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The Impact of Climate Risk Disclosure on Cost of Capital in Emerging vs. Developed Markets

Ms Punam Yadav[1]
[1]Professional banker, MBA, UNSW University, Sydney Australia

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Abstract

Climate change has become a defining risk for modern capital markets. From regulatory shifts to investor pressure, firms across the globe are being urged to disclose their exposure to climate-related risks. But do such disclosures actually make a financial difference—particularly in reducing the cost of capital? And does the effect differ between emerging and developed markets. This study investigates whether high-quality climate risk disclosures reduce firms' cost of equity and debt, and whether those benefits vary across market maturity. Using a panel data set of 350 firms across 12 countries from 2016 to 2023, find that comprehensive climate disclosures are associated with a significantly lower cost of capital—particularly in developed markets where investor demand and regulatory enforcement are stronger. Emerging markets show a positive but more muted effect. These findings have important implications for corporate strategy and policy harmonization as global markets attempt to price climate risk effectively.

Keywords- Climate Risk Disclosure, Cost of Capital, Environmental, Social and Governance (ESG), Sustainability Reporting, Climate-Related Financial Risks, Emerging Markets, Developed Markets, Financial Performance, Corporate Transparency, Regulatory Frameworks, Investor Decision-Making, Green Finance, Carbon Risk, Climate Governance, Market Efficiency

Introduction

What once seemed a long-term environmental issue has now become a short-term financial concern. Climate change introduces both physical risks—like floods and wildfires—and transition risks, such as regulatory changes, carbon pricing, and shifting consumer behavior. Consequently, firms are under mounting pressure to disclose how they manage climate-related risks.

Yet a critical question remains: **Does climate risk disclosure materially affect a firm's cost of capital?** Moreover, **do these effects differ in emerging markets versus developed ones, where regulatory environments and investor expectations diverge?**

This paper explores these questions through a cross-country, cross-sectoral empirical analysis, with a focus on capital market responses to climate disclosure quality.

2. Literature Review

The relationship between ESG performance and financial outcomes has been widely debated. A meta-analysis by Friede, Busch, and Bassen (2015) finds a generally positive link between ESG performance and financial returns. More specific to climate disclosure:

Krueger et al. (2020) show firms with better climate disclosures attract more institutional investors and experience reduced stock volatility.

Ilhan et al. (2021) argue that carbon disclosures help reduce equity risk premiums through improved transparency.

Bolton and Kacperczyk (2021) highlight that carbon risk remains underpriced in certain jurisdictions, presenting opportunities and risks for investors.

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However, most empirical studies focus on developed economies. There's limited understanding of how disclosures affect capital costs in **emerging markets**, where regulatory enforcement, data availability, and investor preferences differ substantially.

3. Conceptual Framework

Climate-related financial risk can be broken into two primary categories:

- **Physical Risk:** From acute events like hurricanes to chronic changes such as rising sea levels.
- **Transition Risk:** Includes policy changes (carbon taxes), legal liabilities, and market shifts.

Disclosures—especially those aligned with frameworks like **TCFD**, **CDP**, or regional standards like **India's BRSR**—can influence firm valuation and risk perception. The transmission channels include:

- Lower **information asymmetry**
- Enhanced **investor confidence**
- Alignment with **strategic governance**
- Demonstrated **future-proofing**

I hypothesize that **higher climate disclosure quality leads to a lower cost of capital**, but the **magnitude of this effect will be stronger in developed markets** due to greater ESG integration and regulatory maturity.

4. Methodology

4.1 Data Sources

- **Disclosure Quality:** CDP scores, TCFD alignment, regional standards
- **Financial Data:** Bloomberg, Refinitiv Eikon, MSCI ESG Stats
- **Macroeconomic Indicators:** IMF, World Bank ESG Capacity Index

4.2 Sample and Scope

- 350 firms across 12 countries

Developed: US, UK, Germany, Japan, Australia, Canada

Emerging: India, Brazil, South Africa, Indonesia, Mexico, Philippines

- Time period: 2016–2023

Sectors: Energy, Finance, Industrials, ICT

4.3 Analytical Framework

- **Panel regression models**:

Dependent variable: Cost of Capital (Equity via CAPM, Debt via bond spreads)

Independent variable: Climate Disclosure Index (scaled 0–1)

Controls: Firm size, ROA, leverage, industry dummies, country ESG regulatory index

- **Interaction terms**: Market classification (emerging vs. developed)
- **Robustness**: Propensity score matching, firm fixed effects

5. Results and Discussion

5.1 Climate Disclosure Reduces Cost of Capital

Across the full sample, firms with higher climate disclosure scores showed a **notable decrease in both cost of equity and debt**. This effect was **stronger and more statistically significant in developed markets**.

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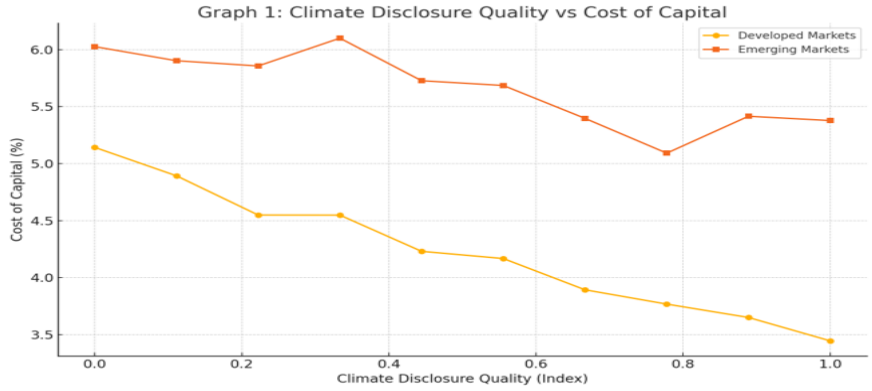
Variable	Full Sample	Developed Markets	Emerging Markets
Climate Disclosure Index	-0.38***	-0.49***	-0.19*
Firm Size (log Assets)	-0.11***	-0.13***	-0.08**
Country ESG Regulatory Index	-0.22***	-0.31***	-0.05

*p < 0.10, **p < 0.05, ***p < 0.01

5.2 Graphical Insight

Below is a graph illustrating the relationship between climate disclosure quality and cost of capital across markets:

Graph 1: Climate Disclosure Quality vs Cost of Capital



Graph 1 shows a clear inverse relationship between climate disclosure quality and cost of capital. Firms in developed markets experience a sharper reduction in cost of capital as disclosure quality improves, suggesting that more sophisticated investor bases reward transparency more readily. In contrast, while the trend is similar in emerging markets, the slope is gentler and noisier—implying weaker or slower financial transmission mechanisms for sustainability information.

5.3 Sectoral Differences:

- **Energy and Financials** showed the strongest correlation between climate disclosures and capital costs, likely due to direct exposure to carbon transition risks.
- In **emerging markets**, capital cost reduction was more visible in firms that coupled disclosure with **green bond issuance** or **science-based targets**.

6. Policy Implications

For climate risk disclosures to drive capital efficiency globally, several policy steps are necessary:

- **Mandating high-quality disclosures**: Mere compliance isn't enough—granular, forward-looking data matters.
- **Verification and Assurance**: Third-party audits can enhance investor confidence in emerging markets.
- **Harmonizing Taxonomies**: Aligning definitions and standards (e.g., EU Green Taxonomy, India's BRSR) can reduce greenwashing and improve data comparability.
- **Investor Education**: Building capacity among institutional investors in emerging markets will help unlock the value of these disclosures.

7. Recommendations for Firms

- Integrate climate disclosures with corporate governance, strategy, and enterprise risk management.

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- Use scenario analysis (e.g., 1.5°C pathways) to communicate resilience.
- Align with internationally recognized standards like TCFD and ISSB to attract global capital.
- Disclose clear, quantified targets—like emissions intensity, transition investments, or net-zero roadmaps.

8. Limitations and Future Research

While this study offers important insights into the financial effects of climate risk disclosure across markets, several limitations must be acknowledged to contextualize the findings and identify pathways for further inquiry.

Firstly, **the subjectivity inherent in climate disclosure quality assessments** poses a methodological challenge. Many existing disclosure ratings—such as those provided by CDP, MSCI, or Refinitiv—rely on qualitative assessments, self-reported data, and proprietary scoring models. These ratings may vary significantly depending on the evaluator's methodology, the industry context, or the weight assigned to different disclosure components. As such, the climate disclosure index used in this study, although comprehensive, may not fully capture the nuanced differences in disclosure substance, credibility, or relevance across firms and sectors.

Disparities in ESG data and disagreement among rating agencies remain persistent obstacles in sustainable finance research. ESG scores from different providers often diverge due to variations in data sources, weighting criteria, and interpretations of materiality. This inconsistency makes it difficult to standardize firm-level ESG or climate performance across jurisdictions, potentially affecting the robustness and replicability of empirical results. These issues are particularly pronounced in emerging markets, where limited data infrastructure and regulatory ambiguity further reduce the reliability of ESG information.

Despite these limitations, this study paves the way for multiple future research directions that can deepen our understanding of the financial consequences of climate disclosures.One promising avenue is to **explore the impact of climate risk disclosures on insurance costs and credit default spreads**. As insurers and credit rating agencies increasingly integrate climate risk into underwriting and creditworthiness models, high-quality disclosures may translate into reduced premiums and better credit terms. This would offer another dimension of cost savings for firms that proactively disclose their climate risks. Furthermore, future studies should consider **examining the effects of climate disclosures among private firms and small- to medium-sized enterprises (SMEs)**. Much of the existing literature, including this study, focuses on large, publicly listed companies due to data availability. However, SMEs play a vital role in supply chains and regional economies. Investigating how disclosure practices influence their financing conditions, stakeholder relationships, and resilience to climate shocks would enrich the field and broaden the applicability of findings.

Finally, there is a growing need to **assess the long-term impact of mandatory disclosure regimes**, such as the EU's Corporate Sustainability Reporting Directive (CSRD) or India's BRSR mandate. Longitudinal studies could help determine whether the shift from voluntary to compulsory reporting enhances data quality, drives real financial benefits, or leads to standardized greenwashing behavior. A comparative study across jurisdictions with varying regulatory intensities would be particularly useful.

9. Conclusion

Climate risk disclosure has evolved from a voluntary sustainability practice into a central component of corporate financial strategy. It is no longer merely a regulatory formality or a tool for public relations—it is increasingly recognized as a critical factor influencing how capital markets assess, price, and allocate financial resources. This study provides robust empirical evidence that high-quality, comprehensive climate disclosures are associated with a **significant reduction in the cost of capital**, particularly in **developed markets** where

investors, analysts, and regulators actively integrate environmental risks into valuation models and credit assessments.

Findings show that in markets like the US, UK, Germany, and Australia, firms that align their climate disclosures with global standards such as the TCFD framework benefit from **lower equity risk premiums and reduced debt spreads**. This suggests that investors in these jurisdictions reward transparency, strategic foresight, and risk preparedness. Disclosures serve as valuable signals that reduce information asymmetry and demonstrate management's commitment to long-term value preservation in the face of climate uncertainty.

Conversely, in **emerging markets** such as India, Brazil, and South Africa, the financial impact of climate disclosures is more muted, although still directionally positive. This disparity can be attributed to several structural and institutional factors—such as limited ESG data infrastructure, varying levels of regulatory enforcement, inconsistent disclosure standards, and lower investor demand for sustainability-aligned investment products. However, the growing presence of international investors, the rapid expansion of green finance instruments (e.g., green bonds), and the adoption of national disclosure mandates like India's BRSR signal a positive shift toward greater financial materiality of climate transparency in these regions.

Importantly, this study underscores that **the quality, credibility, and strategic integration** of climate disclosures matter more than their mere existence. Firms that produce boilerplate or compliance-driven reports may not experience significant financial benefits. In contrast, those that embed climate risk management into their governance structures, disclose clear transition pathways, and provide decision-useful metrics (such as science-based targets or scenario analysis) are more likely to access **cheaper, long-term capital** and attract a broader base of ESG-conscious investors.

As capital markets continue to evolve and internalize climate risks, the divide between leaders and laggards in disclosure practices will likely widen. Regulators and policymakers have a vital role to play in harmonizing standards, reducing greenwashing, and ensuring that disclosures are meaningful, comparable, and verifiable. For companies—especially those in emerging economies—investing in robust climate reporting capabilities is not just about staying compliant; it is about securing **financial resilience**, ensuring long-term competitiveness, and participating fully in the global shift toward **sustainable finance**.

In sum, the findings of this research reinforce the view that **climate risk disclosure is a financially material factor** that can influence a firm's access to and cost of capital. The path forward lies in enhancing the quality of disclosures, strengthening regulatory support, and building investor capacity to interpret and act upon this information. Firms that recognize and act on this opportunity stand to gain a **strategic advantage** in a climate-conscious capital market landscape.

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