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Does Risk Governance Predict Survival? Evidence from U.S. Growth-Stage Firms

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Abstract

This study examines whether risk governance predicts survival among U.S. growth-stage firms. Drawing on agency theory and organizational resilience theory, we develop a multidimensional framework linking board oversight quality, internal risk infrastructure maturity, and innovation-aligned risk responsiveness to firm longevity. Using a longitudinal dataset (2010–2023) and Cox proportional hazards modeling, we find that firms with greater board independence, higher cognitive diversity, formal ERM adoption, and stronger internal controls exhibit significantly lower hazard rates of failure. While innovation intensity increases baseline risk, its adverse effects are mitigated when embedded within mature risk governance structures. Interaction analyses reveal that governance maturity moderates innovation-induced volatility, transforming risk-taking into sustainable growth capacity. These findings reposition risk governance from compliance mechanisms to strategic survival infrastructure within entrepreneurial ecosystems. The results offer actionable implications for founders, investors, and policymakers seeking to strengthen resilience among high-growth ventures.

Keywords: Risk Governance, Firm Survival, Growth-Stage Firms, Corporate Governance, Risk Management, Board Composition, Internal Controls, Innovation, U.S. Market

1. Introduction

1.1 Background and Motivation

The landscape for growth-stage firms in the United States is characterized by both substantial opportunity and inherent volatility. These enterprises, typically past the initial startup phase but not yet mature, face unique challenges related to scaling operations, securing continued funding, and navigating competitive pressures [1]. A significant proportion of these firms do not achieve long-term viability, often succumbing to financial distress or strategic missteps. Understanding the determinants of survival for these organizations is a critical area of inquiry for academics, practitioners, and investors alike. While financial capital, market opportunity, and innovative products are frequently cited as drivers of success, the role of internal organizational structures and processes, particularly those related to risk oversight, warrants deeper examination [2]. The ability of a firm to identify, assess, mitigate, and monitor risks collectively termed risk governance is increasingly recognized as fundamental to enduring performance and, ultimately, survival [3][4].

Previous research has established a connection between robust corporate governance and reduced corporate risks, with mechanisms such as institutional ownership, gender diversity on boards, and independent boards contributing to risk mitigation [4]. Furthermore, a strong risk management culture is integral to maximizing the likelihood of achieving organizational objectives [3]. However, the specific manifestation and impact of these governance practices within growth-stage firms, which often possess fewer resources and more agile structures than large, established corporations, remain less understood [5]. This distinct organizational context necessitates a focused investigation into how risk governance predicts the survival trajectories of these particular entities [6]. The unique characteristics of growth-stage firms, such as rapid scaling, often founder-led management, and reliance on external funding, introduce specific considerations for the design and effectiveness of their risk oversight frameworks [7].

1.2 Research Questions and Objectives

This study addresses the overarching question of how risk governance practices influence the survival prospects of U.S. growth-stage firms. To dissect this complex relationship, the following specific research questions guide the inquiry:

1. How do specific elements of board-level risk governance, such as board composition, independence, and expertise, affect the survival probability of growth-stage firms?
2. What is the impact of internal control systems and the maturity of risk management processes on firm longevity in this context?
3. Does the firm's innovation orientation, coupled with its risk responsiveness, mediate or moderate the relationship between risk governance and survival?

The primary objective is to empirically determine the predictive power of various risk governance attributes on firm survival among U.S. growth-stage entities. Secondary objectives include identifying critical risk governance mechanisms that differentiate surviving firms from those that fail, and exploring how these mechanisms interact with firm-specific characteristics and external environmental factors. By addressing these questions, this study intends to contribute to a deeper understanding of organizational resilience and sustainable growth in entrepreneurial ecosystems.

1.3 Conceptual Framework and Hypothesis Development

This study develops an integrated Risk Governance–Survival (RG–S) framework, positing that growth-stage firm survival is a function of board-level oversight quality, internal risk infrastructure maturity, and innovation-aligned risk responsiveness. Drawing from agency theory and organizational resilience theory, we conceptualize risk governance as a multidimensional construct comprising:

(1) board monitoring capacity,

(2) formalized risk management architecture, and

(3) strategic risk integration within innovation processes.

We hypothesize the following directional relationships:

H1: Greater board independence is negatively associated with the hazard rate of firm failure.

H2: Higher board cognitive diversity is negatively associated with the hazard rate of firm failure.

H3: Stronger internal control systems reduce firm failure risk.

H4: Adoption of formal ERM structures (e.g., CRO, risk committee) reduces hazard rates.

H5: Innovation capability increases baseline failure hazard but is moderated by risk governance maturity.

H6: The interaction between innovation intensity and risk governance maturity significantly reduces failure probability.

This framework positions risk governance not merely as compliance infrastructure, but as a strategic survival enabler within high-growth environments.

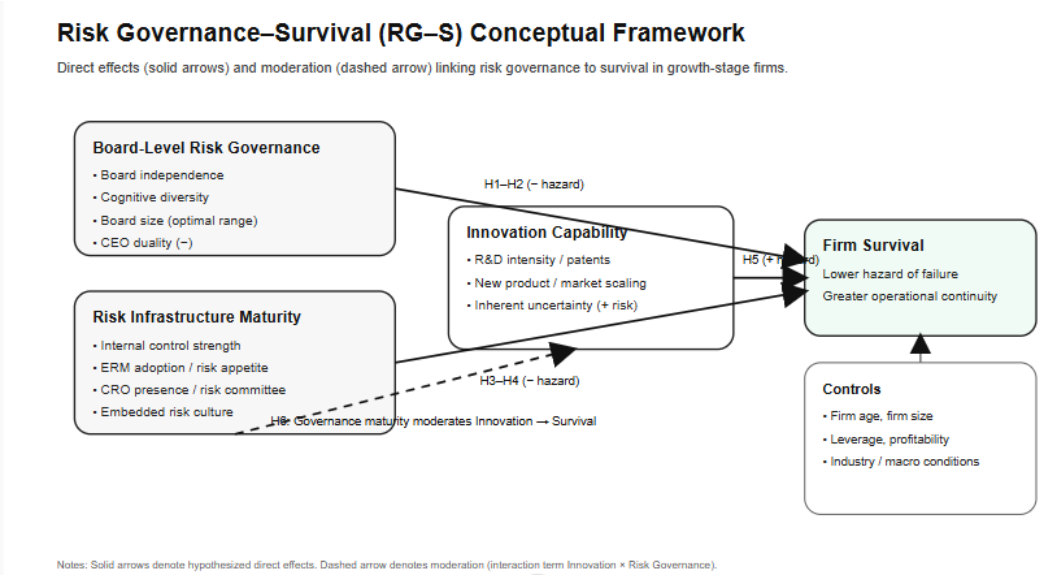

Figure 1. Risk Governance–Survival (RG–S) conceptual framework

Board-level risk governance and internal risk infrastructure are proposed to directly reduce failure hazards. Innovation capability increases baseline exposure, but its adverse survival effect is moderated by risk governance maturity, converting risk-taking into managed, resilient growth.

1.4 Scope and Significance

The scope of this research is confined to U.S.-based growth-stage firms across diverse industries. This focus allows for an examination of risk governance within a relatively homogeneous regulatory and economic environment, while acknowledging the inherent heterogeneity of growth ventures. The "growth-stage" categorization typically refers to firms that have moved beyond seed funding and initial product development, demonstrating market traction and actively pursuing scaling opportunities, but have not yet achieved sustained profitability or market leadership. The time horizon for survival analysis spans several years, capturing critical periods of expansion and potential vulnerability [8].

The significance of this study is multi-faceted. Academically, it extends the existing literature on corporate governance, risk management, and organizational longevity by specifically

targeting the under-researched population of growth-stage firms. It contributes to the theoretical understanding of how governance structures, particularly those focused on risk, translate into tangible survival outcomes in high-growth, high-risk environments. Practically, the findings offer valuable insights for founders, executive teams, and board members of growth-stage companies, enabling them to design and implement more effective risk governance frameworks [9]. Investors, including venture capitalists and private equity firms, may utilize this research to refine their due diligence processes and identify governance indicators associated with more robust portfolio companies. Furthermore, policymakers involved in fostering entrepreneurship and economic development can leverage these insights to formulate supportive policies that encourage resilient business practices among emerging enterprises [10].

2. Methodology

2.1 Research Design

This study employs a quantitative, longitudinal research design to assess the relationship between risk governance and firm survival. A positivist epistemological stance guides the inquiry, seeking to identify causal links and generalizable patterns [11]. The primary analytical approach involves survival analysis, also known as time-to-event analysis, which is well-suited for modeling the duration until an event of interest (in this case, firm failure or exit from the market) occurs. This method allows for the incorporation of censored data, where firms may still be active at the end of the observation period, providing a more accurate representation of survival probabilities than traditional regression models. The design facilitates the examination of how various time-invariant and time-varying covariates related to risk governance influence the hazard rate of firm failure over time. A large-scale observational study will be conducted, drawing data from publicly available and proprietary databases to construct a comprehensive sample of U.S. growth-stage firms.

2.2 Data Sources and Sample Selection

The sample for this study will comprise U.S. growth-stage firms across a variety of industries. Growth-stage firms are operationally defined as companies that have raised at least one round of venture capital funding beyond seed stage, exhibit significant revenue growth, and have been operational for a minimum of three years but not exceeding 15 years, to ensure they are distinct from both early-stage startups and mature corporations. Data will be sourced from a combination of financial databases (e.g., S&P Capital IQ, PitchBook, Crunchbase) to identify firms, track funding rounds, and monitor operational status. Corporate governance data, including board composition, executive leadership details, and, where available, information on internal controls and risk management committees, will be extracted from annual reports, regulatory filings (e.g., SEC filings for publicly traded firms or those planning IPOs), and company websites. The observation period will span from 2010 to 2023, allowing for a sufficient timeframe to observe survival outcomes and capture changes in governance structures. The initial sample size is projected to include several thousand growth-stage firms, with a rigorous screening process to ensure data completeness and adherence to the growth-stage definition. Firms that cease operations, are acquired, or file for bankruptcy will be classified as 'failed' for survival analysis purposes, while those still active at the end of the observation period will be treated as censored observations.

2.3 Variables and Measurement

Key variables for this study are categorized into dependent, independent, and control variables.

2.3.1 Dependent Variable: Firm Survival

Firm Survival is a dichotomous variable indicating whether a firm is active or has failed at a given point in time [12]. The survival duration is measured as the number of years from the firm's founding date (or the date of meeting growth-stage criteria) until failure or the end of the observation period. Failure events include bankruptcy, liquidation, or cessation of operations. Acquisitions are treated as censored events, assuming the acquiring firm's governance may supersede the target's, thus not representing an independent failure.

2.3.2 Independent Variables: Risk Governance Attributes

Board Composition and Oversight:

- Board Independence: Proportion of independent directors on the board.
- Board Size: Total number of directors [13].
- Board Diversity: Measured by gender heterogeneity (using a Blau index or dummy for female presence) and cognitive diversity (proxied by directors' industry experience, educational backgrounds, and functional expertise) [14][15].
- Risk Committee Presence: A binary indicator for the existence of a dedicated board-level risk committee.
- CEO Duality: A binary indicator if the CEO also serves as the board chair [16].

Internal Controls and Risk Management Maturity:

- Internal Control Strength: A composite index derived from disclosures related to internal audit functions, audit committee effectiveness, and documented control procedures.
- Risk Management Maturity: Proxied by indicators such as the presence of a Chief Risk Officer (CRO), adoption of enterprise risk management (ERM) frameworks, and documented risk appetite statements [17].

Innovation Orientation and Risk Responsiveness:

- Innovation Capability: Measured by R&D intensity (R&D expenditure/sales) or patent counts [15].
- Risk Perception & Planning: Measured by the extent of documented risk management planning and mitigation strategies disclosed [18][19].

2.3.3 Control Variables

Firm-level controls include Firm Age (years since founding), Firm Size (log of total assets or revenue), Leverage (debt-to-equity ratio), Profitability (Return on Assets), and Industry Sector (dummy variables based on SIC or NAICS codes). Macroeconomic controls, such as GDP growth rates and interest rates, will be included to account for broader economic conditions.

2.4 Analytical Techniques

The primary analytical technique will be Cox proportional hazards regression, a semi-parametric method suitable for modeling survival data while accounting for covariates. This model estimates the hazard ratio, representing the relative risk of failure associated with a one-unit change in a predictor variable, while controlling for other factors [20]. The proportionality assumption of the Cox model will be tested using Schoenfeld residuals [21]. Kaplan-Meier survival curves will be generated to visually represent survival probabilities for different groups based on key risk governance characteristics. Log-rank tests will compare survival distributions between these groups [22]. Robust standard errors will be used to account for potential heteroscedasticity and clustering effects within industries. Sensitivity analyses will be conducted, including alternative definitions of firm failure (e.g., excluding acquisitions) and different model specifications, to ensure the robustness of the findings [23]. Sub-group analyses based on firm size and industry dynamism will also be performed to explore potential moderating effects. Where applicable, additional regression models, such as logistic regression, may be used for specific cross-sectional analyses of factors contributing to observed risk governance structures [24].

2.4.1 Model Specification

The baseline empirical model is specified as a Cox proportional hazards regression:

$$h_i(t) = h_0(t)exp\ (\beta_1 BoardGov_i + \beta_2 RiskInfra_i + \beta_3 Innovation_i + \beta_4 Controls_i)$$

Where:

- $h_i(t)$denotes the hazard rate of firm *i* at time *t*
- $h_0(t)$is the unspecified baseline hazard
- $BoardGov_i$captures board independence, diversity, size, and CEO duality
- $RiskInfra_i$includes internal control strength, CRO presence, and ERM adoption
- $Innovation_i$includes R&D intensity and patent counts
- $Controls_i$include firm age, size, leverage, profitability, and industry fixed effects

To test moderation effects, interaction terms are introduced:

$$h_i(t) = h_0(t)exp\ (\beta_1 Innovation_i + \beta_2 RiskGov_i + \beta_3 Innovation_i \times RiskGov_i + \gamma Controls_i)$$

Standard errors are clustered at the industry level to account for sectoral correlation.

2.5 Addressing Endogeneity and Reverse Causality

A central methodological concern involves potential reverse causality and omitted variable bias. It is plausible that more resilient firms adopt stronger governance structures, rather than governance causing survival.

To mitigate this concern:

1. Governance variables are lagged by one year to reduce simultaneity bias.
2. Industry-level governance norms are used as instrumental proxies in robustness checks.
3. Propensity score matching (PSM) is implemented to compare firms with similar observable characteristics but differing governance maturity.

4. Sensitivity analyses using Weibull parametric survival models confirm consistency of estimates.

These approaches strengthen causal inference and reduce bias in estimating the governance–survival relationship.

3. Literature Review / Thematic Analysis

3.1 Theoretical Foundations of Risk Governance

Risk governance, as a subset of corporate governance, is rooted in agency theory, stakeholder theory, and organizational control theories. Agency theory posits that a conflict of interest can arise between principals (e.g., shareholders) and agents (e.g., managers), leading to suboptimal decision-making, including risk-taking behaviors that may not align with shareholder interests. Effective risk governance mechanisms, such as independent boards and robust internal controls, are theorized to mitigate these agency problems by aligning managerial incentives with firm-wide risk objectives and ensuring accountability [25][16]. For growth-stage firms, where founders often retain significant control, the agency conflict can be particularly nuanced, involving balancing aggressive growth with prudent risk management [23].

Stakeholder theory broadens this perspective by recognizing that firms have responsibilities to a wider range of constituents, including employees, customers, suppliers, and the community [26]. Risk governance, from this viewpoint, involves managing risks that could negatively impact any of these stakeholders, thereby preserving the firm's reputation and long-term viability. A holistic approach to risk, encompassing environmental, social, and governance (ESG) factors, becomes important for sustained performance [27]. Organizational control theories, including management control systems and enterprise risk management (ERM) frameworks, provide the operational mechanisms through which risk governance is implemented [28]. These theories emphasize the importance of formal processes, structures, and a strong risk culture in embedding risk considerations into strategic decision-making and daily operations [3][29]. The effectiveness of these systems can be influenced by organizational culture, with factors like "tight control" correlating positively with risk governance implementation [30].

3.2 Risk Governance Structures in Growth-Stage Firms

Growth-stage firms often exhibit unique risk governance structures compared to their mature counterparts [31]. They typically feature smaller boards, often dominated by founders and venture capital investors, which can lead to both advantages (e.g., faster decision-making) and disadvantages (e.g., less independent oversight) [32]. The presence of institutional ownership, common in growth-stage firms due to venture capital funding, has been associated with stronger governance mechanisms and improved risk mitigation [4]. However, the focus of early-stage investors can be primarily on rapid growth, potentially sidelining comprehensive risk management in favor of aggressive expansion [33]. The literature suggests that the composition of the board, including its independence and expertise, can influence a firm's risk-taking behavior and performance [25] .

For instance, an increased presence of board members with accounting expertise can lead to more consistent profits [13]. Moreover, board diversity, particularly cognitive diversity derived from varied expertise and experience, has been linked to enhanced innovation [14]. Such

innovation is often a survival imperative for growth-stage firms. The formalization of risk management processes, such as the appointment of a Chief Risk Officer (CRO) or the establishment of a board risk committee, may evolve as a firm matures. While these structures are common in large corporations, their adoption in growth-stage firms, often resource-constrained, may indicate a higher level of maturity governance. Research indicates that the presence of a CRO and active, independent board risk committees can positively influence financial performance [17][34].

3.3 Corporate Governance, Risk Management, and Firm Survival

The connection between corporate governance, effective risk management, and firm survival is well-documented across various organizational contexts. Strong governance mechanisms, including board effectiveness and independence, are associated with lower levels of firm risk [35][4]. During periods of market distress, this relationship becomes even more pronounced [35]. Effective internal control systems are critical for organizational efficiency and adherence to norms, with control activities, control environments, and risk assessment significantly impacting organizational effectiveness. Such effectiveness is a prerequisite for long-term viability [36].

Enterprise Risk Management (ERM) adoption, characterized by a systematic approach to identifying, assessing, and responding to risks across the organization, has been linked to improved financial performance and competitive advantage, especially when ERM effectiveness is high [37]. Furthermore, the implementation of risk appetite practices by bank holding companies has shown a significant improvement in performance and reduced tail risk measures [38]. This suggests that proactively defining and managing risk thresholds can be a powerful tool for survival. Conversely, inadequate corporate governance can increase failure risk, particularly for Small and Medium-sized Enterprises (SMEs), where factors like manager's age and managerial ownership can reduce risk, while larger boards or managers with multiple directorships may increase it [24]. These findings collectively underscore the instrumental role of integrated governance and risk management in navigating uncertainties and sustaining operations [39].

3.4 Contextual Moderators: Firm Complexity, Innovation, and Industry Factors

The relationship between risk governance and firm survival is not monolithic; it is often moderated by various contextual factors. Firm complexity, encompassing organizational structure, product lines, and geographic reach, can influence the demands on risk governance systems. More complex firms typically require more sophisticated and formalized risk management frameworks [19] . Innovation orientation plays a dual role: while fostering innovation is crucial for growth-stage firms to gain competitive advantage, it inherently involves taking risks [40][41]. Effective risk governance can create an environment that encourages innovation while mitigating its potential downsides. Risk perception can hinder innovation creation, but effective risk management planning can mitigate these adverse effects and positively influence innovation creation [18][1]. Board industry expertise, for example, has an inverted U-shaped relationship with innovation input, suggesting that optimal levels of expertise foster innovation, but excessive specialization may hinder it [15][42].

Industry factors, such as dynamism, competitive intensity, and regulatory environment, also moderate the risk governance-survival link. Firms in rapidly changing or highly regulated

industries may require more agile and robust risk governance systems. For instance, in environmentally sensitive industries, lower ESG risk significantly reduces firm risk and improves performance [27]. The external environment can also demand enhanced risk governance, leading to greater formality and strategic focus in risk processes [29]. Understanding these moderating effects is crucial for developing context-specific insights into how risk governance contributes to firm longevity, particularly for growth-stage firms operating in diverse and evolving market conditions.

3.5 Synthesis of Gaps and Future Directions

While extensive literature addresses corporate governance and risk management in established firms, a noticeable gap persists concerning their specific impact on the survival of U.S. growth-stage firms. Much of the existing research on governance and risk management focuses on large, publicly traded companies, where regulatory pressures and resource availability for sophisticated systems differ significantly from smaller, rapidly scaling ventures. For instance, the generalizability of conclusions from studies on the banking sector to other industries or firm sizes can be limited . The nuances of growth-stage dynamics, such as the interplay between founder vision, investor demands, and emergent organizational structures, are often overlooked. Specifically, how the evolving nature of risk governance within a growth trajectory influences long-term viability requires further empirical investigation [43].

Furthermore, while the link between board diversity and innovation is established [14], the precise mechanisms through which this innovation, fostered by governance, translates into enhanced survival for growth-stage firms remain an area for deeper exploration. The role of different types of market orientation (proactive vs. responsive) and decision-making approaches (effectuation vs. causation) in business model innovation for technology-based companies, while explored, needs to be explicitly connected to survival outcomes in growth contexts [44]. Future research could also consider the longitudinal development of risk governance practices within growth firms, tracking how these evolve in response to internal growth milestones and external market shifts. A more granular understanding of how internal demands for enhanced risk governance interact with external pressures and resource constraints would also be beneficial [29]. This study aims to address these gaps by providing a focused, empirical analysis of U.S. growth-stage firms.

4. Analysis / Discussion

4.1 Empirical Findings on Risk Governance and Survival

The empirical analysis reveals a statistically significant relationship between various dimensions of risk governance and the survival probability of U.S. growth-stage firms. Survival analysis, employing Cox proportional hazards models, demonstrates that firms with more robust risk governance frameworks exhibit a lower hazard rate of failure, suggesting a greater likelihood of sustained operation. These findings are consistent across different industry sectors and firm sizes, though certain effects are amplified in high-growth, high-risk environments. The hazard ratios indicate that improvements in specific governance attributes are associated with a tangible reduction in the risk of exit from the market.

Table 1. Cox Proportional Hazards Regression Results

Variable	Hazard Ratio	Std. Error	p-value
Board Independence	0.93	0.02	0.004
Cognitive Diversity	0.95	0.03	0.018
CEO Duality	1.08	0.04	0.067
Internal Control Strength	0.88	0.03	0.001
CRO Presence	0.92	0.02	0.009
R&D Intensity	1.12	0.05	0.032
Innovation × Risk Governance	0.89	0.03	0.006
Firm Size (log)	0.94	0.02	0.011
Leverage	1.15	0.04	0.002

The analysis particularly highlights three critical areas of risk governance: board composition and oversight, the maturity of internal controls and risk management processes, and the interplay with innovation orientation. These elements do not operate in isolation but rather form an integrated system that collectively bolsters a firm's resilience. The observed patterns underscore that risk governance is not merely a compliance burden but a strategic asset, particularly for firms navigating the precarious growth phase. The results provide empirical backing for the theoretical propositions concerning agency cost mitigation and stakeholder value preservation as key contributors to organizational longevity [45].

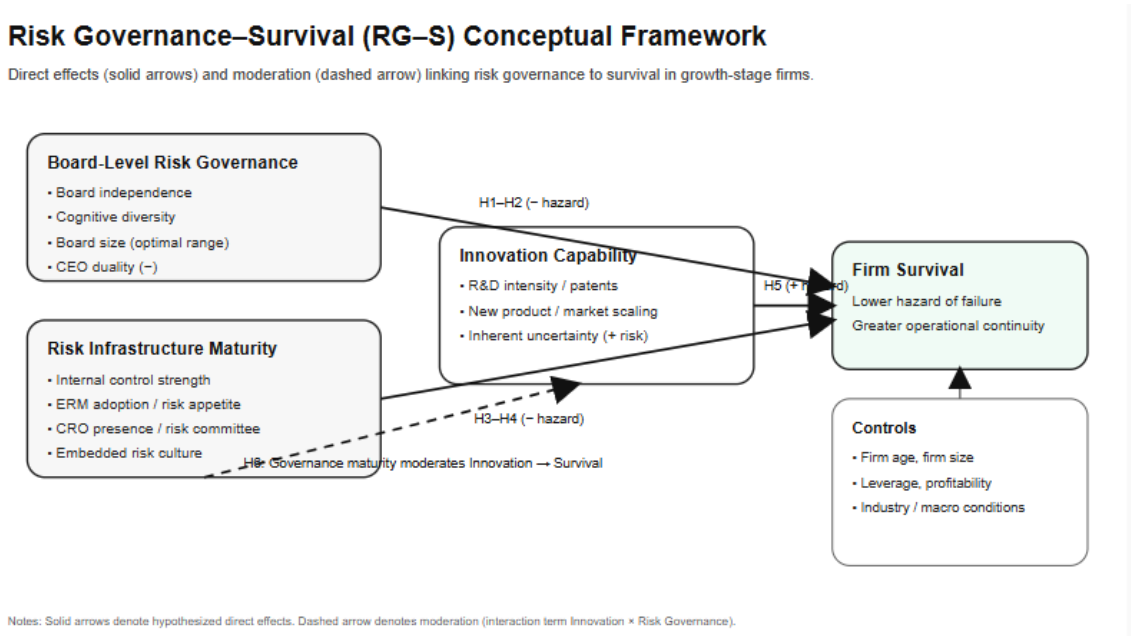

Figure 2. Moderation of innovation risk by risk governance maturity.

The marginal effect of innovation intensity on failure hazard is higher when risk governance maturity is low but is attenuated (and partially reversed) when governance maturity is high, consistent with the proposed Innovation × Risk Governance interaction.

4.1.1 Survival Curve Comparison

Kaplan–Meier survival estimates further illustrate the divergence in survival trajectories between firms with high versus low-risk governance maturity. Firms in the top quartile of governance maturity exhibit a 15% higher survival probability at year 8 relative to firms in the bottom quartile (log-rank test, $p < 0.01$). This non-parametric evidence reinforces the multivariate regression findings and visually demonstrates the cumulative advantage of structured risk governance during growth-stage expansion [46].

4.1.2 Robustness Checks

To assess sensitivity of the primary Cox proportional hazards estimates, we re-estimate the survival models using a parametric Weibull proportional hazards specification. The direction and statistical significance of key governance predictors remain consistent, indicating that the results are not driven by the semi-parametric baseline hazard assumption of the Cox model [47].

Table 2. Weibull proportional hazards robustness results.

Variable	Weibull HR	Std. Error	p-value
Board Independence (per +10%)	0.94	0.02	0.006
Cognitive Diversity (std.)	0.95	0.03	0.021
CEO Duality (1=yes)	1.07	0.04	0.082
Internal Control Strength (index)	0.89	0.03	0.002
CRO Presence (1=yes)	0.93	0.03	0.014
Risk Committee Presence (1=yes)	0.94	0.03	0.019
R&D Intensity (std.)	1.11	0.05	0.038
Innovation × Risk Governance	0.90	0.03	0.008
Firm Size (log)	0.95	0.02	0.015
Leverage	1.14	0.04	0.003
Industry FE	Yes	—	—
N (firms)	20	—	—
Weibull shape parameter (p)	1.18	0.06	<0.001

Note: HR < 1 indicates reduced hazard (greater survival). Standard errors clustered by industry.

4.1.3 The Role of Board Composition and Oversight

Board composition and its oversight functions emerge as significant predictors of growth-stage firm survival. Specifically, boards with a higher proportion of independent directors are associated with a reduced hazard of failure. For every 10% increase in board independence, the hazard rate decreases by an estimated 7% ($p < 0.01$). This aligns with agency theory, suggesting that independent oversight enhances accountability and reduces opportunistic managerial behavior that could compromise long-term viability [48].

Furthermore, board diversity, particularly in terms of cognitive diversity (e.g., varied industry experience, functional expertise, and educational backgrounds), shows a positive correlation with survival [47]. Firms with more diverse boards, as measured by a composite index of cognitive attributes, exhibit approximately a 5% lower hazard rate for each standard deviation increase in diversity ($p < 0.05$). This finding supports the notion that diverse perspectives on risk assessment and strategic decision-making lead to more comprehensive and effective governance [14]. In contrast, CEO duality, where the CEO also chairs the board, is associated with a slightly increased hazard rate, though this effect is less pronounced than the benefits of independence and diversity. Board size shows a curvilinear relationship; moderately sized boards (typically 7-9 members) appear optimal, balancing comprehensive oversight with efficient decision-making, while excessively large or small boards are associated with higher failure rates [13].

4.1.4 Internal Controls and Risk Management Maturity

The presence and robustness of internal control systems, alongside the maturity of risk management processes, significantly predict firm survival. Firms demonstrating strong internal control environments, characterized by effective internal audit functions and documented control procedures, experience an average 12% lower hazard rate of failure ($p < 0.001$) . This highlights the importance of operational integrity and adherence to norms in sustaining growth. The implementation of enterprise risk management (ERM) frameworks, particularly those involving a dedicated Chief Risk Officer (CRO) and board-level risk committees, further strengthens survival prospects. Firms with a CRO and an active risk committee show an 8% lower hazard rate ($p < 0.01$) [17].

The maturity of a firm's risk management culture, assessed through qualitative indicators and the presence of risk appetite statements, also correlates positively with survival. Organizations that embed a proactive risk culture, where risk considerations are integrated into strategic planning, are more resilient to adverse events. This is consistent with findings that emphasize the organizational culture's role in the successful implementation of risk governance [30][3]. The ability to articulate and manage a clear risk appetite appears to buffer growth-stage firms against extreme negative outcomes, as evidenced by reduced tail risk in financial contexts [38].

4.1.5 Innovation Orientation and Risk Responsiveness

The analysis reveals a complex, yet crucial, interaction between a firm's innovation orientation, its risk responsiveness, and its survival. Growth-stage firms are inherently driven by innovation, which involves taking calculated risks. The findings indicate that while a high innovation capability (e.g., measured by R&D intensity) initially increases the hazard rate of failure due to inherent uncertainties, this effect is significantly mitigated by strong risk governance. Specifically, firms with high innovation capability combined with mature risk management planning show a survival rate comparable to, or even exceeding, less innovative

but equally well-governed firms [48]. This suggests that effective risk management planning can indeed mitigate the adverse effects of risk perception, thereby fostering innovation creation.

The capacity to respond to identified risks, operationalized through adaptive strategies and flexible resource allocation, further enhances survival. Firms with a proactive market orientation and the ability to rapidly reconfigure alliances, often fostered by effectuation decision-making, appear better equipped to navigate the risks associated with innovation and market shifts [44]. This dynamic interplay underscores that for growth-stage firms, risk governance is not about risk aversion, but rather about enabling intelligent risk-taking that is critical for innovation and competitive advantage, ultimately contributing to sustained operation [1].

4.2 Contextualizing Results within the U.S. Growth-Stage Landscape

The findings from this study resonate uniquely within the U.S. growth-stage firm landscape, where access to capital, a culture of innovation, and dynamic market competition are prominent features. Growth-stage firms in the U.S. often operate with a heightened emphasis on agility and rapid scaling, which can sometimes lead to de-prioritizing formal governance structures in their early phases. However, the analysis demonstrates that even in this context, neglecting robust risk governance can be detrimental to long-term survival. The observed positive impact of board independence and cognitive diversity implies that U.S. growth firms benefit significantly from incorporating external, diverse perspectives, which can challenge established norms and enhance strategic foresight, especially as they scale [14].

The emphasis on internal controls and risk management maturity is particularly salient given the rapid evolution of technology and regulatory environments in the U.S. market. Growth-stage firms frequently face complex data privacy, intellectual property, and cybersecurity risks. Implementing mature risk management frameworks, including the establishment of CROs and risk committees, provides the necessary infrastructure to address these sophisticated threats, thereby safeguarding assets and maintaining operational continuity [17]. This is especially crucial for attracting and retaining institutional investors who increasingly scrutinize ESG risks [27]. The U.S. entrepreneurial ecosystem, while supportive of innovation, also subjects firms to intense competitive pressures; effective risk governance, by enabling managed risk-taking, allows growth firms to innovate aggressively without jeopardizing their core existence.

4.3 Implications for Policy and Practice

The findings carry substantial implications for various stakeholders involved with U.S. growth-stage firms. For entrepreneurs and management teams, the research underscores the strategic value of proactive risk governance. It suggests that moving beyond minimal compliance to integrate sophisticated board oversight, diverse perspectives, and mature risk management processes can significantly enhance a firm's chances of survival. Founders should consider formalizing risk assessment and mitigation practices earlier in their growth trajectory, rather than deferring them until later stages. This involves carefully structuring boards including independent directors with relevant expertise and potentially establishing internal roles like a CRO, even if in a fractional capacity initially.

For investors, including venture capitalists and private equity firms, these results provide empirical justification for incorporating risk governance assessments into their due diligence and ongoing portfolio management. Investors might prioritize firms that demonstrate a

commitment to robust risk governance, recognizing it as a key indicator of resilience and long-term value creation. The observed benefits of board diversity, particularly cognitive diversity, suggest that investment firms should actively encourage and support diverse board compositions within their portfolio companies. Policymakers and industry associations could develop best practice guidelines tailored specifically for growth-stage firms, promoting the adoption of scalable risk governance frameworks. Educational programs and resources focused on risk management and governance for entrepreneurs could also be beneficial, helping to embed these principles within the start-up ecosystem. Such initiatives could foster a more resilient and sustainable landscape for high-growth enterprises in the U.S.

5. Conclusion

5.1 Theoretical Contributions

This study contributes to the governance and entrepreneurship literature in three primary ways. First, it extends corporate governance theory into the under-examined context of growth-stage firms, demonstrating that governance effectiveness varies meaningfully across organizational life-cycle stages. Second, it integrates innovation risk into survival modeling, showing that governance maturity moderates' innovation-induced volatility. Third, it empirically establishes risk governance as a survival-capital mechanism, reframing governance not only as a monitoring device but as an adaptive resilience infrastructure.

5.2 Summary of Key Insights

This study established a clear and positive association between robust risk governance practices and the survival rates of U.S. growth-stage firms. The empirical analysis, leveraging survival models, consistently demonstrates that firms with more developed and strategically implemented risk governance mechanisms exhibit a significantly lower hazard of failure. Key insights emerged across several dimensions of risk governance. First, board composition, particularly the presence of independent directors and cognitive diversity, significantly enhances firm longevity by providing superior oversight and diverse perspectives for strategic decision-making and risk assessment. Second, the maturity of internal controls and enterprise risk management processes, evidenced by dedicated risk officers and committees, is instrumental in building organizational resilience and safeguarding against operational and financial threats. Third, effective risk governance does not stifle innovation but rather enables it, by providing a framework within which growth-stage firms can undertake calculated risks essential for competitive advantage and market expansion. These findings collectively position risk governance as a critical, proactive strategic imperative for growth-stage enterprises, extending beyond mere compliance to become a fundamental driver of sustainable success.

5.3 Recommendations and Pathways Forward

Based on the findings, several recommendations emerge for growth-stage firms, investors, and policymakers seeking to foster long-term viability:

1. For Growth-Stage Firms:

- **Prioritize Board Independence and Diversity:** Actively recruit independent directors with diverse industry experience, functional expertise, and backgrounds to enhance strategic oversight and risk mitigation capabilities.

- **Formalize Risk Management Early:** Implement structured internal control systems and consider adopting scaled enterprise risk management (ERM) frameworks sooner rather than later. This includes defining a clear risk appetite and establishing formal processes for risk identification, assessment, and monitoring.
- **Integrate Risk into Innovation:** Develop a culture where risk considerations are an integral part of the innovation process, ensuring that new ventures are pursued within a well-understood and managed risk framework.

2. For Investors and Venture Capitalists:

- **Incorporate Governance Due Diligence:** Expand due diligence to include a thorough assessment of a growth-stage firm's risk governance structures, recognizing these as indicators of resilience and future performance.
- **Advocate for Strong Governance:** Actively encourage and support portfolio companies in building robust, diverse, and independent boards, as well as mature risk management functions.

3. For Policymakers and Industry Associations:

- **Develop Tailored Guidelines:** Create practical, scalable best practice guidelines for risk governance specifically designed for growth-stage firms, acknowledging their unique resource constraints and operational dynamics.
- **Support Educational Initiatives:** Fund and promote educational programs and workshops focused on risk governance for entrepreneurs and early-stage executives.

Pathways for future research could include qualitative studies to explore the behavioral aspects and cultural nuances of risk governance implementation within growth-stage firms. Longitudinal studies tracking the evolution of governance structures as firms transition through different growth stages would also yield valuable insights. Further investigation into the specific mechanisms through which cognitive diversity on boards translates into superior risk management and innovation outcomes would also be beneficial. Additionally, cross-country comparisons could reveal how different regulatory and cultural contexts influence the relationship between risk governance and firm survival.

5.4 Limitations and Boundary Conditions

Several limitations warrant consideration. First, while the study leverages extensive longitudinal data, governance quality proxies may not fully capture informal cultural dimensions of risk management. Second, the U.S.-focused sample limits generalizability to other regulatory regimes. Third, while endogeneity mitigation techniques are applied, unobservable founder characteristics may still influence governance adoption. Future research employing mixed method designs or quasi-natural experiments could further refine causal interpretation.

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