (G) dimension was only 0.30, and the divergence among Us institutions was even higher. The correlation between KLD and Refinitiv in this dimension was close to 0. This divergence has a very direct impact on the US market, as US investors rely heavily on ESG ratings for their decision-making. However, due to the lack of unified disclosure standards in the US ESG market and the fact that the same company receives different ratings from different institutions, investors are unable to correctly interpret the data, thereby further exacerbating the divergence.

3.3. The Mechanism of Influence on Debt Costs and Case Analysis

3.3.1 The compliance and access mechanism

The United States lacks a unified definition of “green”, and the rules of the Securities and Exchange Commission (SEC) focus more on the authenticity of disclosures. Under this mechanism, changes in debt costs mainly result from the litigation risks brought about by false disclosures [7]. In the US green bond market, if a company exaggerates its ESG performance, it may face penalties from the SEC and lawsuits from shareholders. This risk will be priced into the debt cost, thereby increasing the debt cost. In contrast, the EU does not have such a mechanism because the EU has established strict green definition standards. That is to say, a project must strictly meet these standards to be recognized as green.

3.3.2 The disclosure mechanism

In terms of information disclosure, the EU is more standardized and mandatory and auditable. However, in the United States, disclosure is fragmented and voluntary, relying on multiple different standards. Companies with good performance in ESG have the incentive to disclose in order to reduce costs, but companies with poor performance will choose to hide. Creditors will incur higher costs to reduce the uncertainty of information and may demand a higher risk premium from companies that do not disclose.

3.3.3 Case analysis: Pacific Gas and Electric Company (PG&E)

Pacific Gas and Electric Company is one of the largest utility companies in the United States, providing natural gas and electricity services, covering the northern part of California. Over the years, this company has accumulated risks in the environmental (E) and governance (G) aspects of ESG. In terms of environmental risks, the occurrence of multiple wildfires has been suspected to be related to the failure of its old power grid equipment. For example, the Camp Fire in August 2018 was the deadliest and most destructive wildfire in California's history, and the cause of such a large-scale wildfire was the fire on the transmission lines of PG&E. After this, PG&E was confronted with a huge liability for fire damage compensation as well as numerous lawsuits. In terms of risk management, the company has been criticized for using its profits for dividends and share buybacks rather than investing in the replacement and upgrading of power grid equipment.

The environmental and governance risks of PG&E have had an impact on the debt cost. Before the risks occurred, as a regulated utility company, its bond rating was originally a stable investment grade (BBB) asset. However, after the wildfires, the price of PG&E's bonds plummeted and the yield rose significantly. Before 2019, its bond yield once exceeded 10%, which meant that the market considered investing in PG&E's bonds to be extremely risky and demanded a huge risk premium. At last, PG&E filed for bankruptcy protection in January 2019, becoming one of the most costly utility bankruptcies in American history.

This case serves as a typical negative example. The main reason for the company's bankruptcy was the failure in risk mitigation. PG&E's ESG performance was extremely poor, especially in environmental management and corporate governance. This accumulated huge risks for the company, which eventually turned into financial liabilities, directly threatening the company's ability to repay debts. Secondly, the penalty for debt costs cannot be ignored. The market punished this ESG failure by raising the debt cost, that is, the soaring debt yield. Because creditors received huge default risks. This case is completely consistent with the results of Eliwa et al.'s big data research, that is, low ESG performance leads to high company-specific risks, thereby causing high debt costs [8].

4. China: Development Through Policy and Market Coordination

4.1. Policy and Environmental Analysis

China's ESG policy has gone through three development stages: the initial stage from 2002 to July 2016, the exploration and development stage from August 2016 to September 2020, and the deepening and improvement stage from October 2020 to the present [9]. Table 3 has selected two representative policies for each stage.

Table 3. The typical policies of the three stages of ESG development in China

Development stage	Policy Name	Issuance Date	Issuing Unit	Key Content
Initial stage	Code of Corporate Governance for Listed Companies	January 2002	China Securities Regulatory Commission	The first regulation clearly defined the scope of information disclosure for the governance
Initial stage	Revision of Environmental Protection Law	April 2014	Standing Committee of the National People's Congress	Key polluting entities must legally disclose the emission data of their major pollutant and the construction and operation status of their pollution prevention facilities
Exploration stage	Guiding Opinions on Constructing a Green Financial System	August 2016	The people's Bank of China and other seven ministries and commissions	Promote mandatory disclosure of environmental information by enterprises, and severely punish the act of fabricating environmental data
Exploration stage	Code of Corporate Governance for listed Companies (Revised)	September 2018	China Securities Regulatory Commission	By adding an ESG chapter and establishing an information disclosure framework, it is required that listed companies disclose their performance in terms of environmental protection and social responsibility (such as poverty alleviation).
The deepening and improvement stage	Guidelines for Environmental Information Disclosure of Financial Institutions	July 2021	The People's Bank of China	Opinions on Fully, Accurately and Comprehensively Implementing the New Development Concept and Doing a Good Job in Carbon Peak and Carbon Neutrality
The deepening and improvement stage	Opinions on Fully, Accurately and Comprehensively Implementing the New Development Concept and Doing a Good Job in Carbon Peak and Carbon Neutrality	September 2021	The Central Committee of the Communist Party of China, the State Council	Advocate the vigorous development of green finance, thereby laying the foundation for the promotion of ESG investment and green finance under the "carbon neutrality" goal

According to Table 3, it can observe that China's ESG policies are gradually evolving. For instance, in 2014, the environmental protection law mainly restricted only key polluting entities. However, subsequent policies have encouraged all listed companies and bond-issuing enterprises to make disclosures. And as time progresses, the requirements for disclosure have shifted from voluntary encouragement to mandatory compliance. These evidences all indicate that China's ESG is gradually approaching the goals of green and sustainable development under the guidance of national strategies and policies.

4.2. Characteristics of China Market

4.2.1 Government-driven and led

One of the most notable features of the ESG market in China is its government-driven and led nature. The goal of achieving carbon peak by 2030 and carbon neutrality by 2060, proposed in 2020, is the most powerful driving force for the development of ESG in China. This goal has made environmental (E) the focus of current ESG issues in China, and all related policies are centered around this goal. Meanwhile, the regulatory system in China has also begun to make vigorous progress. For instance, the China Securities Regulatory Commission requires specific listed companies to compulsorily disclose ESG information, especially for key polluting enterprises. Moreover, it continuously improves the disclosure framework. The State-owned Assets Supervision and Administration Commission also requires listed companies to achieve full coverage of ESG special report disclosure in 2023. These regulations have played a significant role in promoting the entire market.

4.2.2 The early but high-speed development stage

China's ESG market is in an early stage of development but growing rapidly. This rapid growth has led to a gradual increase in domestic institutional investors' interest in ESG investment, and the number and management scale of ESG-themed funds and products have also seen significant growth. It is worth mentioning that, China's ESG derivatives market has also developed significantly. For instance, in response to the national strategy of carbon peaking and carbon neutrality, the China Futures Exchange is accelerating the listing of green derivatives such as carbon emission futures, providing effective risk management channels for enterprises.

However, the rapid development of ESG in China has also brought about some problems. The most significant issue is the uneven quality of disclosure, with a focus on form rather than specific quantitative data in ESG reports, and a tendency to downplay negative information and risk events. Moreover, the vast majority of A-share companies' RSG reports have not been verified by third-party institutions, reducing the trust of stakeholders in these reports [10]. These are typical problems during the early development stage.

4.3. The Mechanism of Influence on Debt Costs and the Comparison with The EU and The US

4.3.1 The specific impact on the cost of debt

In China, the impact of ESG ratings on debt costs can be manifested in three main aspects: financing availability, loan terms, and interest rate pricing.

The impact of ESG ratings on the availability of financing is the most direct. Companies with poor ESG performance may face potential policy and legal risks, which could lead banks to reduce the loan amount available or even require early repayment. This means that in terms of obtaining debt financing, companies will encounter greater difficulties.

In addition, banks may include clauses related to environmental performance in loan contracts. For instance, they may require enterprises to meet certain emission standards within a specified period. If the standards are not met, the bank has the right to demand that the enterprise repay the loan ahead of schedule or increase the interest rate. This increases the compliance costs for the enterprises.

In terms of interest rate pricing, the internal pricing models of banks will take into account the ESG risks of enterprises. For green enterprises, banks will offer preferential interest rates and

expedited approval processes. However, for enterprises with high pollution and high energy consumption, banks will consider that they have potential policy risks and legal risks, and will charge a risk premium, increasing the interest rate hike ratio to cover these risks.

4.3.2 Comparison between China, the EU and the US

To further clarify the regional differences in the impact of ESG on corporate debt financing costs among China, the EU, and the United States, this section conducts a systematic comparison from four core dimensions: "regulatory framework", "market maturity", "rating system", and "impact intensity".

Table 4. Comparison between China, the EU and the US

	China	European Union	United States
Regulatory stringency and policy framework	The ESG regulatory policies are constantly being improved, but the overall regulatory strength is relatively weak	Having the most stringent and systematic ESG regulatory policies	There is no unified ESG regulatory framework at the federal level, but some states have introduced relevant regulations. Moreover, the demands of the market and investors are placing strong constraints on corporate ESG performance.
Market maturity and investor focus	The ESG investment market is still in its early stages of development, and investors' awareness and attention to ESG issues are relatively low	The ESG investment market is highly mature, and investors pay great attention to ESG issues	The market has a relatively high level of attention towards ESG, and the investor base is large and diverse
The sophistication level of ESG rating systems	The ESG rating system is not yet fully developed, and there are numerous rating agencies with different standards.	Having a unified and comprehensive ESG rating system, the standards among different rating agencies are relatively consistent.	Although the ESG rating system is relatively well-developed, there are differences in the standards used by different rating agencies.
The degree of impact on corporate debt financing costs	The European Union > The United States > China		

From the above comparison (Table 4), it can be seen that the differences among the three major economies stem fundamentally from the differences between their systems and markets. The EU has strong regulation combined with a mature market. The United States presents a mixed model of weak federal regulation, state mandatory regulation, and market competition. China is in a transitional stage driven by politics and nurtured by the market. The impact of ESG on debt costs is mainly administrative guidance, and the market-based pricing mechanism has not yet been fully established.

5. Conclusion

This study compared the impact of ESG ratings on corporate debt financing costs in the European Union, the United States, and China, and found that there was a significant negative correlation between ESG performance and debt costs in all three regions. Moreover, the intensity of the impact

was in the order of the European Union > the United States > China. The ESG market in the European Union is highly mature and subject to strict regulation, making ESG an important pricing indicator in debt pricing. The overall ESG market in the United States is relatively loose, relying on state-level regulation and market demand to form constraints. The ESG market in China is less mature and regulation needs to be improved, with the impact mainly reflected in the availability of financing and interest rate discounts. The differences among these three economies stem from variations in regulatory frameworks, market maturity and rating systems.

Regarding China, it is suggested to establish a mandatory and unified regulatory framework and standardize the disclosure requirements. Encourage institutional investors to lead ESG investment and innovate new ESG financial products. At the same time, enhance the service capabilities and information quality of the ESG industry, mandate third-party audits for key industries, balance the development of E, S, and G aspects, and promote ESG to have a better impact on debt costs.

References

[1] European Parliament and the Council of the European Union. (2022, December 16). Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (Text with EEA relevance). Official Journal of the European Union, L 322, 15–80. https://data.europa.eu/eli/dir/2022/2464/oj

[2] Li, Q. T., & Li, J. (2025). Key Points, Impacts and Responses of the EU's New ESG Rating Supervision Regulation. Finance and Accounting Monthly, (11), 106-113.

[3] Díaz, V., Ibrushi, D., & Zhao, J. (2021). Reconsidering systematic factors during the Covid-19 pandemic - The rising importance of ESG. Finance Research Letters, 40, 101870.

[4] Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate Confusion: The Divergence of ESG Ratings. Review of Finance, 26(6), 1315–1344.

[5] Nobili, S., Persico, M., & Romeo, R. (2024). How important are ESG factors for banks' cost of debt? An empirical investigation. Banca d'Italia, Markets, Infrastructures, Payment Systems Series, (52).

[6] Hvid, C. C., & Thurow, F. (2023). Green Bonds Premia: A comparison across Europe, Asia, and North America (Master's Thesis). Copenhagen Business School, Copenhagen.

[7] Climate Corporate Data Accountability Act, S. Bill No. 253, (2023). California Legislative Information. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB253

[8] Eliwa, Y., Aboud, A., & Saleh, A. (2019). ESG practices and the cost of debt: Evidence from EU countries. Critical Perspectives on Accounting,68, 102097.

[9] Dong, Z. F., Wu, H. C., Jia, Z., Li, X. L., & Pan, Y. J. (2024). Research on ESG policy exploration and practice progress in China. Chinese Journal of Environmental Management, 16(1), 7-15.

[10] Wu, Z. M. (2025). Research on the construction of ESG information disclosure quality evaluation system for listed companies. Social Enterprise Economic Development, 2(4), 317-319.