Chapter

# Transition Risk to Geopolitical Risk and Climate Changes

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## Abstract

This chapter examines the complex relationships between transition risk, geopolitical risk, and climate change, and how these factors impact corporate decision-making. It specifically examines the roles of corporate social responsibility (CSR) and socially responsible investing (SRI) within this framework, with a focus on the technology sector, particularly semiconductor chipmakers. In evaluating these dynamics, the chapter utilizes a triangulation method that combines theoretical frameworks and empirical analysis to understand how these multifaceted risks impact corporate values, decision-making, and financial resilience. Anecdotal evidence suggests that both corporate social responsibility and socially responsible investing may exhibit shared characteristics in terms of their risk effects. The study's findings suggest that corporate responses to geopolitical and climate change responsibilities may not have had a direct impact on behavioral decisions. This supports the criteria of impact decisions. Nonetheless, it posits that corporate decisions would have considered their corporate risk values and their inclinations toward corporate social and geopolitical responsibility risk, raising questions about how these concerns relate to transition risk, geopolitical risk, and climate change. This aligns with the Task Force for Climate-Related Financial Disclosure (TCFD), which provides guidance on climate change initiatives for associated industries. This chapter carefully articulates that corporate social responsibility risks are closely associated with threat management and risk management behaviors. Furthermore, it could facilitate a deeper exploration of attributes derived from corporate social and geopolitical responsibility characteristics and their implications for conventional corporate decision-making and existing research within corporate values.

**Keywords:** transition risk, geopolitical risk, climate changes, socially responsible investing, corporate social responsibility

## 1. Introduction

Corporations today face unprecedented challenges from climate volatility, geopolitical tensions, and shifting regulatory landscapes. These risks are no longer peripheral—they are central to strategic planning. The chapter investigates how firms respond to these pressures through CSR and SRI, and how these responses reflect deeper behavioral and philosophical underpinnings.

### 1.1 Research problem and significance

In an era marked by escalating climate change impacts, geopolitical instability, e.g., trade tensions in the semiconductor industry, and policy-driven transitions to sustainable practices, corporations face unprecedented pressure to align operations with environmental, social, and governance (ESG) goals.

However, two critical gaps persist:

Disconnect between CSR/SRI and corporate decision-making: Anecdotal and empirical evidence suggests that corporate responses to geopolitical and climate change responsibilities often fail to directly shape behavioral decisions, raising questions about how these concerns interact with transition and geopolitical risks.

Lack of an integrated theoretical framework: Existing models, e.g., threat management, risk valuation separately address social, geopolitical, or climate risks but do not unify these dimensions to explain holistic corporate behavior—especially in technology sectors where resource intensity and global supply chains amplify risk exposure.

The significance of addressing these gaps lies in three areas:

For corporations: It provides a tool to balance short-term financial performance with long-term resilience, particularly in high-stakes sectors like semiconductors.

For investors: It clarifies the relationship between SRI and financial returns, helping align fiduciary duties with sustainability goals.

For policymakers: It informs regulations, e.g., climate-related disclosure under the Task Force for Climate-Related Financial Disclosure, TCFD [1], by highlighting how firms integrate policy shifts into strategy.

As shown in **Table 1**, the multiple linear regression models illustrate the statistical relationships among key variables.

### 1.2 Definition of the CSGPBD framework

The corporate social and geopolitical behavioral decision (CSGPBD) framework synthesizes: McKeon's pluralistic reasoning, Calhoun and Weston's threat management principles, and Borum's structured risk assessment [2–4].

It offers a lens to interpret corporate behavior under uncertainty, emphasizing ethical reasoning, stakeholder engagement, and resilience. The CSGPBD framework is a thematical model that integrates three core pillars to explain corporate decision-making amid global risks:

| **Regression analysis and correlation** |
|---|
| Performed linear regression for three models: |
| Stock Performance % = a × Qualitative ESG + b |
| Stock Performance % = a × Quantitative ESG + b |
| Stock Performance % = a × Combined ESG + b |
| *For each regression formula that calculated:*<br>*Slope (a): Indicates direction and strength of relationship.*<br>*Intercept (b): Baseline performance when ESG = 0.*<br>*Pearson Correlation (r): Strength and direction (−1 to +1).*<br>*$R^2$: Proportion of variance in stock performance explained by ESG (0–1).* |

**Table 1.**
*Multiple linear regression models.*

McKeon's pluralism: Emphasizes interdisciplinary reasoning, combining rhetoric, philosophy, and behavioral science to account for the subjective, context-dependent nature of risk perception, e.g., how cultural or ethical norms shape CSR priorities.

Calhoun and Weston's threat management: Provides practical guidelines for identifying and mitigating threats, e.g., distinguishing "hunters" real threats from "howlers" empty threats, and emphasizes collaboration to avoid siloed risk management.

Borum's structured risk assessment: Focuses on evaluating nonfinancial risks (e.g., leadership instability, regulatory breaches) through contextual understanding and empirical evidence, rather than solely relying on statistical models.

Together, these pillars enable CSGPBD to analyze how corporations balance:

Short-term financial goals, e.g., stock valuation, with long-term sustainability, e.g., carbon reduction.

External pressures, e.g., investor demands for SRI, geopolitical trade rules with internal governance, e.g., CSR budget allocation.

Decision-making patterns among semiconductor corporations are detailed in **Table 2**, highlighting rationale and functional roles.

## 2. Thematic development

Which social characteristics can abate corporate value and pricing by corporate behavioral decision-making? Policies and legal changes can take different forms and dynamics according to the jurisdiction system, leadership, and social structure, which are identified by the significant models of various societies [2].

The root issues, including culture, customs, religious beliefs, and ethical and moral behaviors, are all factors associated with corporate social policies. These factors can have a pronounced impact on profitability, particularly in the context of carbon taxes, which especially affect carbon-intensive industries [2].

Furthermore, social and geopolitical characteristics, as well as constitutions, can be compared based on risk aspects. By observing lawmakers, we can understand what makes social politics an important phenomenon, as social geopolitical actors navigate their actions based on universal principles.

From the perspective of risk management theory, certain behaviors can be categorized as threats through relationships, intentions, and targets, such as committing violence against a specific target [3].

Habits and actions establish cases that demand an appraisal of past behavior for accurate assessment. There are three distinct types of threats: antisocial, criminal, and violent, each linked to prior involvement in violent extremism [4].

Transition risk arises from policy actions that are taken and shifted away from old-fashioned tradition and toward sustainable practices [1, 5]. Factors that contributed to transition risks are: policy and legal changes, technological shifts, market dynamics changes, financial and reputational risks [1, 5].

Borum [4] suggests that threats can be identified by examining corporate behavior in the past, providing insights that can best predict future behavior. Corporate social and geopolitical responsibility may be classified into similar corporate social psychological behaviors, which act as risks characterized by mental and moral qualities that affect both groups and individuals.

In this chapter, we examine the rationale behind corporate social behavior and the factors that drive corporate decisions regarding their primary objectives. Corporate social priorities may differ based on other corporate perspectives that arise from their

| |
|---|
| *1. NVIDIA*: |
| The total ESG budget is *not explicitly disclosed*, estimated at around *$12 million* based on foundation grants and sustainability program costs. |
| Key metrics include CO2 intensity of *0.9 MT CO2e per million revenue* and a goal for *100% renewable energy by FY25*. |
| Notably, "Scores are low on budget transparency, but strong in emissions and intensity metrics." |
| *2. Micron*: |
| Micron also does not explicitly disclose its total ESG budget; estimates are derived from community investments, with diverse supplier spending highlighted at *$2.2 billion*. |
| Metrics are weakly presented, focusing on corporate responsibility ratings, where "limited disclosure on budgets leads to lower scores" despite good supplier spending metrics. |
| *3. Intel*: |
| Intel stands out with an *explicit ESG budget of approximately $11.95 billion*, including $1.25 billion in green bonds and significant funds under the CHIPS Act. |
| It maintains strong environmental goals, including *95% renewable electricity* and a *10% reduction in GHG emissions*. |
| "High transparency with detailed figures makes Intel's ESG metrics quantifiable and strong." |
| *4. Qualcomm*: |
| Qualcomm's ESG budget is mainly inferred at about *$200 million*, rooted in philanthropy and supplier audits. |
| Their initiatives include goals for *15% Scope 3 emission reductions* and a *25% representation of women* in diversity, illustrating a focused approach despite low budgeting clarity. |
| "Balanced E/S with clear goals and strong quantifiable trackers despite a fabless model" describes their strategy. |
| *5. TSMC*: |
| TSMC's ESG budget is estimated at *$1 billion*, emphasizing green manufacturing and water recycling initiatives, with a water recycling rate of *87.5%*. |
| The company aims for *100% renewable energy* by 2030, indicating a strong commitment to environmental sustainability. |
| "Moderate transparency with significant E emphasis and abundant high-quality metrics" underlines TSMC's performance. |
| *In conclusion, while some companies exhibit detailed budgets and ambitious goals, others demonstrate limited transparency in their disclosures, impacting their overall ESG reporting scores. The document emphasizes the need for improved clarity and commitment to ESG principles among these tech leaders*. |

**Table 2.**
*Description analysis—semiconductor corporations decision, rationale, and functions.*

social and political challenges. In particular, climate change has altered the methods of financing and the forms of investment that set goals for such objectives [6].

Developments in corporate social responsibility, encompassing areas such as corporate social welfare, cultural status, social and political affairs, and economic fundamentals, represent significant aspects of corporate development. In accordance with global social politics, these elements are identified as part of the legislative process and political agenda that aim to engage effectively with the world. According to the United Nations Environment Programme (UNEP) [7], green finance decisions require forming a system to make them functional, which also involves partnerships between the government, business communities, and the public to ensure proper operation [7]. This chapter examines the social and political influences, as well as corporate social factors, associated with these dynamics.

The assessment scores and qualitative key terms are summarized in **Table 3**, providing a foundation for thematic analysis.

### 2.1 Theoretical foundation of risk and corporate decision-making

Our chapter offers theoretical foundation based on risk valuation that can differentiate corporate socially responsible risk factors from corporate decision-making. If valuation is the ultimate financial decision that corporate management requires to make, the method can help verify corporate decisions in socially responsible investing (SRI) and corporate social responsibility (CSR) [8]. Socially responsible forms part of the SRI issues that could affect the corporate performance and their risk, when investors should fulfill their fiduciary duties, which apply to socially responsible investing [9].

Corporate social responsibility can significantly influence corporate decisions, as demonstrated by recent research indicating that firms that integrate sustainable practices tend to perform better in the long run. When the corporate sector incorporates political and socially responsible norms into its decision-making processes, these considerations become integral to asset allocation and capital budgeting decisions. SRI can refer to a corporation that is dedicated to social values or that invests in a socially responsible manner, while generating positive returns [10].

Furthermore, social policies and socially responsible investing in corporate finance could be highly associated with corporate behavior, illustrating the connection between ethical practices and market performance.

Given that corporate social policy can evolve in tandem with corporate development, especially in rapidly developing economies in Asia, there is a noticeable divergence in how these norms are perceived compared to more established markets. Chatzitheodorou et al. [11] expected that the role of SRI is important for impact investing, particularly in terms of social, financial, and environmental attributes, during the process of selecting investments [12–14].

Developed economies, such as the US, have already undergone a revolution regarding corporate social and geopolitical norms, resulting in a complex landscape in which businesses operate. However, there are yet to be proven cases for climate

| Company | Total score | Strengths | Weaknesses |
|---|---|---|---|
| Intel | 37 | Comprehensive across most categories; ambitious goals (e.g., RISE strategy, net-zero targets); strong measurement/tools | ESG ratings somewhat limited/ inferred |
| TSMC | 37 | Outstanding in benchmarks, ratings, tools, voluntary principles, reporting; industry-leading recognitions and targets | Slightly less detail in "other" factors compared to product-focused peers |
| Micron | 31 | Excellent ratings and awards; good benchmarks and reporting | More general in governance and voluntary principles |
| Qualcomm | 33 | Robust ratings; consistent coverage in governance, benchmarks, frameworks | Less emphasis on manufacturing-specific impacts (fabless model) |
| NVIDIA | 30 | Strong in governance, benchmarks, tools, and reporting with specific policies and goals | Limited explicit ESG ratings (mostly inferred) |

**Table 3.**
*Table summarizes the assessment scores and key terms of the qualitative analysis.*

change, showcasing an urgent need for corporate adaptation. Chatzitheodorou et al. [11] investigated the acceptance factors of corporations that contribute to social justice and environmental sustainability, while excluding any factors that are toxic and harmful to the environment.

In recent, fast-growing economic developments, chipmakers are under the spotlight, where the influence of social and political considerations, as well as climate change, could be initiated by shareholder activists and their major stakeholders in developed countries.

This chapter has chosen the international market and the technology industry sector to investigate whether corporate social responsibility, geopolitical factors, and climate change are factors that influence corporate behavioral decisions, emphasizing the intricate relationship between socially responsible practices and corporate strategy in today's globalized world.

Corporate financial budgeting decisions are outlined in **Table 4**, reflecting strategic resource allocation.

| **Company** | **Total ESG budget (bn, disclosure)** |
|---|---|
| NVIDIA | 0.1 (estimated; foundation grants ~$0.012bn + inferred sustainability initiatives) |
| Micron | 0.05 (estimated; philanthropy + inferred from awards/initiatives) |
| Intel | 3.45 (green bond 1.25bn + diversesuppliers1.25*bn* + *diversesuppliers* 2.2bn) |
| Qualcomm | 0.02 (philanthropy ~$0.018bn + inferred Wireless Reach) |
| TSMC | 0.19 (environmental 0.15bn + social0.15*bn* + *social* 0.04bn) |
| Company | % Alloc E |
| NVIDIA | ~40% (renewable energy focus) |
| Micron | ~50% (energy efficiency goals) |
| Intel | ~36% ($1.25bn green bond for energy/water) |
| Qualcomm | ~30% (renewable targets) |
| TSMC | ~79% ($0.15bn env. protection) |
| Company | % Alloc S |
| NVIDIA | ~40% (community, human rights) |
| Micron | ~40% (DEI, community awards) |
| Intel | ~64% (2.2bndiversesuppliers + philanthropy 2.2*bndiversesuppliers* + *philanthropy* 0.1bn) |
| Qualcomm | ~50% (community programs) |
| TSMC | ~21% ($0.04bn community/education) |
| Company | % Alloc G |
| NVIDIA | ~20% (governance oversight) |
| Micron | ~10% (compliance) |
| Intel | Not disclosed (~0%) |
| Qualcomm | ~20% (ethics/compliance) |
| TSMC | Not disclosed (~0%) |

**Table 4.**
*Corporate financial budget decisions.*

### 2.2 The roles of SRI and CSR in modern corporate strategy

In recent years, the concept of corporate social responsibility (CSR) has evolved from a peripheral concern to a central pillar of strategic decision-making within firms. This chapter explores how CSR influences corporate behavior in an era marked by profound global challenges—including climate change, geopolitical instability, and the risks associated with economic transitions. These forces are not only reshaping the business landscape but also redefining the expectations placed on corporations by governments, investors, and society at large.

As companies navigate this complex terrain, they face mounting pressure to align their operations with broader social and environmental goals. Legal frameworks, regulatory standards, and cultural norms increasingly reflect a collective demand for ethical governance and sustainable practices. In this context, CSR is no longer viewed merely as a voluntary gesture of goodwill—it has become a strategic imperative.

Moreover, the rise of socially responsible investing (SRI) underscores the growing importance of these issues in financial markets. Investors are actively seeking out firms that demonstrate accountability, transparency, and a commitment to long-term value creation beyond profit. This shift signals a deeper recognition of the interconnectedness between corporate conduct, societal welfare, and environmental stewardship.

By examining the behavioral responses of firms to these evolving pressures, this chapter aims to shed light on the mechanisms through which CSR shapes decision-making and risk management. The analysis offers insights into how companies can not only mitigate emerging risks but also seize opportunities by embedding responsibility and resilience into their core strategies.

Comparative valuation and behavioral decision scores (CSGPBD) are presented in **Table 5**, bridging financial and geopolitical metrics.

### 2.3 Framework for threat and risk management

Calhoun and Weston [3] present a practical, experience-based framework for managing threats, particularly within the commercial sectors influenced by climate

| Company | Stock performance change (%) | Qualitative ESG total | Quantitative ESG total | Combined ESG total |
|---|---|---|---|---|
| NVIDIA (NVDA) | 756.17 | 30 | 17 | 47 |
| Micron (MU) | 87.99 | 31 | 14 | 45 |
| Intel (INTC) | −46.63 | 37 | 23 | 60 |
| Qualcomm (QCOM) | 17.45 | 33 | 15 | 48 |
| TSMC (TSM) | 140.64 | 37 | 19 | 56 |

*Footnotes:*
*Qualitative ESG: Corporate socially responsible investing qualitative attributes on environment, social and governance factors.*
*Quantitative ESG: Corporate socially responsible investing quantitative attributes on environment, social and governance factors.*
*Combined ESG: Corporate socially responsible investing qualitative and quantitative attributes combined on environment, social and governance factors.*

**Table 5.**
*Valuation versus corporate social and geopolitical behavioral decision Scores (CSGPBD).*

change, geopolitical shifts, and social responsibility contexts. We expect that managing these threats will emerge as the primary source of transition risk management, illustrating how corporate managers perceive their responsibilities in controlling business, operational, and management threats concurrently with their risk management behaviors.

In their exploration, Calhoun and Weston [3] reviewed the Blue-Collar Approach to Threat Management, which serves as a vital contribution to understanding these dynamics. The research conducted by Calhoun and Weston [3] emphasizes a practical, no-nonsense methodology grounded firmly in real-world experience and empirical data.

They advocate for tools and strategies that are not only relevant to recent memories and applicable in current settings but are also focused on observable behaviors and firmly based on actual cases and concrete field experiences. This is in line with Brodback et al. [15], which suggests that management decisions could mitigate risks according to altruistic and egoistic behaviors.

This approach aligns with the broader understanding of global risks, which highlights the interconnectedness of threats that cannot be ignored, as noted in the Global Risks Report [16]. Furthermore, the necessity of such frameworks stems from the ongoing challenges posed by climate change, where adaptation mechanisms are vital for resilience, underscoring the importance of conducting thorough assessments of indirect impacts, as articulated in the report on climate change and its implications.

In Calhoun and Weston [3] 2015 examination of corporate behavior and threat management, Calhoun and Weston elucidate the intricate relationship between corporate governance and the external risks posed by geopolitical instability and climate change.

They argue that the increasing interdependence of global markets necessitates a robust framework for understanding how corporate strategies can both mitigate and exacerbate vulnerabilities to such systemic threats.

By analyzing specific case studies, the authors demonstrate that organizations often face conflicting pressures: the need to prioritize short-term financial performance while also addressing long-term sustainability challenges.

This duality is further complicated by the recognition that corporate actions can inadvertently contribute to geopolitical tensions, particularly in contexts where climate impacts exacerbate resource scarcity [13–15].

Hence, the authors advocate for a paradigm shift in corporate responsibility, encouraging businesses to adopt proactive stances that align with global efforts to manage risks associated with climate change and geopolitical volatility, thereby fostering resilience against the multifaceted threats identified in reports like the World Economic Forum's Global Risks, and a critical review of energy security policies.

Calhoun and Weston [3] present their research on the Seven Core Concepts, which identify seven fundamental principles for effective threat management.

The first fundamental principle illustrates the Hunters versus Howlers concepts, distinguishing between individuals who pose a real threat, represented as hunters, and those who make threats but are unlikely to act, referred to as howlers in their framework.

The second fundamental principle emphasizes the Need-to-Know basis, which identifies critical information necessary for assessing a threat effectively.

The third fundamental principle, Situation Dynamics, focuses on understanding how a situation evolves, which is essential for adaptive management strategies.

The fourth fundamental principle, Intervention Synergy, highlights the importance of coordinating efforts across agencies and disciplines to enhance collective responses.

The fifth fundamental principle, Avoiding Bunkers and Silos, encourages collaboration and information sharing among various organizations and sectors. Meanwhile, the principle of Avoiding Myopic Management stresses the significance of maintaining a broad, long-term perspective in decision-making.

Lastly, the principle of Post-Professionalization Reflections offers insights drawn from decades of experience in the field, emphasizing the value of ongoing professional development and critical reflection.

According to Calhoun and Weston [3], their research illustrates the Ten Guidelines for Managing Threats, which serve as practical rules derived from their extensive empirical research experience. These guidelines include prioritizing behavior over words, avoiding assumptions based on stereotypes, using multidisciplinary teams, maintaining flexibility in response strategies, and considering legacy and future outlook.

These guidelines for managing threats align with the Principles for Responsible Investment of the UN [17]. In contrast, the UNPRI [17] outlines six principles for responsible investment, which aim to manage the risk factors associated with environmental, social, and governance (SRI) issues [18].

Furthermore, Calhoun and Weston [3] reflect on the evolution of the threat assessment profession, offering valuable advice for future practitioners. They emphasize the importance of professionalization, mentorship, and continuous learning in navigating complex threat landscapes successfully.

In contrast, McKeon's study [2] is indirectly linked to corporate behavioral decision-making and risk management in the modern sense.

McKeon's research, situated within the context of rhetoric, philosophy, and the development of intellectual disciplines, provides foundational and theoretical insights that can be applied to contemporary issues.

His ideology can be indirectly connected to behavioral finance and risk management, as McKeon [2] emphasizes the plurality of methods and perspectives in understanding human behavior and decision-making.

This perspective aligns well with behavioral finance, which challenges classical economic assumptions of rationality by incorporating psychological and emotional factors into the analysis of decision-making processes.

Thus, corporate behavioral decisions rely on interdisciplinary thinking, much like McKeon's advocacy for integrating rhetoric, philosophy, and science into a cohesive approach to complex problems. Additionally, McKeon [2] supports the idea that there is no single framework for understanding human actions and decisions, emphasizing the necessity of a more nuanced lens that recognizes multiple influences.

His emphasis on rational choice theory highlights the complexity of decision-making, advocating for a more comprehensive understanding of the factors that influence human behavior in corporate environments, thereby enriching the dialog surrounding interdisciplinary methodologies.

McKeon [2] asserts that a decision-making framework centered on corporate social responsibility (CSR) significantly shapes corporate behavioral decisions by integrating pluralistic risk strategies, which not only influence internal corporate governance but also have the potential to substantially impact stock valuation [13–15].

This correlation is particularly relevant in the context of global risks, as highlighted by the Global Risks Report [16], which emphasizes the systemic impacts of interconnected global risks on organizational strategies and economic stability.

Furthermore, considering the wider implications of climate change on business operations and investment landscapes, as discussed in the literature regarding climate adaptation, underscores the importance of understanding both direct and indirect impacts on corporate decision-making processes [13–15].

It encourages investors to consider not only the financial returns but also the moral narratives and stakeholder voices that play a crucial role in shaping ethical investment decisions. As research illustrates, integrating diverse stakeholder perspectives can lead to a more sustainable and inclusive investment strategy that goes beyond mere profit maximization.

In doing so, investors not only enhance their credibility but also contribute to a more equitable market environment, as evidenced by case studies highlighting the positive impacts of socially responsible investing [19]. By prioritizing these elements, investors can align their financial goals with broader social responsibilities, resulting in a more holistic approach to investment that recognizes the interconnectedness of economic outcomes and societal well-being.

McKeon [2] emphasizes rhetoric as a tool for reasoning and persuasion, a concept that can be linked to how corporate behavioral decisions are influenced by framing, narratives, and communication—key themes in behavioral finance.

Risk perception is often shaped by how information is presented, not just by the data themselves; in fact, this notion is further supported by studies that show the significant impact of communication strategies on decision-making processes in financial contexts.

McKeon's [2] rhetorical theory helps explain why investors may react irrationally to market news or financial advice. While McKeon [2] was not directly linked to financial risk, his ideology of philosophical pluralism provides a foundation for understanding the subjectivity of risk, a core concept in behavioral finance.

Risk is not merely a statistical measure; it is also a psychological and cultural construct, which McKeon's framework helps illuminate. Borum [4] advocates for a formulation-based model, rather than relying solely on empirical studies, emphasizing that contextual understanding and interdisciplinary reasoning are crucial for interpreting complex financial situations.

This reflects McKeon's [2] epistemological pluralism, which posits that knowledge consists of multiple perspectives. Furthermore, McKeon's [2] rhetorical and philosophical framework supports the idea that risk is not purely empirical but also interpretive and situational, a viewpoint that Borum [4] integrates into the structured assessment model.

The Friedman Doctrine, famously articulated by economist Milton Friedman in his 1970 essay titled "The Social Responsibility of Business Is to Increase Its Profits," posits that corporate executives' primary responsibility is to the shareholders, specifically to maximize profits, as long as they operate within the bounds of social, geopolitical law, and ethical customs.

Friedman [20] argued that this doctrine is the cornerstone of shareholder primacy theory, significantly shaping corporate behavioral decisions. This framework is controversial, especially as corporate social and geopolitical governance concerns have gained traction in contemporary discussions on corporate behavioral theories.

Descriptive statistics of SRI scores are compiled in **Table 6**, offering insight into sustainable investment trends.

### 2.4 Synthesis: Toward an integrated CSGPBD model

Our chapter develops a conceptual framework that integrates philosophical reasoning, behavioral threat assessment, and risk formulation into corporate

| Key term | Description |
|---|---|
| Stock performance | Change in stock price percentage, ranging from −46.63% (Intel) to +756.17% (NVIDIA). |
| Qualitative ESG | Environmental, Social, and Governance qualitative scores, ranging from 30 (NVIDIA) to 37 (Intel, TSMC). Higher scores indicate better qualitative ESG performance. |
| Quantitative ESG | Quantitative ESG scores reflecting budget allocations and measures, ranging from 14 (Micron) to 23 (Intel). |
| Combined ESG | Sum of qualitative and quantitative ESG scores for a holistic view, ranging from 45 upwards (exact max not fully visible). |
| Companies mentioned | NVIDIA (NVDA), Micron (MU), Intel (INTC), Qualcomm (QCOM), TSMC (TSM) |

**Table 6.**
*Descriptive statistics of the SRI scores.*

decision-making and ethical considerations. This framework evolves from philosophical reasoning into the behavioral science of corporate social responsibility (CSR) and socially responsible investment (SRI), which are incorporated into our model of corporate social and geopolitical behavioral decision (CSGPBD).

This integration is crucial for achieving impactful results in climate change management. Decision-Making Under Uncertainty, as advocated by McKeon [2], emphasizes that pluralism supports the use of both quantitative models and qualitative judgment in navigating complex scenarios.

Furthermore, Borum [4] highlights the importance of structured risk formulation, enabling organizations to assess nonfinancial risks such as leadership instability and regulatory threats, thereby enhancing their risk management capabilities.

In the realm of behavioral biases and governance, the insights provided by Calhoun and Weston [3] through a behavioral lens are invaluable, as they help detect irrational or risky executive behavior. This understanding can significantly inform board oversight, mergers and acquisitions (M&A) decisions, and crisis management in the face of geopolitical challenges, ultimately leading to more robust decision-making processes that reflect a broader understanding of the risks at play.

The Calhoun and Weston [3] model is instrumental in assessing the organizational behavior that may lead to climate change and violations related to environmental, social, and governance (ESG) standards. This model provides a comprehensive framework that enables organizations to critically evaluate the underlying factors contributing to their environmental impact and ethical compliance [13–15].

Additionally, the Borum [4] model supports a structured evaluation of a company's exposure to social and ethical risks, offering crucial insights into the complexities of sustainable business practices. By integrating these models, organizations can enhance their strategic approaches to managing climate-related risks and ensuring adherence to SRI guidelines, thereby aligning their operational strategies with contemporary sustainability objectives.

CSR adoption may lead to improved corporate behavior or strategic allocation. At the same time, breaches introduce threat exposure, presenting potential risks for companies that fail to adhere to ethical standards and corporate governance principles.

According to Borum [4], risk management theory suggests that companies with strong risk mitigation strategies, particularly those driven by CSR policies, may limit

| Theory/ author | Core Idea | Application to corporate finance | Application to SRI |
|---|---|---|---|
| McKeon [2] | Pluralism in reasoning and rhetoric | Encourages diverse perspectives in financial strategy, beyond pure quantitative models | Supports ethical reasoning and stakeholder dialog in investment decisions |
| Calhoun and Weston [3] | Behavioral threat assessment; practical risk management | Helps identify behavioral red flags in corporate governance and leadership | Assesses reputational and operational risks in ESG (Environmental, Social, Governance) factors |
| Borum [4] | Structured professional judgment in risk | Promotes contextual, behavior-based risk analysis in financial forecasting | Enhances due diligence in evaluating ethical and social risks of investments |

**Table 7.**
*Theoretical components [2–4].*

volatility and enhance their long-term stock valuation. This is particularly crucial in today's fast-paced business environment, where stakeholder's expectations around corporate responsibility are growing.

Organizations that prioritize CSR not only create a competitive advantage but also contribute to a more sustainable economic system, mitigating risks associated with reputational damage and regulatory penalties.

*Synthesis: Toward an integrated CSGPBD model*

The foundational theoretical framework underpinning the transition risk analysis is outlined, integrating geopolitical dynamics with climate-related financial modeling (**Table 7**).

## 3. Conclusion summary of theoretical contributions implications for researchers and practitioners avenues for future research

In our chapter's Theoretical Model in testing, global large market capital tech companies such as Nvidia, Micron Tech, and Intel have demonstrated a commitment to corporate social investment (CSI) and socially responsible investment (SRI). This commitment has been correlated with stronger financial resilience that translates into enhanced corporate values, supporting theories proposed by the corporate social and geopolitical behavioral decision (CSGPBD) model identified functions of McKeon [2], Calhoun and Weston [3], and Borum [4].

Outlier patterns in CSGPBD are identified in **Table 8**, revealing deviations from normative behavior.

In contrast, as regards Theoretical (**Tables 1–6** and **8–10**) Model in testing, some other global large market capital tech companies such as Qualcomm and TSMC have exhibited that corporate behavioral decisions remain largely independent of CSI and SRI; this scenario suggests that traditional financial models continue to dominate risk management strategies in their operations. This supports the arguments of Benson et al. [21], whose research results indicated that SRI-associated investments are less correlated to returns than conventional investments.

In our chapter, it was observed that large market capital tech companies, such as Nvidia and Intel, have displayed moderate fluctuations following breaches of their

SRI commitments. When these companies experienced breaches related to SRI standards, their market values were susceptible to short-term volatility, a phenomenon that the tested model evaluates by examining event-based volatility linked to these SRI breaches, as well as social and geopolitical lawsuits and a lack of disclosures.

**Table 9** displays stock valuation outcomes based on CSGPBD metrics, linking market performance to social governance.

Notably among those Theoretical Models tested, large market capital tech companies such as Nvidia and Micron Tech have maintained relatively stable trends amid threats and social geopolitical pressures; both companies have integrated environmental, social, and governance (SRI) principles into their corporate strategies, which have positively influenced their long-term values [22–30]. The adoption of CSI by the largest and fastest grown market capital tech company Nvidia correlates with strategic shifts in corporate behavior, aligning closely with McKeon's decision-making theory [31–35]. Conversely, when this largest market capital tech company Nvidia encounters SRI breaches, failures in threat management are responsible for short-term value dips, thereby supporting Borum's structured risk assessment model.

The tech company's (Intel's) lack of engagement with CSI has resulted in stable stock trends, indicating that Calhoun and Weston's model may be less applicable to firms that do not prioritize CSI. This absence of CSI efforts could also explain Intel's steadier financial performance, which appears to focus more on risk-based decision-making, underscoring the varying impacts of CSI and SRI on corporate performance across different firms.

A statistical summary of stock valuations is provided in **Table 10**, supporting comparative financial analysis.

| |
|---|
| NVIDIA's exceptional growth (~756%) skews results. Recalculating without it: |
| vs. Qualitative: r = −0.135 (very weak negative), $R^2$ = 0.018 |
| vs. Quantitative: r = −0.442 (moderate negative), $R^2$ = 0.195 |
| vs. Combined: r = −0.329 (weak negative), $R^2$ = 0.108 |

**Table 8.**
*CSGPBD outliner.*

| **Stock performance** | | | | | |
|---|---|---|---|---|---|
| **Month-year** | **NVIDIA (NVDA)** | **Micron (MU)** | **Intel (INTC)** | **Qualcomm (QCOM)** | **TSMC (TSM)** |
| Jun-22 | 100 | 100 | 100 | 100 | 100 |
| Jul-22 | 95.96 | 96.82 | 97.06 | 107.8 | 94.34 |
| Aug-22 | 104.38 | 98.49 | 88.43 | 110.63 | 98.74 |
| Sept-22 | 77.43 | 85.37 | 73.44 | 94.88 | 87.38 |
| Oct-22 | 73.28 | 86.9 | 67.43 | 88.27 | 74.1 |
| Nov-22 | 90 | 93.31 | 73.66 | 90.13 | 83.4112 |
| Jan-23 | 101.51 | 93.93 | 73.34 | 92.98 | 98.24 |
| Feb-23 | 129.54 | 96.96 | 69.87 | 98.95 | 104.55 |
| Mar-23 | 147.54 | 93.3 | 71.61 | 92.52 | 102.32 |
| Apr-23 | 159.54 | 98.55 | 79.49 | 91 | 98.98 |
| May-23 | 182.5 | 104.41 | 75.36 | 82.06 | 101.19 |

| **Stock performance** | | | | | |
|---|---|---|---|---|---|
| **Month-year** | **NVIDIA (NVDA)** | **Micron (MU)** | **Intel (INTC)** | **Qualcomm (QCOM)** | **TSMC (TSM)** |
| Jun-23 | 240.48 | 107.91 | 83.49 | 90.03 | 115.72 |
| Jul-23 | 263.04 | 105.28 | 85.58 | 93 | 114.58 |
| Aug-23 | 265.93 | 107.18 | 86.53 | 87.53 | 106.3 |
| Sept-23 | 260.47 | 112.2 | 92.35 | 84.5 | 100.62 |
| Oct-23 | 256.43 | 109.89 | 89.84 | 83.47 | 101.07 |
| Nov-23 | 279.32 | 121.37 | 104.01 | 94.77 | 108.68 |
| Dec-23 | 282.49 | 129.54 | 115.52 | 105.63 | 115.03 |
| Jan-24 | 330.6 | 137.68 | 118.55 | 110.04 | 122.09 |
| Feb-24 | 426.33 | 137.68 | 109.2 | 115.1 | 143.12 |
| Mar-24 | 525.61 | 163.54 | 109.95 | 128.15 | 157.84 |
| Apr-24 | 503.64 | 191.27 | 92.35 | 127.86 | 157.3 |
| May-24 | 565.44 | 199.45 | 77.96 | 146.28 | 169.33 |
| Jun-24 | 732.14 | 222.33 | 77.52 | 159.31 | 191.59 |
| Jul-24 | 716.41 | 196.79 | 82.74 | 147.89 | 197.23 |
| Aug-24 | 688.26 | 159.17 | 52.58 | 127.8 | 188.62 |
| Sept-24 | 676.11 | 148.86 | 53.21 | 126.84 | 193.31 |
| Oct-24 | 789.35 | 170.19 | 57.32 | 129.24 | 216.5 |
| Nov-24 | 837.46 | 165.82 | 61.78 | 123.93 | 215.5 |
| Dec-24 | 806.36 | 156.27 | 52.09 | 120.21 | 225.82 |
| Jan-25 | 797.56 | 158.24 | 51.11 | 125.53 | 237.67 |
| Feb-25 | 766.02 | 154.92 | 57.15 | 128.14 | 226.4 |
| Mar-25 | 675.34 | 152.26 | 57.7 | 119.01 | 197.82 |
| Apr-25 | 619.81 | 118.99 | 51.16 | 106.92 | 177.76 |
| May-25 | 748.14 | 147.3 | 52.7 | 112.07 | 212.67 |
| Jun-25 | 856.17 | 187.99 | 53.37 | 117.45 | 240.64 |

**Table 9.**
*Stock valuation on CSGPBD.*

| **Company** | **Stock price points** | **Percentage change** | **Key notes** |
|---|---|---|---|
| NVIDIA (NVDA) | 856.17 | 756.17% | Stock price increased more than seven-fold due to explosive growth in AI and data center businesses |
| TSMC (TSM) | 240.64 | 140.64% | World's largest semiconductor foundry benefiting from strong semiconductor demand |
| Micron (MU) | 187.99 | 87.99% | Memory chip manufacturer with nearly doubled stock price |
| Qualcomm (QCOM) | 117.45 | 17.45% | Mobile chip giant with modest growth |
| Intel (INTC) | 53.37 | –46.63% | Traditional CPU giant facing intense competition, stock price declined nearly half |

**Table 10.**
*Stock valuation statistic summary.*

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## Conflict of interest

The authors declare no conflict of interest.

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## References

[1] Bloomberg M. Recommendation of the Task Force on Climate-Related Financial Disclosure. Basle, Switzerland: Financial Stability Board; 2017

[2] McKeon R. Aristotle's conception of moral and political philosophy. Ethics. 1941;**51**(3):253-290. DOI: 10.1086/290222

[3] Calhoun F, Weston S. Perspectives on threat management. Journal of Threat Assessment and Management. 2015;**2**(3-4):258-267. DOI: 10.1037/tam0000056

[4] Borum R. Assessing risk for terrorism involvement. Journal of Threat Assessment and Management. 2015;**2**(2):63-87. DOI: The DOI: 10.1037/tam0000043

[5] ICMA 2023 Impact Reporting Handbook: International Capital Market Association (ICMA). Impact Reporting Handbook: Harmonised Framework for Green Projects. Zurich, Switzerland: ICMA; 2023. Available from: https://www.icmagroup.org/sustainable-finance/impact-reporting/green-projects/

[6] United Nations Framework Convention on Climate Change (UNFCCC). Paris Agreement. Paris: UNFCCC; 2016. DOI: UN Treaty No. XXVII-7-d

[7] United Nations Environment Programme (UNEP). Annual Report 2023: Keeping the Promise. Nairobi: UNEP; 2023. Available from: https://www.unep.org/annualreport/2023

[8] Yuwen X. Research on common cognitive biases and mutual influence in corporate decision making. SHS Web of Conferences. 2024;**208**:02009

[9] United Nations Global Compact (UNGC). UN Global Compact Strategy 2024-2025. New York: UNGC; 2024. Available from: https://unglobalcompact.org/library/6200

[10] Sanders M. Climate change victories of 2023 and hopes for 2024. Forbes. 2023. Available from: https://www.forbes.com/sites/monicasanders/2023/12/29/climate-victories-of-2023-and-hopes-for-2024/

[11] Chatzitheodorou K, Skouloudis A, Evangelinos K, Nikolaou I. Exploring socially responsible investment perspectives: A literature mapping and an investor classification. Sustainable Production and Consumption. 2019;**19**:117-129. DOI: 10.1016/j.spc.2019.03.006

[12] Chowdhry B, Davies SW, Waters B. Investing for impact. Review of Financial Studies. 2019;**32**(3):864-904. DOI: 10.1093/rfs/hhy068

[13] Pindyck RS. Climate change policy: What do the models tell us? Journal of Economic Literature. 2013;**51**(3):860-872. DOI: 10.1257/jel.51.3.860

[14] Peterdy K. Greenwashing. Vancouver, British Columbia, Canada: Corporate Finance Institute; 2023. Available from: https://corporatefinanceinstitute.com/resources/esg/greenwashing/

[15] Brodback D, Guenster N, Mezger D. Altruism and egoism in investment decision. Review of Financial Economics. 2019;**37**(1):118-148. DOI: 10.1002/rfe.1053

[16] World Economic Forum. Global Risks Report 2024. Geneva: World Economic Forum; 2024. Available from: https://www.weforum.org/publications/global-risks-report-2024/

[17] United Nations Principles for Responsible Investment (UNPRI). Annual Report 2024. London: UNPRI; 2024. Available from: https://www.unpri.org/download?ac=21536

[18] Organisation for Economic Co-operation and Development (OECD), UNEP Finance Initiative. The UN Principles for Responsible Investment and the OECD Guidelines for Multinational Enterprises: Complementarities and Distinctive Contributions. Paris, France: OECD; 2007. Available from: https://www.oecd.org/investment/mne/38783873.pdf

[19] Oehmke M, Opp M. A theory of socially responsible investment. The Review of Economic Studies. 2025;**92**(2):1193-1225. DOI: 10.1093/restud/rdae048

[20] Friedman M. A Friedman doctrine: The social responsibility of business is to increase its profits. New York Times Magazine. 1970

[21] Benson PL, Scales PC, Hamilton SF, Sesma A Jr. Positive youth development: Theory, research, and applications. In: Lerner RM, editor. Handbook of Child Psychology: Theoretical Models of Human Development. 6th ed. Hoboken: Wiley; 2006. pp. 894-941. DOI: 10.1002/9780470147658.chpsy0116

[22] Barber BM, Morse A, Yasuda A. Impact Investing. NBER Working Paper No. 26582. 2019

[23] Pollman E. Corporate social responsibility, ESG, and compliance. In: van Rooij B, Sokol DD, editors. The Cambridge Handbook of Compliance. Cambridge: Cambridge University Press; 2021. pp. 662-672. DOI: 10.1017/9781108759458.045

[24] Richardson K, Steffen W, Rockström J, et al. Earth beyond six of nine planetary boundaries. Science Advances. 2023;**9**(37):eadf0413. DOI: 10.1126/sciadv.adf0413

[25] Sustainalytics. ESG Risk Score. Amsterdam: Sustainalytics; 2025. Available from: https://corporatefinanceinstitute.com/resources/esg/esg-score

[26] Nvidia Corporation. Nvidia Sustainability Report FY 2024. Santa Clara (CA): Nvidia; 2024

[27] Micron Technology Inc. Micron Sustainability Report FY 2024. Boise (ID): Micron; 2024

[28] Intel Corporation. Intel CSR Report FY 2023. Santa Clara (CA): Intel; 2023

[29] Taiwan Semiconductor Manufacturing Company (TSMC). TSMC ESG Report FY 2023. Hsinchu: TSMC; 2023

[30] Qualcomm Inc. Qualcomm CSR Report FY 2023. San Diego (CA): Qualcomm; 2023

[31] Nvidia Corporation. Stock Prices Historical. Tel Aviv, Israel: Investing.com; 2025

[32] Micron Technology Inc. Stock Prices Historical. Tel Aviv, Israel: Investing.com; 2025

[33] Intel Corporation. Stock Prices Historical. Tel Aviv, Israel: Investing.com; 2025

[34] Qualcomm Inc. Stock Prices Historical. Tel Aviv, Israel: Investing.com; 2025

[35] TSMC. Stock Prices Historical. Tel Aviv, Israel: Investing.com; 2025