Governance Predicts ROE:
Evidence from 2,100 Korean Listed Firms

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Abstract

Korean equities trade at persistent valuation discounts relative to global peers—a phenomenon widely attributed to governance risk yet inadequately measured by existing evaluation frameworks. This paper introduces the Apex G-Score, a quantitative governance scoring system built exclusively on regulatory filings from Korea's DART electronic disclosure system, covering 2,099 firms across KOSPI and KOSDAQ. The model decomposes governance into three independent axes—Transparency (T), Balance of Power (B), and Conflict-of-Interest Risk (R)—and incorporates a binary Kill Switch override for catastrophic governance failure.

Backtesting across nine independent scoring-outcome periods (2020–2025) yields a monotonically increasing quintile spread in subsequent-year ROE, with the top-quintile outperforming the bottom quintile by an average of 12.4 percentage points—positive in every period tested. Each axis predicts a distinct financial outcome: T correlates with profitability ($r = +0.19$, $p < 0.001$), B with loss avoidance ($r = -0.126$, $p < 0.01$), and R with leverage ($r = -0.15$, $p < 0.001$), validating the three-dimensional architecture. Kill Switch firms carry 2.7 times the debt ratio of non-flagged firms and exhibit materially higher rates of subsequent loss, debt deterioration, and revenue decline. Archetype analysis reveals a 27.5-percentage-point cumulative ROE gap between the highest- and lowest-governance categories over two years, and

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identifies a “Poison Apple” archetype—firms with high transparency but concentrated power—whose structural fragility is invisible to single-score governance ratings.

Keywords: Corporate governance, Korea Discount, governance scoring, minority shareholder protection, tunneling, DART, KOSPI, KOSDAQ

JEL Codes: G34, G30, G14, O16

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1. Introduction

Korean equities have persistently traded at lower valuations than global peers with comparable fundamentals—a phenomenon known as the "Korea Discount." The benchmark KOSPI index has maintained a price-to-book ratio hovering around 0.99 over the past decade, while more than 60% of listed firms record returns on equity below the long-term average of 7% (AMRO, 2025). Empirical analysis across 28 countries confirms that Korean stocks carry significantly lower price-earnings ratios than their international counterparts, even after controlling for industry composition and firm-level characteristics (Ducret & Isakov, 2020). The discount is not explained by what Korean firms produce—it is explained by how investors perceive the structures within which those firms operate.

A growing body of evidence identifies corporate governance as the central driver of this valuation gap. Research using Korean panel data has demonstrated that governance quality is a statistically significant predictor of firm market value, operating as an independent valuation channel distinct from financial performance (Black, Jang & Kim, 2006; Black, Kim, Jang & Park, 2015; Joh, 2003). The Korean government has implicitly acknowledged this diagnosis: in February 2024, the Financial Services Commission launched the Corporate Value-up Program, modeled on Japan's TSE corporate governance reforms, to encourage listed companies to enhance corporate value and shareholder returns (FSC, 2024).

Yet despite decades of academic research establishing the governance–value link and despite the proliferation of ESG ratings and governance evaluation systems, no measurement tool currently exists that satisfies the conditions required for systematic governance screening in the Korean market. Existing frameworks suffer from four interrelated limitations. First, they collapse governance into a single composite score, erasing the diagnostic information that distinguishes qualitatively different risk profiles (Gompers, Ishii & Metrick, 2003; Bebchuk, Cohen & Ferrell, 2009). Second, global ESG providers apply universal frameworks not calibrated for Korea's institutional features—chaebol cross-ownership structures, related-party lending through affiliated financial entities, and convertible bond dilution as a tunneling mechanism (Baek, Kang & Lee, 2006). Third, most evaluation systems incorporate corporate self-assessments and survey responses, introducing measurement bias that six prominent ESG rating agencies cannot resolve even among themselves—with pairwise rating correlations as low as 38% (Berg, Kölbel &

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Rigobon, 2022). Fourth, existing frameworks evaluate point-in-time snapshots and cannot detect the cumulative patterns of value extraction that characterize Korean governance risk—a limitation confirmed by a comprehensive review of 108 academic articles on Korean corporate governance (Kim, Kim & Park, 2021).

This paper introduces the Apex G-Score, a quantitative governance scoring system designed to address these four limitations simultaneously. The model is built exclusively on regulatory filings from Korea's DART electronic disclosure system—documents that carry legal liability for misrepresentation—eliminating self-reporting bias at the architectural level. It decomposes governance into three independent axes: Transparency (T), measuring the structural accessibility of corporate disclosure; Balance of Power (B), measuring whether oversight mechanisms function in substance rather than merely exist in form; and Conflict-of-Interest Risk (R), measuring structural exposure to capital leakage and tunneling channels. The composite score is computed as G-Score = T × 0.30 + B × 0.40 + R × 0.30, with Balance receiving the highest weight because the dominant agency conflict in the Korean market—controlling-shareholder expropriation of minority investors—manifests most directly through power concentration (Shleifer & Vishny, 1997). The model further incorporates a binary Kill Switch override for catastrophic governance failure and classifies firms into five governance archetypes based on the interaction of axis-level scores.

The theoretical foundation draws on agency theory as formulated by Jensen and Meckling (1976) and extended to concentrated-ownership markets by Shleifer and Vishny (1997). The three TBR axes map onto the three components of agency cost: monitoring costs (T), bonding mechanisms (B), and residual loss (R). This mapping generates testable predictions: T should predict profitability, B should predict loss avoidance, and R should predict leverage—each through a distinct theoretical channel. If the axes were redundant, a single composite would suffice; the three-dimensional architecture is justified only if each axis predicts a different financial outcome.

The empirical analysis covers 2,099 firms across KOSPI (844) and KOSDAQ (1,255), with backtest validation spanning nine independent scoring–outcome periods from 2020 to 2025. The results support four hypotheses. First, the top-quintile G-Score firms outperform the bottom quintile in subsequent-year ROE by an average of 12.4 percentage points—positive in every period tested, across pre-COVID, pandemic, rate-hiking, and post-normalization regimes.

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Second, each axis predicts a distinct financial outcome as theoretically predicted: T correlates with profitability ($r = +0.19$, $p < 0.001$), B with loss avoidance ($r = -0.126$, $p < 0.01$), and R with leverage ($r = -0.15$, $p < 0.001$). Third, Kill Switch firms carry 2.7 times the debt ratio of non-flagged firms and exhibit materially higher rates of subsequent loss, debt deterioration, and revenue decline. Fourth, the archetype taxonomy generates a 27.5-percentage-point cumulative ROE gap between the highest and lowest governance categories and identifies a "Poison Apple" archetype—firms with high transparency but concentrated power—whose structural fragility is invisible to single-score governance ratings.

This paper contributes to three strands of literature. To the governance measurement literature (Gompers, Ishii & Metrick, 2003; Bebchuk, Cohen & Ferrell, 2009), it demonstrates that multi-dimensional scoring outperforms single-score aggregation not merely by improving statistical fit but by enabling the identification of qualitatively distinct risk profiles—particularly the Poison Apple configuration—that single-score frameworks structurally cannot detect. To the Korea-specific governance literature (Black, Jang & Kim, 2006; Black, Kim, Jang & Park, 2015; Joh, 2003), it contributes the first scoring system covering the full listed universe with multi-period backtest validation using only legally liable regulatory filings. To the tunneling literature (Johnson et al., 2000; Bae, Kang & Kim, 2002; Baek, Kang & Lee, 2006), it shows that the structural preconditions for value extraction can be quantified at scale and that firms exhibiting these characteristics display predictable patterns of subsequent financial deterioration.

The remainder of the paper is organized as follows. Section 2 reviews the literature on the Korea Discount, agency theory and tunneling, governance indices, and the limitations of existing measurement systems. Section 3 develops the theoretical framework mapping the TBR axes onto agency cost components and derives four testable hypotheses. Section 4 describes the data and sample. Section 5 presents the scoring methodology and empirical test design. Section 6 reports results. Section 7 examines robustness and model calibration. Section 8 discusses theoretical interpretation, practical implications, and the boundaries of the evidence. Section 9 addresses limitations. Section 10 concludes.

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2. Literature Review

2.1 The Korea Discount: A Governance Problem, Not an Industry Problem

Korea's capital market has achieved remarkable growth over the past several decades. Globally competitive firms have emerged across manufacturing, semiconductors, and biotech, and by measures of market capitalization, liquidity, and corporate earnings, Korea has long surpassed the emerging-market category. Yet Korean equities have persistently traded at lower valuations than global peers with comparable fundamentals—a phenomenon known as the "Korea Discount." The benchmark KOSPI index has maintained a price-to-book ratio hovering around 0.99 over the past decade, well below that of both developed and emerging market peers (AMRO, 2025).

This discount is conventionally attributed to geopolitical risk on the Korean peninsula, macroeconomic cyclicality, or declining industrial competitiveness. However, these explanations are insufficient to account for the persistence and scale of the undervaluation relative to Korea's economic trajectory. Empirical analysis across 28 countries confirms that Korean stocks carry significantly lower price-earnings ratios than their international counterparts, even after controlling for industry composition and firm-level characteristics (Ducret & Isakov, 2020). The discount, in other words, is not explained by what Korean firms do—it is explained by how investors perceive the structures within which those firms operate.

The structural roots of this perception lie in Korea's corporate ownership architecture. In an influential cross-country study of 2,980 publicly traded companies across nine East Asian economies, Claessens, Djankov, and Lang (2000) documented that voting rights systematically exceed cash-flow rights through pyramid structures and cross-holdings, that more than two-thirds of firms are controlled by a single shareholder, and that managers of closely held firms are typically relatives of the controlling family. Korea exhibited a particularly pronounced wedge between ownership and control among large family-controlled firms—a structural feature that creates both the opportunity and the incentive for controlling shareholders to extract value at the expense of outside investors. This ownership architecture is not a transitional feature of an emerging market; it has proven remarkably durable, persisting largely unchanged in subsequent

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analyses over a decade later.[1]

From the perspective of global capital allocators, the core question is therefore not whether Korean firms can generate returns, but whether those returns will accrue to shareholders in a predictable and equitable manner. The Korea Discount reflects not a failure of Korean industry but a structural uncertainty premium imposed by investors who lack confidence in the governance mechanisms that determine how corporate value is created, retained, and distributed (Black, Jang & Kim, 2006; Joh, 2003). Research using Korean panel data has demonstrated that corporate governance quality is a statistically significant predictor of firm market value, even after controlling for financial performance—establishing that governance operates as an independent valuation channel, not merely a proxy for profitability (Black, Kim, Jang & Park, 2015).

This uncertainty is not driven by transient external shocks. It is the accumulated result of decades of opacity in corporate decision-making structures, persistent information asymmetry between controlling shareholders and outside investors, and governance mechanisms that exist in form but fail to function in substance. As a consequence, the Korean equity market bears a risk premium that its economic fundamentals do not warrant.

The policy environment has begun to reflect this diagnosis. In February 2024, Korea's Financial Services Commission launched the Corporate Value-up Program, modeled on Japan's TSE corporate governance reforms, to encourage listed companies to voluntarily formulate and disclose plans for enhancing corporate value and shareholder returns (FSC, 2024). [2] The program's creation represents an official acknowledgment that the Korea Discount is, at its core, a governance problem. However, the program relies on voluntary participation without binding enforcement mechanisms, and early evidence suggests that the resulting market recovery has been narrowly concentrated in a small number of large-cap firms rather than reflecting broad-based governance improvement (AMRO, 2025).[3] This gap between policy aspiration and market

[1]Carney, R.W. & Child, T.B. (2013). Changes to the Ownership and Control of East Asian Corporations between 1996 and 2008: The Primacy of Politics. Journal of Financial Economics, 107(2), 494–513. This study updates the Claessens et al. (2000) dataset to 2008.

[2]For practitioner analyses of the Value-up Program, see: Glass Lewis (2024), "Navigating South Korea's Corporate Value-Up Program"; Wellington Management (2024), "South Korea's Corporate Value-up Program"; T. Rowe Price (2024), "South Korea Value-Up: Lessons from Japan."

[3]Samsung Electronics and SK Hynix together accounted for approximately half of the total KOSPI market capitalization increase in 2025; excluding these two semiconductor firms, the market recovery appears considerably more modest (AMRO, 2025).

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reality underscores the need for independent, quantitative governance measurement tools that can assess whether structural improvements are actually occurring across the listed universe—rather than relying on voluntary corporate self-reporting.

2.2 Agency Theory, Tunneling, and the Structural Mechanics of Korean Governance Risk

The theoretical foundation for understanding corporate governance failures rests on the agency problem first formalized by Jensen and Meckling (1976): when ownership and control are separated, the interests of those who manage firms diverge from those who supply capital, generating monitoring costs, bonding costs, and residual losses that reduce firm value. In the canonical formulation, the primary conflict runs between dispersed shareholders and professional managers. However, Shleifer and Vishny (1997), in their influential survey of governance research, identified a second—and in many markets more consequential—agency conflict: that between controlling shareholders and minority investors. In economies where legal investor protection is weak and ownership is concentrated, the central governance problem is not managerial shirking but controlling-shareholder expropriation.

Korea represents a near-paradigmatic case of this second agency conflict. As documented in Section 2.1, Korean corporations are characterized by concentrated family control, significant divergence between cash-flow and voting rights, and governance structures that formally comply with regulatory requirements while substantively concentrating decision-making authority (Claessens, Djankov & Lang, 2000). Within this architecture, the mechanisms through which minority shareholder value is extracted are well documented in the academic literature under the concept of "tunneling"—the transfer of assets and profits out of firms for the benefit of their controlling shareholders (Johnson, La Porta, Lopez-de-Silanes & Shleifer, 2000).

Information asymmetry as structural opacity.

Agency theory predicts that information asymmetry between principals and agents increases agency costs by raising the cost of monitoring (Jensen & Meckling, 1976). In the Korean context, however, the problem is not that information is absent—DART filings provide extensive public disclosure—but that information is structured in ways that prevent shareholders from detecting cumulative patterns. When the same type of related-party transaction recurs across multiple fiscal years, each instance is disclosed as an isolated event. The cumulative effect—a systematic flow

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of capital toward specific stakeholders—is never presented as such. This form of opacity is distinct from outright concealment. It is what La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000) characterize as the gap between the de jure existence of investor protection mechanisms and their de facto effectiveness.

Legal form masking concentrated power.

A substantial portion of Korean governance risk arises not from illegal acts but from legally permissible structures that concentrate decision-making authority. Boards and audit committees exist in form, but substantive authority is held by a small number of stakeholders. Shleifer and Vishny (1997) observed that in countries with weak legal protection, ownership concentration serves as a substitute governance mechanism—but at the cost of enabling the controlling shareholder to extract private benefits. Research using Korean panel data has confirmed that governance affects firm value specifically through board structure's functional operation, not through procedural compliance alone (Black, Kim, Jang & Park, 2015).[4]

Tunneling as pattern, not event.

The academic literature has documented two primary channels through which tunneling operates in Korean business groups. Bae, Kang, and Kim (2002) demonstrated that mergers within chaebol groups systematically transfer value from minority shareholders of acquiring firms to the controlling family. Baek, Kang, and Lee (2006), in a study of equity-linked private securities offerings from 1989 to 2000, showed that chaebol-affiliated issuers sell private securities at larger discounts when the controlling shareholder stands to gain more. The private placement of convertible bonds and bonds with warrants emerged as a systematic mechanism for diluting minority shareholders' equity while concentrating economic benefits in entities controlled by the founding family.

These findings establish that shareholder value erosion in the Korean market rarely occurs through a single catastrophic act. It emerges through repeated related-party transactions with asymmetric terms, minimal or formulaic disclosure, and long-term entrenchment of unbalanced governance structures.

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[4]Glass Lewis (2024) reports that more than 50% of major Korean listed companies still combine the roles of board chair and CEO, and that firms including Samsung, Hyundai, and LG recorded zero dissenting votes from independent directors over a five-year period. More than 70% of outside directors are drawn from academia, government, or legal backgrounds rather than corporate management.

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Shareholders as structural outsiders.

The cumulative effect of these mechanisms is that minority shareholders in many Korean firms occupy a position that agency theory would characterize as bearing residual risk without exercising residual control. This is not merely an information problem—it is a structural limitation of shareholder authority embedded in the governance architecture itself. This reframing has direct implications for governance measurement. A scoring system designed to capture Korean governance risk must measure not only whether information is disclosed (transparency), but whether decision-making authority is effectively distributed (power balance), and whether structural channels for value extraction are present and active (conflict-of-interest risk). These three dimensions correspond, respectively, to the monitoring, bonding, and residual-loss components of agency cost identified by Jensen and Meckling (1976)—a mapping that provides the theoretical foundation for the TBR framework developed in this paper.

2.3 Governance Indices and Firm Value: What Works and What Doesn't

The proposition that governance quality can be measured quantitatively and linked to financial outcomes has a well-established empirical foundation. Gompers, Ishii, and Metrick (2003) constructed a Governance Index (G-Index) based on 24 anti-takeover provisions and demonstrated that a portfolio long on strong-governance firms and short on weak-governance firms earned abnormal returns of 8.5% per year during the 1990s.

However, the G-Index treated all 24 provisions as equally important—an assumption that subsequent research challenged directly. Bebchuk, Cohen, and Ferrell (2009) systematically tested which of the 24 provisions actually correlated with firm value and stockholder returns. Their analysis identified only six provisions as driving the entire valuation effect. This finding carries a broader methodological implication: in governance measurement, what you include matters less than whether what you include actually predicts outcomes.

The application of governance indices to the Korean market has yielded results consistent with the broader literature. Black, Jang, and Kim (2006) demonstrated that a Korean Corporate Governance Index predicted firms' market values. In a subsequent study, Black, Kim, Jang, and Park (2015) confirmed the causal direction: governance improvements led to higher firm value through distinct channels. Joh (2003), analyzing Korean firms prior to the 1997 financial crisis, found that firms with concentrated ownership and weak governance mechanisms exhibited

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significantly lower profitability.

A further limitation shared by most existing governance indices is their reliance on a single composite score. Collapsing multiple governance dimensions into one number, while useful for portfolio sorting, obscures which dimension drives the result. A company with excellent transparency but concentrated power receives the same composite score as one with moderate performance on both dimensions—yet these represent fundamentally different risk profiles.

Global ESG and governance data providers—MSCI, ISS, S&P Global, Refinitiv—apply universal frameworks across markets that are not calibrated for Korea's institutional features. The Korean domestic evaluator (KCGS) addresses institutional specificity but relies substantially on company-submitted surveys and does not provide outputs in machine-readable formats suitable for systematic investment application.

Berg, Kölbel, and Rigobon (2022), in a comprehensive analysis of six major ESG rating agencies, documented that the average pairwise correlation between ESG ratings ranged from only 38% to 71%. Measurement differences—different agencies assessing the same attribute using different indicators—accounted for 56% of the total divergence. They further identified a "rater effect" in which an agency's overall impression of a firm influenced its assessment of specific categories. This finding has direct implications for the Korean governance context: if sophisticated rating agencies cannot agree on ESG quality for major global corporations, the reliability of any single agency's governance assessment for Korean firms must be treated with considerable caution.

2.4 The Gap: From Subjective Judgment to Measurable Investment Variable

The preceding sections have documented a convergence of findings that define the gap this paper addresses. First, the Korea Discount is real, persistent, and governance-driven. Second, the mechanisms of governance risk in Korea are well understood. Third, governance measurement works—in principle. Yet no governance measurement system currently exists that satisfies four conditions simultaneously: (i) multi-dimensional rather than single-score; (ii) calibrated for Korean institutional features; (iii) built on verifiable, non-self-reported data; and (iv) designed for cumulative pattern detection. A comprehensive review of 108 academic articles on Korean corporate governance published between 2011 and 2020 confirms that these measurement challenges remain empirically unresolved (Kim, Kim & Park, 2021).

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This paper introduces the Apex G-Score as a governance measurement system designed to fill this gap. The model decomposes governance into three independent axes—Transparency (T), Balance of Power (B), and Conflict-of-Interest Risk (R)—each measuring a distinct component of the agency cost structure identified in Section 2.2. The following section develops the theoretical framework that maps the TBR architecture onto agency theory and derives testable hypotheses about the relationship between governance scores and subsequent financial performance.

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3. Theoretical Framework and Hypothesis Development

3.1 Agency Theory and the Korean Governance Context

The analytical framework of this paper rests on agency theory as formulated by Jensen and Meckling (1976) and extended to concentrated-ownership markets by Shleifer and Vishny (1997). Jensen and Meckling decomposed agency costs into three components: monitoring costs incurred by the principal to constrain agent behavior, bonding costs incurred by the agent to signal alignment, and residual loss. In their original formulation, the primary agency conflict runs between dispersed shareholders and professional managers. However, as Shleifer and Vishny (1997) observed, the dominant agency conflict shifts in markets characterized by concentrated ownership and weak legal investor protection. Korea fits this second framework with particular precision.

3.2 Mapping Agency Cost Components to the TBR Axes

Transparency (T) as the monitoring cost dimension.

Jensen and Meckling (1976) defined monitoring costs as expenditures by the principal to observe, measure, and constrain agent behavior. In the Korean market context, the "agent" whose behavior requires monitoring is not a hired CEO but the controlling shareholder and affiliated insiders who direct corporate decision-making. The primary instrument available to outside investors for monitoring this behavior is the public disclosure system—DART regulatory filings, annual business reports, audit opinions, and shareholder meeting records.

The T-axis measures the quality of this monitoring channel: not whether a firm discloses—all listed companies are legally required to—but how it discloses. Timely, consistent, and predictable disclosure reduces the monitoring cost borne by outside investors by making corporate behavior more observable. Conversely, fragmented, delayed, or formulaic disclosure raises monitoring costs by forcing investors to reconstruct patterns from dispersed filings—a process that, as discussed in Section 2.2, is structurally difficult even for sophisticated institutional investors. The theoretical prediction is that firms with higher transparency scores exhibit stronger financial performance, because lower monitoring costs facilitate more efficient capital allocation and reduce the uncertainty premium that investors impose on opaque firms.

Balance of Power (B) as the bonding/governance mechanism dimension.

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The second component of agency cost—bonding costs—represents the agent's commitment to structures that constrain self-interested behavior. In practice, these structures take the form of governance mechanisms: independent boards, functioning audit committees, shareholder participation rights, and nomination processes that prevent the controlling shareholder from unilaterally determining corporate direction.

The B-axis evaluates whether these mechanisms are functioning in substance, not merely present in form. This distinction is critical in the Korean context. As documented in Section 2.2, Korean firms routinely satisfy formal governance requirements—independent director ratios, audit committee composition, shareholder meeting procedures—while the underlying power structure remains concentrated. A board that has never recorded a dissenting vote is formally compliant but substantively non-functional as a bonding mechanism. The theoretical prediction is that firms with stronger balance-of-power scores are less likely to experience losses, because functioning oversight mechanisms constrain the decisions most likely to destroy value—not by improving profitability directly, but by preventing catastrophic capital misallocation. This predicts a relationship between B and loss avoidance rather than earnings levels—a distinction that becomes empirically testable.

Conflict-of-Interest Risk (R) as the residual loss dimension.

The third component—residual loss—represents the value destruction that persists despite monitoring and bonding efforts. In Jensen and Meckling's (1976) framework, this is the irreducible cost of the agency relationship: even with optimal monitoring and bonding, some divergence between agent and principal interests remains.

In the Korean governance context, residual loss manifests primarily through tunneling channels: related-party transactions with asymmetric terms, convertible bond issuances that dilute minority shareholders' equity, and capital flows to affiliated entities controlled by the founding family (Bae, Kang & Kim, 2002; Baek, Kang & Lee, 2006). These channels represent structural preconditions for value extraction—the "loaded gun" rather than the shot. A firm may show no distress in current financials while quietly accumulating related-party lending exposure or issuing convertible instruments that will dilute minority shareholders upon conversion. The R-axis measures the intensity of these structural exposures. The theoretical prediction is that firms with higher conflict-of-interest risk scores carry greater leverage, because the same governance

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structures that enable tunneling also facilitate aggressive borrowing—often through related-party financial entities.

3.3 The Non-Compensatory Override: Kill Switch

The three-axis weighted average captures the continuous spectrum of governance quality. However, agency theory also recognizes that certain governance failures are discontinuous. The Kill Switch mechanism operationalizes this theoretical insight as a binary override. When triggered, it supersedes the composite score and classifies the firm as non-evaluable under standard scoring.

3.4 Archetype Classification: Why Axis Interactions Matter

The composite G-Score and the individual axis scores capture, respectively, overall governance quality and dimension-specific risk. However, neither fully captures the diagnostic information embedded in the interaction of axis-level scores. Two firms with identical composite scores of 65 may have arrived at that score through radically different governance configurations—one through uniformly moderate performance across all three axes, another through excellent transparency combined with weak power balance and elevated conflict-of-interest risk. These firms face qualitatively different risks that a composite score, by construction, cannot distinguish. Agency theory provides a basis for expecting that specific combinations of axis scores generate distinct risk profiles.[5]

Celestial — High scores across all three axes. All three components of agency cost are minimized simultaneously: monitoring channels are effective (high T), bonding mechanisms are functioning (high B), and structural exposure to tunneling is low (high R). This is the theoretically predicted profile of a firm where the governance architecture aligns controlling and minority shareholder interests. Financial analysis can proceed with standard assumptions about management alignment.

Poison Apple — High transparency, weak balance and elevated risk. This archetype represents the most theoretically consequential configuration for investors. Monitoring costs are low—the firm discloses extensively and predictably—but bonding mechanisms are non-functional and

[5]The Korean-language designations for the five archetypes are: 천상계형 (Celestial), 독사과형 (Poison Apple), 원석형 (Hidden Gem), 카멜레온형 (Chameleon), and 시한폭탄형 (Time Bomb). These are used in the Korean-language version of the scoring platform (apexgscore.com).

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tunneling channels are active. In agency-theoretic terms, the principal can observe the agent's behavior but cannot constrain it. This is the archetype that single-score governance ratings systematically misclassify: because transparency is the most visible governance dimension, high-T firms appear well-governed by conventional screens. The structural fragility is concentrated in the gap between what these firms disclose and what they allow. As Bebchuk, Cohen, and Ferrell (2009) demonstrated, not all governance provisions matter equally; the Poison Apple archetype extends this insight to show that not all governance dimensions matter equally for a given firm's risk profile.

Hidden Gem — Low external visibility but sound internal structure. Monitoring costs are high—the firm's disclosure is limited or poorly structured—but bonding mechanisms function effectively and tunneling exposure is low. The theoretical prediction is that governance quality in these firms is underpriced by the market, often due to weak investor relations rather than weak governance. This archetype has direct implications for active investors: it identifies firms where governance-adjusted valuations may diverge favorably from market prices.

Chameleon — Mixed signals across axes; direction not yet determined. The agency cost profile is ambiguous: some components are well-managed while others are not, but without the extreme asymmetry that characterizes the Poison Apple or Hidden Gem profiles. The theoretical implication is that Chameleon firms require ongoing monitoring rather than static classification; their governance trajectory, not their current score, is the relevant investment signal.

Time Bomb — Low scores across axes, with governance structures that enable rapid concentration of control or destruction of minority value. All three components of agency cost are elevated simultaneously. This is the theoretically predicted profile of a firm where the agency relationship has deteriorated to the point that the Kill Switch mechanism may apply. The distinction between Time Bomb and Kill Switch is one of degree: Time Bomb firms exhibit the structural preconditions for catastrophic value destruction; Kill Switch firms have triggered the event conditions.

The archetype taxonomy thus serves two functions within the theoretical framework. First, it captures interaction effects that the composite score discards—enabling the identification of risk profiles (particularly the Poison Apple) that are invisible to single-score approaches. Second, it translates the continuous axis scores into qualitative categories that align with distinct investment

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decision frameworks: Celestial firms warrant standard fundamental analysis; Poison Apple firms require structural due diligence beyond financial screens; Hidden Gems represent potential governance-alpha opportunities; Chameleons require monitoring frequency decisions; and Time Bombs signal avoidance or hedging.

3.5 Hypotheses

Hypothesis 1: *Higher G-Score quintiles are associated with higher subsequent-year ROE, with the relationship being monotonically increasing across quintiles.*

Hypothesis 2: *Each axis of the TBR framework predicts a distinct financial outcome: T predicts profitability, B predicts loss avoidance, and R predicts leverage.*

Hypothesis 3: *Firms with an active Kill Switch exhibit materially higher rates of loss, debt deterioration, and revenue decline in subsequent periods compared to non-Kill Switch firms.*

Hypothesis 4: *The governance archetype taxonomy generates economically meaningful and statistically significant performance spreads, with Celestial firms outperforming Time Bomb firms and Poison Apple firms exhibiting financial profiles that diverge from their transparency scores.*

Sections 4 and 5 describe the data, sample, and methods used to test these hypotheses.

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4. Data and Sample

4.1 Scoring Universe

The Apex G-Score is computed for all companies listed on the Korea Exchange (KRX). The scoring universe comprises 844 KOSPI-listed firms scored across six fiscal years (2020–2025) and 1,255 KOSDAQ-listed firms scored for the three most recent fiscal years (2023–2025), totaling 2,099 unique companies.

Exhibit 1: Scoring Universe

Market	Companies Scored	Scoring Period
KOSPI	844	2020–2025 (6 years)
KOSDAQ	1,255	2023–2025 (3 years)
Total	2,099	

4.2 Data Sources

All input data is sourced exclusively from the DART (Data Analysis, Retrieval and Transfer) electronic disclosure system operated by Korea's Financial Supervisory Service. The data pipeline ingests five categories of regulatory filings: (i) annual business reports, (ii) corporate governance reports, (iii) external audit opinions, (iv) shareholder meeting records, and (v) real-time event disclosures. No surveys, self-assessments, management interviews, or proprietary third-party data are used at any stage of the scoring process.

4.3 Financial Variables

To validate the governance–performance relationship, we link G-Score outputs to subsequent-year financial data. The financial variables used in the backtest analysis are defined as follows:

Variable	Definition	Source
ROE	Net income / average shareholders' equity	Annual business report
ROA	Net income / average total assets	Annual business report
OPM	Operating income / revenue	Annual business report
Debt Ratio	Total liabilities / shareholders' equity	Annual business report

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Loss Rate	Proportion of firms with negative net income	Computed from sample
Revenue Growth	Year-over-year change in revenue	Annual business report

All financial data is sourced from the same DART filings used for governance scoring, ensuring methodological consistency. Financial variables are measured for the fiscal year following the scoring year—that is, a firm scored using fiscal year 2023 filings is evaluated against fiscal year 2024 financial outcomes. This temporal separation ensures that the governance score is constructed from information available before the financial outcomes are realized, establishing the correct causal sequence for predictive validation.

4.4 Backtest Sample

For backtest validation, we require both governance scores and subsequent-year financial data. The backtest analysis is restricted to KOSPI firms, as the KOSDAQ scoring history is insufficient for robust multi-period cross-validation.[6]

Exhibit 2: Backtest Sample by Scoring Year

Scoring Year	n (with financial data)
2020	489–495
2021	542–563
2022	559–616
2023	714–731
2024	722–723

4.5 Sample Exclusions and Potential Biases

213 KOSPI companies were excluded from the backtest sample due to insufficient board-structure disclosure. All excluded firms were small-cap and received D-grade scores. No large-cap firm was excluded. This exclusion biases results conservatively: the excluded firms would likely widen the governance–performance gap if included. Additionally, survivorship bias operates in the same direction, as firms that delisted due to governance failures are excluded by construction.

[6]KOSDAQ results are reported separately in Section 6.6 as preliminary cross-sectional evidence. Multi-period backtest validation for KOSDAQ firms will be conducted as additional scoring years become available.

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5. Methodology

5.1 Scoring Architecture

The Apex G-Score evaluates corporate governance along three independent axes, each scored on a 0–100 absolute scale. The composite score is computed as: G-Score = T × 0.30 + B × 0.40 + R × 0.30. The total model comprises 16 indicators distributed across the three axes: five indicators for T, six for B, and five for R.[7]

5.2 Axis Construction

Transparency (T). The T-axis measures the timeliness, consistency, and predictability of a company's information disclosure. Representative indicators include the lead time given to shareholders before critical decisions and the predictability of dividend policies.

Balance of Power (B). The B-axis evaluates whether governance mechanisms that check management power are functioning in practice. Representative indicators include shareholder participation mechanisms and audit committee independence.

Conflict-of-Interest Risk (R). The R-axis tracks structural exposure to conflicts of interest and capital leakage. Representative indicators include related-party transaction intensity and convertible instrument dilution risk.

5.3 Absolute Scoring

The G-Score uses absolute evaluation: a firm's score is determined entirely by its own governance characteristics, not by its relative position within a peer group. Scores are therefore comparable across time and across sectors without rebasing.

5.4 Scoring Cadence

The G-Score is computed annually based on year-end filings, typically available in March–April. A subset of indicators related to catastrophic governance events are monitored in real time via DART's event disclosure feed and can activate the Kill Switch mechanism between annual

[7]The scoring methodology, including specific indicator definitions, item-level scoring rules, point allocations, archetype classification algorithms, and Kill Switch trigger conditions, constitutes proprietary intellectual property of Apex Governance LLC and is protected as trade secrets under the Defend Trade Secrets Act (18 U.S.C. § 1836) and applicable state law. To facilitate partial replication, we report not only aggregate results but also axis-level statistics, enabling researchers to evaluate whether the claimed axis-level differentiation is internally consistent with the reported composite results.

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scoring cycles.

5.5 Grading and Classification

The composite G-Score is translated into letter grades (S ≥ 90, A ≥ 80, B ≥ 70, C ≥ 60, D < 60). Each firm is further classified into one of five governance archetypes based on the interaction of its axis-level scores.[8]

5.6 Kill Switch

The Kill Switch is a binary override mechanism that identifies firms exhibiting governance characteristics associated with catastrophic risk. When triggered, it supersedes the composite score, classifying the firm as non-evaluable under standard scoring. The specific trigger conditions are proprietary.

5.7 Empirical Tests

Quintile analysis (H1). For each scoring period, KOSPI firms are sorted into five quintiles by composite G-Score. Mean ROE is computed for each quintile using subsequent-year financial data. This analysis is repeated across nine independent periods.

Bivariate correlation analysis (H2). Pearson correlation coefficients are computed between each axis score and each financial metric using the pooled KOSPI sample.

Group comparison with Welch's t-test (H3). Kill Switch firms and non-Kill Switch firms are compared on mean financial metrics. Forward-looking metrics are also compared.

Archetype-level analysis (H4). Mean financial metrics are computed by archetype to test whether the taxonomy generates economically meaningful performance spreads.

[8]See footnote 5 for Korean-language archetype designations.

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6. Results

6.1 Grade Distribution

Exhibit 3: Grade Distribution, KOSPI 2025 G-Score

Grade	Score Range	n	% of Universe
S	≥90	0	0.0%
A	80–89	23	2.7%
B	70–79	137	16.2%
C	60–69	228	27.0%
D	<60	456	54.0%

More than half of KOSPI firms score below 60 (D-grade). No firm achieves S-grade. This concentration at the bottom of the distribution quantifies the scale of governance deficits across the Korean market.

6.2 Quintile Analysis: Nine-Period Cross-Validation (H1)

Exhibit 4: Nine-Period Cross-Validation (Q5–Q1 ROE Gap)

Period	n	Q5–Q1 Gap	Market Regime
2020 → 2021	489	+14.1%p	COVID recovery
2020 → 2022	495	+8.5%p	COVID recovery
2021 → 2022	563	+17.6%p	Post-vaccine
2021 → 2023	542	+10.9%p	
2022 → 2023	616	+17.0%p	Rate-hiking cycle
2022 → 2024	613	+12.2%p	
2023 → 2024	714	+10.1%p	Normalization
2023 → 2025	714	+12.0%p	
2024 → 2025	723	+9.4%p	Most recent
Average		+12.4%p	

The Q5–Q1 ROE gap is positive in all nine periods, averaging 12.4 percentage points. The signal shows no meaningful degradation across market regimes. While we do not present multivariate specifications in this paper, the consistency of the quintile spread across nine periods with

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different macroeconomic conditions provides indirect evidence that the governance signal is not driven by a single time-varying confounder.

Result: H1 is supported. The governance–ROE relationship is positive, monotonic, and temporally stable across nine independent scoring periods.

6.3 Axis-Level Predictive Power (H2)

Exhibit 5: Axis-Level Correlations with Financial Metrics (KOSPI, n=630)

Axis	vs ROE	vs ROA	vs OPM	vs Debt Ratio	vs Loss Rate
T (Transparency)	r=+0.19***	r=+0.29***	r=+0.18***	n.s.	r=−0.31***
B (Balance)	n.s.	n.s.	n.s.	n.s.	r=−0.126**
R (Risk)	r=+0.10**	n.s.	n.s.	r=−0.15***	n.s.
Total G-Score	r=+0.149**	—	—	—	—

*Significance: * p<0.05, ** p<0.01, *** p<0.001. n.s. = not significant.*

Three axes, three jobs. None redundant. T predicts profitability, B predicts loss avoidance, R predicts leverage—each through a distinct theoretical channel as predicted by H2.

Result: H2 is supported. Each axis predicts a distinct financial outcome, confirming the theoretical prediction and validating the three-dimensional design.

6.4 Kill Switch Analysis (H3)

Exhibit 6: Kill Switch vs. Non-Kill Switch Firms (KOSPI, 2025 G-Score)

Metric	KS ON (n=17)	KS OFF (n=585)	Ratio / Gap	p-value
Debt Ratio	433%	162%	2.7×	p = 0.03
Revenue Growth	−4.1%	+8.6%	−12.7%p	—
ROE	−3.0%	+2.4%	−5.4%p	p = 0.39 (n.s.)

Exhibit 7: Kill Switch Predictive Power (2023 G-Score → 2024–2025 Outcomes)

Metric	KS ON	KS OFF	Gap
Loss rate	33%	18%	+15.7%p
Debt deterioration	67%	50%	+16.3%p
Revenue decline	50%	38%	+12.1%p

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The governance signal leads the financial signal—identifying structural preconditions for deterioration before the balance sheet makes them obvious.

Result: H3 is partially supported. Kill Switch firms show significantly higher debt ratios ($p = 0.03$) and materially higher rates of subsequent deterioration. The ROE comparison does not reach statistical significance due to sample size limitations.

6.5 Archetype-Level Performance (H4)

Exhibit 8: Archetype Distribution and Financial Profile (KOSPI, 2025 G-Score)

Archetype	n	%	2024 ROE	2-Yr Cum. ROE	OPM	Debt Ratio	Loss Rate
Celestial	95	11.3%	+7.7%	+15.1%	+6.6%	123%	7.4%
Poison Apple	28	3.3%	+7.5%	+13.5%	+5.6%	92%	—
Hidden Gem	172	20.4%	+4.5%	+10.2%	—	—	—
Chameleon	494	58.5%	+2.4%	+4.6%	−1.6%	108%	—
Time Bomb	55	6.5%	−5.6%	−12.4%	−9.6%	155%	32.7%

The Celestial–Time Bomb gap of 27.5 percentage points in two-year cumulative ROE is the model's sharpest signal. Poison Apple firms exhibit single-year ROE (+7.5%) nearly identical to Celestials (+7.7%) and the lowest debt ratio of any archetype (92%)—yet their governance structure combines high transparency with concentrated power and elevated conflict-of-interest risk, exactly as predicted by H4.

Result: H4 is supported.

6.6 KOSPI vs. KOSDAQ: Structural Governance Divergence

Exhibit 9: Axis-Level Score Comparison

Axis	KOSPI	KOSDAQ	Gap
T (Transparency)	53.6	63.1	+9.4
B (Balance)	46.2	33.6	−12.6
R (Risk)	78.4	69.7	−8.7
Total G-Score	58.1	53.9	−4.2

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Exhibit 10: Archetype Distribution by Market

Archetype	KOSPI	KOSDAQ
Celestial	11.3%	0.0%
Poison Apple	3.3%	20.7%
Hidden Gem	20.4%	0.1%
Chameleon	58.5%	70.1%
Time Bomb	6.5%	9.1%

KOSDAQ has zero Celestial firms and 20.7% Poison Apples—more than six times the KOSPI rate. This concentration represents a systematic risk for investors who equate disclosure quality with governance quality in the KOSDAQ market.

Exhibit 11: Archetype ROE by Market (2024)

Archetype	KOSPI ROE	KOSDAQ ROE	Gap
Poison Apple	+7.5%	+4.0%	−3.5%p
Chameleon	+2.3%	−9.3%	−11.6%p
Time Bomb	−5.6%	−14.1%	−8.5%p

Within comparable archetypes, KOSDAQ firms underperform KOSPI firms across the board. The Chameleon gap (−11.6 percentage points) is particularly notable, suggesting that governance weaknesses are more consequential in the KOSDAQ environment, where external monitoring by institutional investors and sell-side analysts is thinner. Section 7 examines the robustness of these findings.

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7. Robustness and Calibration

7.1 B-Axis Weight Rebalancing

Exhibit 12: Impact of B-Axis Weight Rebalancing

Metric	Before Rebalancing	After Rebalancing
B-axis vs. Loss Rate	r = −0.070 (n.s.)	r = −0.126 (p < 0.01)
Total G-Score vs. ROE	r = +0.130 (p < 0.01)	r = +0.149 (p < 0.01)
Celestial–Time Bomb ROE Gap	+13.3%p	+20.7%p

Three improvements occurred simultaneously: the B-axis became a statistically significant predictor of loss incidence, the composite G-Score's correlation with ROE increased, and the archetype-level ROE spread widened. This result validates the core thesis: in the Korean market, it is the substance of governance—not its formal existence—that predicts financial outcomes, consistent with Bebchuk, Cohen, and Ferrell's (2009) finding that a small subset of governance provisions drives the entire valuation effect.

7.2 Temporal Stability Across Market Regimes

We partition the nine periods into pre/during-COVID (2020–2021 base, four periods, average gap +12.8%p) and post-COVID (2022–2024 base, five periods, average gap +12.1%p). The difference of 0.7 percentage points is well within sampling variability, confirming that the governance signal captures structural characteristics rather than cyclical artifacts.

7.3 Sensitivity to Sample Composition

The sample size increases over time—from 489 to 723 firms—as data coverage improves. The governance signal remains economically significant in the most recent periods, and the exclusion of 213 small-cap D-grade firms operates as a conservative bias on reported effect sizes.

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8. Discussion

8.1 Summary of Findings

This paper introduced the Apex G-Score and tested its predictive validity across 2,099 Korean listed firms over six fiscal years. The composite G-Score predicts subsequent-year ROE with a monotonically increasing quintile spread positive in all nine tested periods (H1). Each TBR axis predicts a distinct financial outcome (H2). Kill Switch firms exhibit materially higher rates of subsequent deterioration (H3). The archetype taxonomy generates a 27.5-percentage-point cumulative ROE gap and isolates the Poison Apple configuration (H4).

8.2 Theoretical Interpretation

The results are consistent with the agency-theoretic framework developed in Section 3. The B-axis results merit particular emphasis: Balance of Power does not predict profitability but significantly predicts loss avoidance—precisely what agency theory predicts for a bonding mechanism. Functioning oversight operates as a structural floor, not a performance driver. The Kill Switch results extend this interpretation to discontinuous governance failures: the governance signal leads the financial signal.

8.3 The Poison Apple Problem Revisited

The Poison Apple archetype deserves extended discussion because it represents the paper's most distinctive contribution to the governance measurement literature. As reported in Section 6.5, Poison Apple firms exhibit single-year ROE (+7.5%) nearly identical to Celestials (+7.7%), the lowest debt ratio of any archetype (92%), and—as documented in Appendix A—the highest executive pay ratio (mean 7.5×, median 6.3×). This combination constitutes a coherent empirical profile that no existing governance framework is designed to detect.

The theoretical significance of this profile lies in what it reveals about the limitations of single-score governance evaluation. An investor using any conventional governance screen—whether an ESG rating, a single-index governance score, or a simple transparency proxy—would classify Poison Apple firms as well-governed or at least unremarkable. Their disclosure practices are exemplary. Their financial metrics are healthy. They would pass any screening criterion based on transparency, profitability, or leverage.

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Yet the TBR decomposition reveals a governance architecture in which information flows freely to shareholders while decision-making authority remains concentrated and tunneling channels remain active. In agency-theoretic terms, the monitoring channel functions—investors can observe—but neither the bonding mechanisms nor the residual-loss constraints operate effectively. This is the specific configuration that the academic literature on tunneling (Bae, Kang & Kim, 2002; Baek, Kang & Lee, 2006) has documented as enabling systematic value extraction: the controlling shareholder maintains the appearance of good governance through high-quality disclosure while retaining the structural capacity to extract value through channels that the disclosure itself does not contextualize.

The Poison Apple finding has a direct implication for the ESG rating divergence documented by Berg, Kölbel, and Rigobon (2022). Part of the reason ESG ratings disagree may be that firms with asymmetric governance profiles—strong on some dimensions, weak on others—generate systematically different assessments depending on which dimension a given rating methodology weights most heavily. A methodology that emphasizes disclosure will rate Poison Apple firms highly; one that emphasizes board independence will rate them poorly. The divergence is not random measurement error—it is a structural consequence of collapsing a multi-dimensional phenomenon into a single score.

8.4 Implications for Investors

The G-Score functions as a pre-analysis filter rather than a trading signal. The 12.4-percentage-point average Q5–Q1 ROE spread represents the performance cost of ignoring governance. The finding that 20.7% of KOSDAQ firms fall into the Poison Apple category suggests that governance screening is particularly critical in the smaller-cap market.

8.5 Implications for Policy

The grade distribution—where 54% of KOSPI firms score below 60—quantifies the governance challenge that the Value-up Program seeks to address. The Poison Apple finding implies that the program’s emphasis on disclosure, while valuable, is insufficient as a standalone reform mechanism. Meaningful governance improvement requires progress on all three dimensions simultaneously.

8.6 What This Paper Does and Does Not Claim

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We claim that the G-Score shows a statistically significant, temporally stable, and economically meaningful association with subsequent financial performance. We do not claim causation. The correlation may reflect reverse causation or omitted variable bias. As a partial step toward addressing this concern, we note that the temporal separation between scoring inputs (year t filings) and financial outcomes (year t+1 or t+2) mitigates contemporaneous reverse causation, though it does not rule out persistent omitted variables. The G-Score is designed to answer a specific question: given publicly available governance data, which firms exhibit structural characteristics associated with superior subsequent financial performance?

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9. Limitations

The following limitations define the boundaries of the model's current validity. They are presented not as caveats to be discounted but as conditions that users should incorporate when calibrating their reliance on G-Score data.

Correlation, not causation. The documented associations between G-Score and financial outcomes do not establish causal relationships. Good governance may be a consequence rather than a cause of financial health, or both may be driven by unobserved factors such as management quality. Establishing causality would require instrumental variable approaches or natural experiments that are beyond the scope of the present analysis. For the practical purpose of investment screening, predictive validity is the relevant criterion—but users should not infer that improving a firm's governance score will mechanically improve its financial performance.

Survivorship bias. The backtest universe includes only firms that remained listed throughout both the scoring and outcome periods. Firms that delisted during this interval—including those that delisted due to governance failures such as fraud, bankruptcy, or regulatory action—are excluded by construction. Because governance-related delisting represents the most extreme negative outcome, this exclusion understates the true governance–performance relationship.

Sample exclusion bias. 213 KOSPI firms were excluded from backtesting due to insufficient board-structure disclosure. All excluded firms were small-cap and received D-grade scores. No large-cap firm was excluded. This exclusion biases results conservatively—the excluded firms would likely widen the governance–performance gap if included—but limits generalizability to the smallest segment of the KOSPI market.

KOSDAQ data limitation. KOSDAQ firms have been scored for only three years (2023–2025), insufficient for the multi-period cross-validation applied to KOSPI firms. The KOSDAQ results presented in Section 6.6 should be treated as preliminary cross-sectional evidence. Robust longitudinal validation will require additional scoring years.

Small Kill Switch sample. The Kill Switch analysis is based on n = 17 firms in the most recent cross-section. This sample size is sufficient to detect large effects—the debt ratio difference (2.7×) reaches statistical significance at $p = 0.03$—but insufficient to detect moderate effects with conventional power. As the scoring history lengthens, pooled analysis across years may provide

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sufficient power to resolve this ambiguity.

Static annual scoring. The G-Score is computed annually and does not capture intra-year governance changes. The Kill Switch mechanism partially addresses this limitation by monitoring catastrophic events in real time, but the majority of governance dynamics are captured only at annual frequency.

Single-market scope. The model is calibrated for the Korean market's institutional environment. However, the underlying agency problems—information asymmetry between controlling and minority shareholders, concentration of decision-making authority, and structural channels for value extraction—are inherent features of any capitalist market where corporate law governs the separation of ownership and control. The TBR architecture is designed to be portable in principle: the three-axis structure and the agency-theoretic logic that underpins it are market-agnostic, while the specific indicators, data sources, and scoring thresholds require localization. Cross-market adaptation is a planned direction for future development but is beyond the scope of the present paper.

Bivariate analysis. The axis-level predictive power analysis (Section 6.3) relies on bivariate Pearson correlations without controlling for potential confounders—firm size, industry, profitability level, or other governance characteristics. Multivariate regression analysis, including controls for firm characteristics and fixed effects for industry and time, would provide more rigorous estimates of the independent contribution of each axis. This extension is planned for subsequent research but is beyond the scope of the present paper, which prioritizes breadth of validation across nine periods and multiple analytical approaches over econometric sophistication in any single test.

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10. Conclusion

This paper addressed a persistent gap in the governance measurement landscape for the Korean capital market: the absence of a quantitative, verifiable, multi-dimensional scoring system built on publicly available regulatory filings and designed for systematic application across the full listed universe. The Apex G-Score was introduced as a response to this gap, decomposing governance into three independent axes—Transparency, Balance of Power, and Conflict-of-Interest Risk—grounded in agency theory's tripartite decomposition of agency costs.

The empirical evidence supports four conclusions. First, governance quality is a robust predictor of subsequent financial performance, with a 12.4-percentage-point average Q5–Q1 ROE spread positive in every period tested. Second, each axis predicts a distinct financial outcome. Third, the Kill Switch and archetype taxonomy provide diagnostic information that continuous scoring cannot. Fourth, the structural governance divergence between KOSPI and KOSDAQ is substantial and consequential.

These findings contribute to three strands of literature: governance measurement, Korea-specific governance research, and the tunneling literature. Several directions for future research emerge: multivariate regression analysis, extended KOSDAQ validation, event-study analysis around Kill Switch triggers, and cross-market portability testing.

The Korea Discount has persisted for decades. The evidence presented in this paper suggests that the discount reflects a structural consequence of governance architectures that fail to assure outside investors of equitable value distribution. Measuring governance is not sufficient to close this discount. But governance that is not measured cannot be managed, and evaluation that cannot be verified cannot serve as an investment criterion. The Apex G-Score is designed to convert governance from the domain of subjective judgment into a measurable, comparable, and verifiable investment variable—a prerequisite for any serious effort to narrow the gap between the Korean market's economic potential and its equity market valuation.

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Appendix A: Executive Compensation by Archetype

Executive pay ratios (CEO total compensation / average employee compensation) are not used as inputs to the G-Score model. They are presented here as an independent reference variable that provides additional context on how governance structures relate to compensation practices.

Exhibit A-1: Pay Ratio Distribution (KOSPI, n=830)

Metric	Value
Mean	4.2×
Median	3.0×
P25	1.9×
P75	4.7×

Exhibit A-2: Pay Ratio by Archetype

Archetype	Mean Pay Ratio	Median Pay Ratio
Poison Apple	7.5×	6.3×
Celestial	5.3×	3.6×
Chameleon	4.1×	2.9×
Hidden Gem	3.5×	2.8×
Time Bomb	3.4×	2.2×

The most notable finding is the position of Poison Apple firms at the top of the pay ratio distribution. Their mean pay ratio (7.5×) exceeds even Celestials (5.3×), while their median (6.3×) is the highest of any archetype by a wide margin. This is consistent with the Poison Apple profile: firms that maintain high disclosure standards while concentrating power—and economic benefit—in management. The compensation data provides an independent signal that corroborates the structural risk identified by the TBR axis scores.

Time Bomb firms, by contrast, have the lowest pay ratios (mean 3.4×, median 2.2×). This likely reflects depressed earnings and smaller firm size rather than egalitarian compensation practices. Low pay ratios in distressed firms should not be interpreted as governance strength.

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Appendix B: KOSDAQ Detailed Grade Distribution

Exhibit B-1: Grade Distribution Comparison (KOSPI vs. KOSDAQ)

Grade	KOSPI	KOSDAQ
A (≥80)	2.7%	0.0%
B (70–79)	16.2%	0.6%
C (60–69)	27.0%	19.0%
D (<60)	54.0%	80.5%

The grade distribution divergence between markets is stark. On KOSDAQ, 80.5% of firms receive D-grade (below 60), compared to 54.0% on KOSPI. No KOSDAQ firm reaches A-grade, and only 0.6% achieve B-grade. This near-complete absence of governance quality in the upper grades suggests that the KOSDAQ market's governance infrastructure is structurally underdeveloped, not merely lagging.

For investors allocating to KOSDAQ, this distribution implies that governance screening is not a refinement of analysis but a prerequisite: the base rate of governance risk is so high that deploying capital without governance due diligence is equivalent to accepting unscreened exposure to the D-grade majority.

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