

The Prudent Risk-Taking Equilibrium: How Corporate Governance Channels Executive Risk Appetite in Pay-for-Performance Systems

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Abstract

Objective: We examine how the effectiveness of pay-for-performance (PFP) systems in aligning managerial behavior with shareholder value depends on the joint interaction between executive risk appetite and corporate governance quality. We propose a “Prudent Risk-Taking Equilibrium” to explain how these opposing forces interact and influence incentive-system outcomes.

Method: The sample comprises 1,106 firm-year observations from companies listed on the B3 (2018–2024), following the mandatory implementation of the Brazilian Corporate Governance Code. We employed multivariate panel-data regression models with firm and year fixed effects to test a three-way interaction among PFP structures, executive risk appetite, and governance compliance.

Results: The findings indicate that high executive risk appetite strengthens the effects of short-term PFP but diminishes the outcomes of long-term PFP, whereas corporate governance has the opposite effect. The significant three-way interaction shows that strong governance channels high risk appetite toward effective performance. Governance substitutes for short-term bonuses and complements long-term incentives, ensuring that aggressive risk-taking generates sustainable value.

Contributions: This research advances Agency Theory and the Behavioral Agency Model by demonstrating that governance mechanisms serve as channels that influence executive behavior. The empirical evidence confirms the effectiveness of the Brazilian Corporate Governance Code’s “comply-or-explain” approach, indicating that adherence to governance best practices yields tangible economic benefits by improving incentive effectiveness. In practical terms, the findings emphasize that compensation schemes should be tailored to the firm’s governance maturity and executive characteristics.

Keywords: Executive Compensation; Pay-for-Performance; Executive Risk Appetite; Corporate Governance; Agency Theory.

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Introduction

Designing executive Pay-for-Performance (PFP) systems that effectively align managerial behavior with shareholder value remains a central issue in management accounting research (Aguar & Pimentel, 2017; Araujo & Ribeiro, 2017; Beuren et al., 2014; Cohen et al., 2023; Ellig, 2022; Rousseau et al., 2023). While standard Agency Theory models suggest that tying pay to performance mitigates agency costs (Jensen & Meckling, 1976), empirical evidence yields mixed results (see also Araujo & Ribeiro, 2017; Morrison et al., 2024; Velte, 2024).

While prior research offers valuable insights into PFP systems, mixed empirical evidence indicates that the effectiveness of these incentives likely depends on a broader organizational context (Azevedo & Soares, 2025; Marquezan et al., 2023, 2024). This persistent inconsistency suggests that analyzing incentive contracts in isolation may be insufficient to capture the full picture of how compensation shapes executive behavior. Bedford (2020) offers a useful lens for this problem, arguing that management control mechanisms operate as interdependent configurations rather than as independent, additive elements. Building on this perspective, we propose that analyzing how PFP functions in concert with other control mechanisms offers a more nuanced understanding of these dynamics.

Existing studies have predominantly examined moderators of PFP effectiveness in isolation, testing whether governance quality (e.g., Velte, 2024) or executive characteristics (e.g., DuoRu et al., 2021; Gao et al., 2023) independently strengthen or weaken the incentive–performance link. These studies implicitly assume that each moderator operates independently of the other, an assumption that conflicts with Bedford’s (2020) configurational logic. As a result, it remains unclear whether the moderating effect of executive risk appetite on PFP outcomes is contingent on the governance environment in which the executive operates or holds uniformly across different monitoring intensities. This gap is consequential because, if these moderators interact non-additively, models that omit their joint influence will yield attenuated or incomplete estimates of PFP effectiveness, potentially explaining the persistent inconsistency in prior findings.

To operationalize this perspective, we propose a three-way interaction framework centered on two constructs that represent the most immediate forces shaping how incentive signals are transmitted into firm outcomes. Executive Risk Appetite (DuoRu et al., 2021; Peng et al., 2026; Sheth, 2014) captures the agent’s behavioral disposition toward uncertainty, which determines how compensation signals are cognitively processed and translated into strategic action (Coles et al., 2006; Gomez-Mejia & Wiseman, 1997; Wiseman

& Gomez-Mejia, 1998). Corporate Governance Quality (Gao et al., 2023) captures the principal’s institutional capacity to monitor and constrain managerial discretion (Brandão, 2019; Hart et al., 2015; Shleifer & Vishny, 1997). Although factors such as organizational culture or competitive strategy may also affect PFP outcomes, they function as more distant determinants whose effects tend to be mediated by the agent’s risk attitude and the company’s monitoring system (Hambrick, 2007; Otley, 2016). We therefore focus on these two moderators because they constitute the opposing and most immediate forces acting on the incentive mechanism.

We introduce the concept of a “Prudent Risk-Taking Equilibrium” to describe the configuration in which robust governance mechanisms channel executive risk-taking toward financially sustainable value creation rather than allowing it to manifest as opportunistic or myopic behavior (Bebchuk & Fried, 2005; Gomez-Mejia & Wiseman, 1997; Hart et al., 2015; Jin, 2024; Wiseman & Gomez-Mejia, 1998). This framework implies that the effect of PFP on firm performance cannot be understood in isolation from the executive’s risk disposition and the institutional constraints governing managerial discretion. Consequently, our central research question is: How does the joint interaction between executive risk appetite and corporate governance quality shape the relationship between PFP and firm performance?

We test this proposition using a sample of Brazilian publicly traded companies listed on the B3 from 2018 to 2024. The Brazilian market offers a particularly suitable empirical setting for this investigation for three reasons. First, as an emerging market characterized by high ownership concentration and weaker investor protection relative to Anglo-Saxon economies, Brazil presents more pronounced agency conflicts, amplifying the theoretical relevance of both incentive alignment and governance monitoring (Brandão, 2019; Correia et al., 2011). Second, the mandatory implementation of the *Informe do Código Brasileiro de Governança Corporativa* (ICBGC) in 2017, a “comply-or-explain” framework modeled on international best practices, introduced meaningful cross-sectional variation in governance quality during a period of institutional transition. Unlike mature markets, where governance standards have largely converged, the Brazilian setting captures firms at different stages of governance adoption, providing the heterogeneity necessary to detect moderating effects. Third, the recency of this regulatory shift, beginning in 2018, allows us to examine whether newly adopted governance practices are already effective in shaping the interplay among executive risk appetite, incentive systems, and firm performance, thereby providing an empirical test of the maturity of the Brazilian governance model.

Our empirical analysis supports the proposed “Prudent Risk-Taking Equilibrium” and offers four main contribu-

tions. Theoretically, we advance Agency Theory and the Behavioral Agency Model by proposing that governance mechanisms function as channeling devices that transform potentially volatile executive risk appetite into financially sustainable value creation rather than merely constraining managerial discretion. This perspective reframes the PFP–performance debate from a question of whether incentives work to a question of the configurations under which agent disposition and institutional oversight generate value. From a methodological standpoint, we contribute by operationalizing a three-way interaction framework that captures the joint influence of agent-level dispositions and institutional-level constraints on the incentive–performance link. While prior studies have examined the moderating effects of governance or executive characteristics in isolation, the triple-interaction specification adopted here allows us to model their combined, non-additive influence on PFP effectiveness, thereby more closely reflecting the theoretical complexity of the agency relationship.

Empirically, we provide the first test of this three-way interaction in the Brazilian market following the mandatory adoption of the ICBGC, offering evidence on whether recently adopted governance practices are already effective at shaping incentive outcomes in an emerging economy with concentrated ownership. Practically, our findings suggest that compensation committees cannot design PFP contracts in isolation from the firm's governance maturity and the executive's risk profile, as the same incentive structure may create or destroy value depending on how these contingent factors are configured.

2 Theoretical Framework and Hypothesis Development

2.1 Variable “Pay-for-Performance” Executive Compensation

Grounded in Agency Theory, we examine PFP as a mechanism to mitigate agency conflicts (Jensen & Meckling, 1976). PFP aims to align executives' interests with shareholders' by tying compensation to firm outcomes (Baker et al., 1988; Jensen & Murphy, 1990). However, the effectiveness of this alignment remains empirically debated, with its impact often moderated by specific organizational contexts and executive traits (DuoRu et al., 2021; Pepper & Gore, 2015).

Understanding how PFP affects performance also requires recognizing why firms adopt specific compensation mixes in the first place. The literature on compensation design suggests that the relative weight of short- versus long-term incentives is not arbitrary but reflects firm-level characteristics such as information asymmetry, growth opportunities, ownership concentration, and

managerial power (Core & Guay, 1999; Leal & Anjos, 2023). In concentrated-ownership environments such as Brazil, controlling shareholders may prefer short-term cash bonuses that are easier to monitor and less susceptible to market noise, whereas firms with more dispersed ownership and sophisticated boards tend to allocate a greater share to equity-based, long-term instruments (Bebchuk & Fried, 2005). Recognizing these determinants is important because the mix itself is endogenous to the organizational context, meaning that the relationship between PFP structure and performance is shaped by the same governance and agency conditions that drive the choice of incentive design.

The literature primarily identifies a positive association between PFP and performance (Aguar & Pimentel, 2017; Araujo & Ribeiro, 2017; Bebchuk & Fried, 2005; Morrison et al., 2024; Velte, 2024), suggesting that PFP can align executives' goals with those of shareholders and thereby help achieve performance targets favorable to the company. However, findings by Beuren et al. (2014), Cohen et al. (2023), Geiler and Renneboog (2016), Krauter (2013), Olaniyi (2023), and Rousseau et al. (2023) suggest that PFP does not consistently generate the intended performance effects across all settings and time horizons.

Given these divergent findings, a more in-depth inquiry is required to assess the moderating role of personal and contextual factors in this relationship (DuoRu et al., 2021). While PFP may correlate positively with performance, this link can be attenuated or even reversed depending on specific organizational and executive traits (Azevedo & Soares, 2025; see also Bedford, 2020; Marquezan et al., 2023, 2024). In this research, we propose that PFP effectiveness is significantly influenced by executive risk appetite and corporate governance mechanisms.

2.2 Executive Risk Appetite and Pay-For-Performance

Traditional agency models frequently treat the executive as a rational agent. In contrast, the Behavioral Agency Model posits that agents exhibit bounded rationality and loss aversion (Pepper & Gore, 2015; Wiseman & Gomez-Mejia, 1998). This conceptualization also aligns with Upper Echelons Theory, which posits that the bounds of rationality are shaped by managers' cognitive and psychological traits (Hambrick, 2007; Hambrick & Mason, 1984; Jin, 2024; Peng et al., 2026). Synthesizing these frameworks, we argue that executives act as boundedly rational information processors whose psychological configurations serve as independent cognitive filters for compensation incentives.

Recent literature emphasizes that executive risk appetite operates as an independent mechanism, distinct from structurally imposed risk-taking incentives (Gao et al., 2023;

Góis et al., 2024; Jin, 2024). In other words, executive risk appetite is not a byproduct of the compensation structure but rather determines how incentive signals are internalized and acted upon. Consequently, executive risk appetite serves as a moderator that systematically influences high-stakes strategic choices and operational outcomes (Araújo & Dos Anjos, 2025; Chatterjee & Hambrick, 2007).

Short-term PFP, such as annual cash bonuses, is designed to stimulate immediate operational improvements (Ellig, 2022). When combined with an executive's high risk appetite, these short-term mechanisms enable aggressive managerial behavior (Gao et al., 2023). The convergence of immediate financial incentives and a risk-seeking psychological disposition amplifies the drive to generate rapid returns, as executives capitalize on reward structures at the expense of the firm's long-term financial health (Chatterjee & Hambrick, 2007). In contrast, risk-averse executives may underutilize these incentives, preferring conservative stability to the pursuit of performance-maximization targets. Therefore, we propose the following hypothesis:

H1a: The relationship between short-term PFP and firm performance is moderated by executive risk appetite, such that a higher risk appetite leads to a stronger relationship.

If a high-risk appetite amplifies the executive's responsiveness to short-term rewards, the same psychological disposition may produce the opposite effect when applied to long-term PFP. Equity grants and deferred incentives are theoretically configured to align the agent's horizon with sustainable shareholder value by tying compensation to long-term outcomes (Dai et al., 2025; Ellig, 2022; Rouen, 2020). However, this logic assumes that the executive values wealth preservation over time, which conflicts with the cognitive profile of a risk-seeking agent. The result is a form of goal incongruence in which the executive's preference for volatile, high-payoff opportunities undermines the conservative, value-preserving nature of long-term equity holding (Christensen et al., 2009; Ferris et al., 2017).

Greater risk-taking increases the probability of adverse outcomes, such as stock-price crashes, thereby directly undermining long-term performance measures. Thus, high executive risk appetite dilutes the effectiveness of long-term PFP, weakening its transmission to firm outcomes. This prediction, however, is not uncontested. An alternative view from the innovation literature suggests that risk-seeking executives may pursue breakthrough investments, such as transformative R&D or market-creating acquisitions, that have substantial but uncertain long-term payoffs (Manso, 2011). In this regard, high risk appetite could also enhance long-term incentives by encouraging bold strategic bets that build competitive advantage.

However, this effect likely depends on institutional conditions, especially strong governance that ensures accountability for long-term results. Without such constraints, the literature and evidence indicate that risk-seeking agents tend to discount delayed rewards and focus on immediate, high-variance gains (Gomez-Mejia & Wiseman, 1997; Wiseman & Gomez-Mejia, 1998). Our hypothesis reflects the typical net effect across general settings. Thus, we propose the following hypothesis:

H1b: The relationship between long-term PFP and firm performance is moderated by executive risk appetite, such that a higher risk appetite leads to a weaker relationship.

Additionally, a related body of research explores the mechanism through which executive compensation influences risk-taking, focusing on portfolio incentives. Coles et al. (2006) find that the sensitivity of CEO wealth to stock-return volatility (vega) promotes riskier investment and financing decisions, whereas sensitivity to stock price (delta) has mixed effects depending on the CEO's existing wealth and risk preferences. This framework offers a micro-level explanation of how compensation structures influence strategic risk choices, complementing the macro-level perspective adopted in our study.

Although we do not measure vega and delta directly, since our primary focus is on the composition of the PFP mix rather than individual CEO portfolio convexity, the insights from this literature help support our hypotheses. A higher proportion of RIST resembles a high-delta, low-vega profile that favors short-term price gains, while a greater emphasis on RILT creates vega-like exposure, theoretically fostering tolerance for long-term uncertainty (Dai et al., 2025). However, whether these incentives lead to their expected outcomes depends on behavioral and institutional factors examined in this study.

2.3 Corporate Governance and Pay-For-Performance

Corporate governance can be defined as an institutional framework of rules and practices that governs a firm's decision-making and serves as a mechanism to mitigate agency conflicts between managers and shareholders (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). In Brazil, an emerging market with high ownership concentration, governance mechanisms constrain managerial opportunism and self-interested behavior (Brandão, 2019; Correia et al., 2011). Recent evidence from the Brazilian market further demonstrates that corporate governance quality and managerial power jointly influence the design of executive compensation contracts, reinforcing the premise that incentive structures cannot be analyzed independently of the governance environment in which they are embedded (Leal & Anjos, 2023).

Regarding short-term PFP, we propose that robust governance structures interact with incentives through a combined logic of substitution, as proposed by Rutherford et al. (2007), and compensating mechanisms, as proposed by Bedford (2020). In this configuration, governance practices not only render high-powered incentives redundant but also actively counteract their inherent limitations, mitigating the agency risks frequently triggered by financial targets.

In environments with weaker governance, firms rely heavily on output-based contracts, such as annual bonuses, to influence executive behavior. This reliance tends to induce a direct, mechanical link between short-term PFP and performance metrics. However, prior literature suggests that this dynamic creates incentives for adverse outcomes, such as managerial myopia and earnings management, in which executives might manipulate accruals or real activities to trigger immediate payouts (Dechow et al., 2010; Nascimeto et al., 2022; Pimenta, 2025).

Conversely, when strong governance mechanisms are in place, such as active fiscal councils, internal audit committees, and diversity-based knowledge sharing (Firmino & Peixoto, 2023; Iglesias et al., 2024; Silva & De Moura, 2022), reliance on high-powered financial incentives to align agent behavior becomes less relevant. In this configuration, governance practices do not merely replace incentives but actively counteract their inherent limitations. Direct board monitoring enables a holistic evaluation of executive effort, shifting assessment from a purely quantitative, formulaic approach to one that also includes qualitative strategic oversight (González & García-Meca, 2014; Jin, 2024).

By introducing a broader scope of monitoring, robust governance likely constrains the executive's ability to pursue short-term targets at the expense of long-term value. Consequently, we argue that effective governance dampens the immediate sensitivity of firm performance to short-term PFP, leading to the following hypothesis:

H2a: The relationship between short-term PFP and firm performance is moderated by corporate governance, such that this relationship will be weaker when corporate governance is strong.

In contrast, the relationship between governance and long-term incentives functions through a logic of complementarity and credibility. Bedford (2020) describes this as a “reinforcing effect”, in which one practice enhances the effectiveness of the other by reinforcing its foundational qualities.

Long-term PFP mechanisms are designed to align the agent's horizon with the firm's sustainable value creation (Jensen & Murphy, 1990). However, the efficacy of these deferred incentives depends on the agent's trust that the

contract will be honored and that performance metrics will not be manipulated by controlling shareholders. In the absence of robust governance, long-term plans may be perceived as what Bebchuk and Fried (2005) labeled “pay without performance”, in which executives are rewarded for market movements rather than firm performance.

Strong governance enhances the credibility and legitimacy of long-term contracts. Brazil's governance standards, which mandate independent compensation committees and transparent disclosure practices, help ensure that long-term targets are strict and unaffected by external events or earnings management (Brandão, 2019; Campoi & Telles, 2025; Correia et al., 2011; Francisco & Caio Galdi, 2022). Furthermore, strong governance signals to the executive that the firm is committed to long-term value maximization rather than short-term, immediate gains.

This environment thus reduces the discount rate executives apply to future rewards, making executives more responsive to long-term incentives (Larrazza-Kintana et al., 2007). By mitigating the risk of contract manipulation and ensuring that pay is strictly tied to long-term value creation, we argue that strong governance amplifies the effectiveness of long-term PFP. Therefore, we propose:

H2b: The relationship between long-term PFP and firm performance is moderated by corporate governance, such that this relationship will be stronger when corporate governance is strong.

2.4 The Three-Way Interaction: Risk Appetite, Governance, and Pay-for-Performance

While the independent moderating roles of executive risk appetite and corporate governance provide insight into the PFP–performance link, we argue that they do not operate in a vacuum. Grounded in Contingency Theory, we argue that the effectiveness of compensation design is determined by the joint influence of organizational structure and executives' personal characteristics (Donaldson, 2006; Otley, 2016).

Building on Agency Theory (Jensen & Meckling, 1976), the Behavioral Agency Model (Gomez-Mejia & Wiseman, 1997; Wiseman & Gomez-Mejia, 1998), and Upper Echelons Theory (Hambrick & Mason, 1984), we propose a triple-interaction framework. In this model, executives with high risk appetite can achieve better firm performance, provided that compensation schemes are aligned with strong governance mechanisms that prevent opportunistic behavior. In this context, corporate governance acts as a regulatory constraint, which produces what we label the “Prudent Risk-Taking Equilibrium”.

We define the Prudent Risk-Taking Equilibrium as the organizational configuration in which (a) the executive dis-

plays a high risk appetite, (b) the firm maintains strong governance mechanisms, and (c) PFP incentives are present, such that governance channels the executive's risk disposition toward financially sustainable value creation rather than opportunistic or myopic behavior.

This concept differs from related ideas in the literature. Optimal risk-taking in corporate finance (e.g., Coles et al., 2006) aims to find the risk level that maximizes firm value, treating risk as a continuous variable and assuming that incentive contracts alone can achieve this. Our framework argues that the optimal risk level depends on the agent's psychological traits and monitoring environment. The same risk can create or destroy value depending on governance. Similarly, the efficient contracting view (e.g., Core & Guay, 1999) seeks to minimize agency costs through contracts based on the firm's information. While we build on this, the Prudent Risk-Taking Equilibrium also considers the agent's behavior. A well-designed contract may fail if the executive's risk appetite conflicts with the governance structure.

The preceding sections established that executive risk appetite and corporate governance independently moderate the PFP–performance link, the former amplifying short-term sensitivity and attenuating long-term effectiveness, and the latter operating through the substitution and complementarity mechanisms detailed above. However, analyzing these moderators in isolation risks missing their joint, non-additive influence on incentive outcomes.

Therefore, we argue that a positive interaction between PFP and an executive with high risk appetite is contingent on strong governance. In this configuration, PFP provides motivation, risk appetite provides cognitive drive, and governance provides strategic boundaries. Previous studies suggest that the effectiveness of high-powered incentives relies on monitoring mechanisms that prevent the expropriation of shareholder wealth (see also Velte, 2024). In firms with weak governance, a high-risk executive may perceive PFP as an incentive to take excessive risk. In firms with strong governance, however, we argue that the executive is incentivized to reach an equilibrium in which risk is optimized rather than increased (see also Peng et al., 2026).

Drawing on the dual mechanisms identified in the preceding sections, we posit that the substitution effect, which limits reliance on short-term incentives in well-governed firms, and the complementarity effect, which enhances the credibility of long-term contracts, both interact with the executive's risk disposition (see Bedford, 2020). In firms with strong governance, a high-risk executive is incentivized to channel risk toward trans-

parent, high-return investments. In firms with weak governance, the same executive may exploit PFP as an incentive for opportunistic risk-taking.

By integrating these dimensions, we posit that the combination of an executive willing to take risks, incentivized by performance-based pay, and monitored by superior governance structures, can yield the highest level of firm performance. Consequently, we hypothesize:

H3: The relationship between PFP and firm performance is positively moderated by the joint effect of executive risk appetite and corporate governance, such that the relationship is strongest when both executive risk appetite and corporate governance quality are high.

3 Methodology

3.1 Research Design and Sample

Our sample comprises companies listed on the Brazilian stock market between 2018 and 2024, with 2018 selected as the initial year to coincide with the first mandatory disclosure of the Brazilian Corporate Governance Code Report (ICBGC).

Financial information was obtained from Economática. Compensation data were collected from the Reference Forms filed with the Comissão de Valores Mobiliários (CVM – the Brazilian Securities and Exchange Commission), which provide annual disclosures on executive compensation, organizational and governance structures, and financial reporting. Corporate governance information was obtained from the Brazilian Corporate Governance Code Report (Informe do Código de Governança – ICBGC). Both sources are accessible through the CVM database.

The sampling process began with the full population of 439 companies listed on the B3 between 2018 and 2024, all of which were subject to mandatory disclosure requirements regarding executive compensation and corporate governance practices. Of these, 358 companies were actively traded during the period, and 251 reported active PFP plans. After excluding 651 firm-year observations because of missing financial data in Economática, the final sample comprised 1,106 observations across 245 companies.

3.2 Variable Definitions and Operationalization

Table 1 summarizes all variables employed in this study.

Table 1. Operationalization of Variables, Measurement Metrics, and Theoretical Sources.

Variable	Description	Calculation	Source
RIST	Relative Importance of Short-Term Compensation	Short-Term PFP / Total PFP	Ellig (2022)
RILT	Relative Importance of Long-Term Compensation	Long-Term PFP / Total PFP	Ellig (2022)
Risk	Executive Risk Appetite	PCA of Debt-to-Assets Ratio, Capital Expenditure Intensity, Asset Risk Structure, Liquidity Cushion, and Operational Efficiency	Peng et al. (2026)
CGS	Corporate Governance Score	(Yes + Partially) / (Total – Not Applicable)	-
Tobin's Q	Market-to-Book Value	(Market Value of Equity + Book Value of Total Debt) / Total Assets	Rousseau et al. (2023)
Excess Returns	Market-adjusted geometric excess return	$[(1 + \text{Stock Return}) / (1 + \text{Benchmark})] - 1$	Damodaran (2012), Rousseau et al. (2023)
Size	Firm Size	Natural Logarithm of Total Assets	Krauter (2013)
Financial Leverage	Debt to Equity Ratio	Total Liabilities / Total Equity	Coles et al. (2006)

This table summarizes the independent, dependent, moderating, and control variables employed in the econometric models. RIST: Relative Importance of Short-Term Compensation; RILT: Relative Importance of Long-Term Compensation; Risk: Executive Risk Appetite Index (PCA-based); CGS: Corporate Governance Score based on ICBGC adherence; Tobin's Q: Proxy for firm value; Excess Returns: Market-adjusted geometric returns over the Ibovespa benchmark. Data sources: CVM Reference Forms, Economica, and B3.

3.2.1 Dependent Variables: Firm Performance

We adopt two distinct market-based measures to capture value creation. The first dependent variable is Tobin's Q, utilized as a proxy for long-term franchise value and growth expectations (Rousseau et al., 2023). It is calculated as the sum of the market value of equity and the book value of total debt, divided by the book value of total assets. Tobin's Q is an appropriate measure as it reflects the market's forward-looking assessment of how the firm is expected to generate future cash flows above the replacement cost of its assets.

We also use Market-Adjusted Excess Returns as our second dependent variable. This measure reflects the firm's geometric excess return relative to the market benchmark, namely the Ibovespa in our study, over 12 months (Damodaran, 2012; Rousseau et al., 2023). Unlike absolute-return metrics, it is less susceptible to macroeconomic fluctuations. Following standard financial econometrics, excess return is calculated by dividing the stock's wealth relative by the market index's wealth relative. This specification isolates idiosyncratic performance attributable to executives' strategic choices, ensuring that the results reflect genuine value creation rather than broad market momentum.

3.2.2 Independent Variable: Pay-for-Performance Structure

Consistent with the perspective that compensation design serves as an ex ante incentive mechanism, we operationalize PFP as the relative importance of variable compensation components. We define RIST (Relative Importance of Short-Term Compensation) and RILT (Relative Importance of Long-Term Compensation) as the ratios of immediate short-term bonuses and long-term stock-based compensation, respectively, to total executive variable compensation. RIST is used to test Hypotheses 1a, 2a, and 3, whereas RILT is used to test Hypotheses 1b, 2b, and 3.

By focusing on the compensation mix rather than the absolute monetary value, we capture the board's strategic intent in directing managerial attention to specific time orientations. This approach recognizes that the mere presence of financial rewards is insufficient to shape executive performance, as a predominantly fixed compensation structure reduces incentives for above-average performance (Ellig, 2022).

These variables are lagged by one period (t-1) in all regression specifications to mitigate simultaneity bias and endogeneity, reflecting a premise that the incentive structure established in the previous period drives current managerial behavior and subsequent performance.

3.2.3 Moderating Variables

3.2.3.1 Executive Risk Appetite

To measure Executive Risk Appetite, we use the recently developed Accounting-Based Risk Preference Index proposed by Peng et al. (2026). This index serves as a proxy for executives' risk appetite, as reflected in their realized capital-allocation decisions. The use of this proxy is theoretically supported by Upper Echelons Theory, which posits that strategic choices reflect ex ante cognitive biases and executives' idiosyncratic values (Hambrick, 2007; Hambrick & Mason, 1984; Jin, 2024). A foundational premise of UET is that, because top managers' psychological constructs are inherently difficult to measure directly, observable patterns of strategic resource allocation serve as valid indicators of their underlying dispositions (see also Chatterjee & Hambrick, 2007). In this context, the indicators serve as proxies for deliberate capital-allocation decisions that reveal executives' latent risk orientation rather than ex post financial results.¹

Following Peng et al. (2026), we employ principal component analysis to extract a latent risk-proxy component from five key accounting indicators: (i) debt-to-assets ratio (total liabilities to total assets), representing financial risk appetite; (ii) capital-expenditure intensity (CAPEX to total assets), reflecting the propensity for aggressive expansion; (iii) asset-risk structure (intangible assets plus inventories to total assets), capturing operational uncertainty; (iv) liquidity cushion (the inverse of the current ratio), where lower liquidity indicates greater tolerance for insolvency risk; and (v) operational efficiency (the inverse of the EBIT margin), where lower margins signal greater tolerance for operational risk. The first principal component derived from these standardized indicators serves as our composite measure of Executive Risk Appetite.

By using accounting data to assess risk, we aim to mitigate endogeneity, as this approach ensures that our proxy reflects executive risk appetite without being affected by market volatility, thereby improving the construct's validity.

3.2.3.2 Corporate Governance Quality

Corporate governance was assessed using the Brazilian Corporate Governance Code Report (ICBGC), which

¹ The use of firm fixed effects in our econometric specification absorbs time-invariant structural characteristics, ensuring that within-firm temporal variation in the index is more likely to reflect shifts in managerial disposition than changes in organizational or sectoral characteristics or behavior.

outlines governance practices recommended by the Brazilian Institute of Corporate Governance (IBGC). Since 2018, publicly traded companies in Brazil have been required to disclose their adherence to these recommended practices, in accordance with Article 32 of CVM Resolution No. 80. The ICBGC consists of 54 items detailing corporate governance recommendations.

Two items deemed directly or mechanistically related to PFP were excluded to ensure independence in the moderation analyses, leaving 52 items. The Corporate Governance Score (CGS) was then computed by dividing the sum of items marked "Yes" or "Partially" by the total number of items minus those marked "Not Applicable".

Although the use of this instrument is novel, it is inspired by prior Brazilian studies, such as Brandão (2019) and Correia et al. (2011), which developed proprietary corporate governance scores based on survey data. Unlike those studies, which relied on self-reported survey responses, our study uses publicly available, audited data, thereby enhancing the validity, reliability, and replicability of the governance measures we derive.

3.2.4 Control Variables

Additional variables were included to isolate the effects of the study's core constructs and enhance the robustness of the results. Firm size was measured by the natural logarithm of total assets (Krauter, 2013), while industry-specific risk was calculated using the annual average standard deviation of stock prices within each sector (Aguar & Pimentel, 2017). Finally, financial leverage was captured by the debt-to-equity ratio (Coles et al., 2006).

3.3 Econometric Specification

To empirically examine the three-way interaction among incentives, risk appetite, and governance, we estimate a multivariate panel-data regression model. Our specification enables the simultaneous testing of the two-way moderating effects (Hypotheses 1 and 2) and the three-way joint interaction (Hypothesis 3) within a unified framework. Integrating all interaction terms into a single equation allows us to isolate the marginal effect of PFP on firm value, conditional on the independent and joint effects of executive risk appetite and governance quality.

The model is specified as follows:

$$\text{Performance_lit} = \lambda_0 + \lambda_1 * \text{PFP_ji}(t-1) + \lambda_2 * \text{Risk_it} + \lambda_3 * (\text{PFP_ji}(t-1) * \text{Risk_it}) + \lambda_4 * \text{CGS_it} + \lambda_5 * (\text{PFP_ji}(t-1) * \text{CGS_it}) + \lambda_6 * (\text{Risk_it} * \text{CGS_it}) + \lambda_7 * (\text{PFP_ji}(t-1) * \text{Risk_it} * \text{CGS_it}) + \sum (\lambda_n * \text{Controls_it}) + \alpha_i + \delta_t + \epsilon_{it} \quad [1]$$

In Equation (1), Performance_lit represents performance

measure I (Tobin's Q or Excess Returns) for firm i at time t . The independent variable $PFP_ji(t-1)$ denotes lagged pay-for-performance component j , short-term RIST or long-term RILT, for firm i , calculated at $t-1$. The vector $\Sigma(\lambda n * Controls_it)$ includes all n control variables defined in Section 3.2.4. The term α_i represents firm fixed effects, which capture all time-invariant unobserved heterogeneity; δt represents year fixed effects, which control for common macroeconomic shocks; and ϵ_{it} is the idiosyncratic error term.

Regarding the moderators, $Risk_it$ represents the Executive Risk Appetite index, and CGS_it represents the Corporate Governance Score. The coefficients $\lambda 3$ and $\lambda 5$ provide the tests for the two-way interaction hypotheses. Specifically, $\lambda 3$ captures the moderating effect of executive risk appetite on the PFP–performance relationship (Hypotheses 1a and 1b), while $\lambda 5$ captures the moderating effect of corporate governance quality (Hypotheses 2a and 2b). These coefficients indicate whether the respective moderator strengthens or weakens the effect of incentives on firm performance, while holding the third variable constant.

The coefficient $\lambda 7$ is the primary parameter of interest for Hypothesis 3. It captures the three-way interaction effect, testing whether the relationship between PFP and firm performance is contingent on the joint presence of high executive risk appetite and strong corporate governance. A statistically significant, positive $\lambda 7$ would confirm that these mechanisms interact to reinforce the alignment between executive incentives and firm outcomes, validating the “Prudent Risk-Taking Equilibrium” proposed in this study.

3.4 Additional Transformations and Specifications

To mitigate scale discrepancies, all continuous variables were standardized using Z-scores. This transformation orthogonalizes interaction terms relative to main effects, thereby stabilizing coefficient estimates and simplifying the interpretation of marginal effects at the sample mean without affecting the underlying statistical significance (Fávero & Belfiore, 2024; Wooldridge, 2010).

To ensure robustness, post-estimation diagnostics guide our econometric specification, as summarized in Table 2. First, the Hausman test consistently rejects the null hypothesis favoring random effects across all specifications ($p < 0.01$), validating the use of firm fixed effects to capture unobserved heterogeneity. We operationalize this approach using firm and year fixed effects. Firm fixed effects absorb all time-invariant unobserved heterogeneity, such as industry type, whereas year fixed effects control for common macroeconomic shocks.

Second, regarding multicollinearity, the Variance Inflation Factor (VIF) analysis yields a maximum value of 2.29, which is well below the critical threshold of 3.3, indicating that multicollinearity is not a concern for the estimators. However, because the Modified Wald test ($\chi^2 > 1,208$, $p < 0.01$) and the Wooldridge test ($p < 0.05$) indicate heteroskedasticity and serial correlation, respectively, we estimate all models using robust standard errors clustered at the firm level to ensure valid statistical inference (Fávero & Belfiore, 2024; Wooldridge, 2010). Finally, to mitigate the influence of outliers, all continuous variables are winsorized at the 1% and 99% levels.

Table 2. Post-Estimation Diagnostics, Multicollinearity, and Specification Tests (2018–2024).

Model (DV, IV)	Chi2 (d.f. = 10)	Chi2 (d.f. = 245)	F-stat (1, 244)	Min. VIF	Max. VIF
	Fixed vs. Random Effects	Heteroskedasticity	Autocorrelation	Variance Inflation	
Tobin's Q, RIST	22.56***	1,186.12***	4.51**	1.41	2.25
Tobin's Q, RILT	23.01***	1,357.53***	4.68**	1.56	2.20
Excess Returns, RIST	22.02**	1,809.86***	8.86***	1.52	2.27
Excess Returns, RILT	25.89***	1,208.01***	10.77***	1.68	2.29

The table reports the results of diagnostic tests for the panel-data regression models. VIF: Variance Inflation Factor (Max. VIF < 3.3 indicates no severe multicollinearity). Fixed vs. Random Effects: Hausman test statistics ($p < 0.01$ supports fixed effects). Heteroskedasticity: Modified Wald test for groupwise heteroskedasticity. Autocorrelation: Wooldridge test for autocorrelation in panel data. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

4 Results and Discussion

4.1 Descriptive Statistics

Table 3 presents the descriptive statistics for the variables used in the main analysis. The compensation structure indicates a predominance of short-term incentives

(0.300) over long-term instruments (0.153). This disparity is consistent with prior evidence from the Brazilian market, which suggests that high ownership concentration and environmental volatility drive firms to prioritize immediate cash payouts over deferred equity-based compensation (Brandão, 2019; Krauter, 2013).

From the perspective of the substitution mechanism (H2a), the dominance of short-term incentives implies that the very instrument that governance is theorized to render redundant constitutes the primary incentive tool in the Brazilian market, making the detection of substitution effects empirically more consequential. Conversely, the comparatively low reliance on long-term PFP raises a substantive question for the complementarity mechanism (H2b), that is, if long-term instruments remain underutilized, the role of governance in enhancing their credibility becomes not merely a theoretical proposition but also a potential explanation for why firms with stronger governance may benefit disproportionately from even modest allocations to deferred compensation.

The variable Risk is derived from a PCA of five accounting

indicators and was validated for factor-extraction suitability by a Kaiser-Meyer-Olkin (KMO) measure of 0.642, above the recommended 0.60, and a highly significant Bartlett's test of sphericity ($p < 0.01$). All five indicators loaded strongly and positively on the main component. This first principal component, explaining 75% of the variance, functions as our combined measure of Executive Risk Appetite. Risk (average = 0.041; standard deviation = 1.309) shows a normalized distribution with considerable variability, effectively reflecting different psychological profiles within the sample (Peng et al., 2026). Regarding corporate governance, the high mean CGS score (0.859) indicates widespread adherence to the ICBGC recommendations, signaling a maturing environment.

Table 3. Summary Statistics of Compensation Structures, Executive Risk, Governance, Performance, and Control Variables (2018–2024).

Variable	Obs.	Mean	Std. Dev.	Min	Max
RIST	1,106	0.300	0.183	0	0.880
RILT	1,106	0.153	0.196	0	0.887
Risk	1,106	0.041	1.309	-4.601	4.155
CGS	1,106	0.859	0.132	0.262	1.000
Tobin's Q	1,106	1.49	1.51	0.39	4.45
Excess Returns	1,106	1.012	3.764	-17.902	16.112
Size	1,106	16.308	1.800	9.356	21.627
Financial Leverage	1,106	0.743	5.258	0	15.213
Sector Risk	1,106	0.284	0.115	0.085	0.612

RIST: Relative Importance of Short-Term Compensation; RILT: Relative Importance of Long-Term Compensation; Risk: Executive Risk Appetite (PCA-based index); CGS: Corporate Governance Score; Tobin's Q: Proxy for firm value; Excess Returns: Market-adjusted geometric excess return. The sample comprises 1,106 firm-year observations (2018–2024). All continuous variables are winsorized at the 1% and 99% levels.

Table 4 shows the Pearson correlation coefficients. Notably, CGS and RILT are positively and significantly correlated ($r = 0.25$, $p < 0.01$), supporting the view that strong monitoring mechanisms are important for the adoption of complex deferred-compensation contracts (Bebchuk

& Fried, 2005; Larraza-Kintana et al., 2007). Conversely, short-term PFP (RIST) is negatively correlated with RILT ($r = -0.39$, $p < 0.01$), indicating a trade-off in incentive structures. Executive Risk Appetite is strongly correlated with Tobin's Q ($r = 0.31$, $p < 0.01$).

Table 4. Pearson Correlation Matrix of Key Study Variables (2018–2024).

	RIST	RILT	Risk	CGS	Tobin's Q	Excess Returns	Size	Leverage	Sector Risk
RIST	1								
RILT	-0.39***	1							
Risk	0.09***	0.11***	1						
CGS	0.06*	0.25***	0.11***	1					
Tobin's Q	0.10**	0.131**	0.31***	-0.01	1				
Excess Returns	0.07**	-0.03	-0.02	-0.08**	0.28***	1			
Size	0.16***	0.17***	0.23***	0.43***	0.25***	0.07**	1		
Leverage	0.01	0.02	0.04	0.01	-0.01	-0.03	0.05	1	
Sector Risk	0.04	-0.05	0.15**	-0.08*	-0.02	-0.06*	-0.14***	0.09**	1

The table displays Pearson correlation coefficients between the main dependent and independent variables. RIST: Relative Importance of Short-Term Compensation; RILT: Relative Importance of Long-Term Compensation; Risk: Executive Risk Appetite; CGS: Corporate Governance Score. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

While long-term PFP remains the less prevalent instrument in the sample, its positive association with governance quality suggests that firms with stronger institutional frameworks are precisely those more likely to adopt deferred compensation, the configuration our framework identifies as complementary (H2b). Conversely, the absence of a meaningful correlation between CGS and RIST ($r = 0.06$) is consistent with the substitution logic underlying H2a, that is, governance does not increase reliance on short-term incentives but may instead displace them as alignment

mechanisms. Although these patterns do not establish causality, they provide preliminary descriptive support for the configurational logic tested in the regression models.

4.2 Inferential Statistics and Hypothesis Evaluation

Table 5 presents the results of the multivariate panel-data regression analysis with firm and year fixed effects used to evaluate the interaction terms for Hypotheses 1, 2, and 3.

Table 5. Fixed Effects Regression Results: The Moderating Effects of Executive Risk Appetite and Corporate Governance on Firm Performance (2018–2024).

Variables	RIST		RILT	
	Tobin's Q	Excess Returns	Tobin's Q	Excess Returns
PFP	2.268*** (0.908)	0.571 (0.501)	-0.285 (1.657)	-1.545 (1.377)
Risk	-1.975*** (0.462)	0.203 (0.177)	1.018 (0.649)	1.224** (0.566)
PFP*Risk	5.208*** (1.485)	1.398*** (0.388)	-5.861*** (2.214)	-3.932** (1.609)
CGS	2.402*** (0.487)	0.655** (0.280)	0.667 (0.578)	-0.835 (0.519)
PFP*CGS	-4.138*** (1.105)	-1.255** (0.614)	2.927*** (0.993)	3.759** (1.673)
RISK*CGS	3.260*** (0.597)	1.313*** (0.219)	1.463 (0.776)	1.528** (0.680)
PFP*RISK*CGS	4.275** (1.961)	2.577*** (0.484)	7.813*** (2.646)	5.825*** (1.917)
Firm Size	0.353** (0.143)	0.170** (0.073)	0.282 (0.228)	0.182** (0.073)
Financial Leverage	0.018 (0.130)	0.086 (0.071)	-0.134 (0.199)	-0.014 (0.156)
Sector Risk	-0.000 (0.029)	0.016 (0.017)	0.003 (0.050)	0.030 (0.036)
Constant	1.342*** (0.245)	0.925*** (0.188)	1.285*** (0.210)	0.984*** (0.176)
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Observations	1106	1106	1106	1106
R ²	0.115	0.106	0.121	0.091

The dependent variables are Tobin's Q and Excess Returns. PFP refers to either RIST (short-term) or RILT (long-term), depending on the column specification. Risk: Executive Risk Appetite; CGS: Corporate Governance Score. All models include firm and year fixed effects. Robust standard errors clustered at the firm level are reported in parentheses. The interaction term PFP*Risk*CGS tests the three-way "Prudent Risk-Taking Equilibrium" hypothesis. Significance levels: *** $p < 0.01$, ** $p < 0.05$.

The main effects of PFP on firm performance differ between short- and long-term incentive structures. For RIST, the coefficient is positive and statistically significant for Tobin's Q ($\lambda_1 = 2.268$, $p < 0.01$) but non-significant for Excess Returns ($\lambda_1 = 0.571$, $p > 0.10$), suggesting that a higher relative weight of short-term bonuses is associated with greater firm valuation even in the absence of moderating conditions, although this association does not translate into superior risk-adjusted returns above the market benchmark. In contrast, the main effect of RILT is statistically non-significant across both dependent variables (Tobin's Q, $\lambda_1 = -0.285$, $p > 0.10$; Excess Returns, $\lambda_1 = -1.545$, $p > 0.10$).

Rather than contradicting the theoretical premise that deferred incentives promote value creation, this finding reinforces the study's central argument. The effectiveness of long-term incentive structures is fundamentally contingent on the configuration of executive risk appetite and the quality of governance. When these moderators are absent from the specification, the estimated effect of RILT captures an average across heterogeneous organizational configurations, some in which long-term incentives create value and others in which they are counterproductive, producing an attenuated coefficient that converges toward zero.

The main effect of Executive Risk Appetite varies across model specifications. It is negative and significant for Tobin's Q in the RIST model ($\lambda_2 = -1.975$, $p < 0.01$) but positive and significant for Excess Returns in the RILT model ($\lambda_2 = 1.224$, $p < 0.05$). The negative association between risk appetite and Tobin's Q suggests that the market penalizes the long-term valuation of firms whose executives pursue aggressive capital allocation, supporting the idea that unmonitored risk-taking can reduce expected future cash flows (see also Armstrong et al., 2019).

Conversely, the positive coefficient for Excess Returns in the RILT model indicates that, among firms with long-term incentives, higher risk appetite is associated with short-term outperformance, possibly because risk-seeking executives can capitalize on short-lived opportunities that yield above-market returns in the near term, even if these returns do not translate into lasting franchise value. This difference between level and flow measures underscores the study's central point: the overall impact of executive risk appetite on firm outcomes varies with the performance measure and organizational context.

The results provide empirical support for the moderating role of Executive Risk Appetite, revealing distinct behaviors depending on the incentive's time horizon. Regarding RIST, the interaction coefficient is positive and

statistically significant for both Tobin's Q ($\lambda_3 = 5.208$, $p < 0.01$) and Excess Returns ($\lambda_3 = 1.398$, $p < 0.01$). This finding supports H1a, suggesting that executive risk appetite acts as a cognitive catalyst for short-term incentives. Consistent with the Behavioral Agency Model (Gomez-Mejia & Wiseman, 1997; Wiseman & Gomez-Mejia, 1998), executives with higher risk propensity appear to interpret short-term bonuses as enabling aggressive capital allocation strategies (Gao et al., 2023), suggesting that, for risk-seeking executives, the marginal utility of immediate variable pay is amplified.

Conversely, for RILT, the interaction term is significantly negative for both Tobin's Q ($\lambda_3 = -5.861$, $p < 0.01$) and Excess Returns ($\lambda_3 = -3.932$, $p < 0.05$). This finding supports H1b and highlights a "goal incongruence" mechanism (see also Christensen et al., 2009). While long-term incentives are designed to promote stability and wealth preservation (Ellig, 2022), high-risk executives inherently favor volatility. The negative coefficient indicates that, when a high-risk agent is subject to long-term incentives, the agent's natural inclination toward volatility may reduce the perceived value of the compensation or lead to strategic choices that undermine stable growth.

The analysis of Corporate Governance Quality also reveals the dual nature of monitoring, which functions as a substitute for short-term incentives and a complement to long-term incentives. The interaction term for RIST is negative and significant (Tobin's Q: $\lambda_5 = -4.138$, $p < 0.01$; Excess Returns: $\lambda_5 = -1.255$, $p < 0.05$). This finding supports H2a and is consistent with the Substitution Hypothesis of Rutherford et al. (2007). In environments with high adherence to the ICBGC, strict monitoring by boards and fiscal councils reduces reliance on high-powered short-term financial incentives to drive performance. Furthermore, strong governance likely curtails the managerial myopia often associated with short-term bonuses (Dechow et al., 2010), thereby reducing the immediate sensitivity of market performance to cash-bonus payments.

In contrast, for RILT, the interaction term is positive and significant (Tobin's Q: $\lambda_5 = 2.927$, $p < 0.01$; Excess Returns: $\lambda_5 = 3.759$, $p < 0.05$), supporting H2b. This finding validates the Credibility Hypothesis. In the Brazilian market, characterized by concentrated ownership (Brandão, 2019), the effectiveness of deferred compensation is contingent on executives' trust that the contract will be honored (Bebchuk & Fried, 2005). The positive coefficient suggests that robust governance structures reduce the discount executives apply to future payouts, making long-term equity grants a more effective alignment tool in well-governed firms than in

firms with opaque governance structures.

The central contribution of this study is evidenced by the three-way interaction term, which is positive and statistically significant across all four specifications (Tobin's Q/RIST: $\lambda_7 = 4.275$, $p < 0.05$; Tobin's Q/RILT: $\lambda_7 = 7.813$, $p < 0.01$; Excess Returns/RIST: $\lambda_7 = 2.577$, $p < 0.01$; Excess Returns/RILT: $\lambda_7 = 5.825$, $p < 0.01$). These results provide strong support for H3 and empirically validate the proposed "Prudent Risk-Taking Equilibrium." The positive λ_7 coefficients indicate that strong governance mitigates the adverse effects of high risk-taking, such as volatility and myopia, while preserving its value-creating potential (Armstrong et al., 2019; Peng et al., 2026).

Specifically, in the RILT model, in which high risk appetite alone has an adverse effect (Tobin's Q: $\lambda_3 = -5.861$; Excess Returns: $\lambda_3 = -3.932$), the introduction of strong governance (Tobin's Q: $\lambda_7 = 7.813$; Excess Returns: $\lambda_7 = 5.825$) significantly changes the relationship. This finding implies that governance structures do not suppress executive's appetite for risk but restrict opportunistic behavior, ensuring that their aggressive traits are directed toward transparent, high-return investments rather than value-destroying ones (Hart et al., 2015; Shleifer & Vishny, 1997). Thus, we posit that the overall positive impact of PFP depends on the simultaneous alignment of Executive Risk Appetite and Corporate Governance.

Our findings both corroborate and extend prior work in important ways. The positive moderating effect of risk appetite on short-term PFP is consistent with the predictions of Gao et al. (2023) and the broader Behavioral Agency Model (Wiseman & Gomez-Mejia, 1998), which posit that agents with higher risk propensity are more responsive to performance-contingent rewards. However, the negative interaction between risk appetite and long-term PFP diverges from studies that associate executive risk-taking with superior long-run outcomes (e.g., Coles et al., 2006), suggesting that the relationship between risk and performance is more conditional than these studies imply.

Our results indicate that high risk appetite is only value-creating when accompanied by governance mechanisms that discipline the agent's time horizon, a nuance absent from models that treat risk as inherently desirable or undesirable. Regarding governance, the substitution effect documented for short-term PFP aligns with Rutherford et al. (2007), but our evidence goes further by showing that this substitution is itself contingent on the executive's risk profile. Similarly, while the complementarity between governance and long-term incentives is consistent with Larraza-Kintana et al. (2007), our three-way specification reveals that this

complementarity is amplified in the presence of risk-seeking executives, a finding that these prior studies could not capture given their two-way interaction designs.

To provide a sense of economic magnitude, we interpret the standardized coefficients for the three-way interaction. In the RIST-Tobin's Q specification, the coefficient $\lambda_7 = 4.275$ indicates that a simultaneous one-standard-deviation increase in short-term PFP, executive risk appetite, and corporate governance quality is associated with an increase of approximately 4.28 standard deviations in Tobin's Q, all else being equal. This effect is substantially larger than the main effect of RIST alone ($\lambda_1 = 2.268$), suggesting that the joint configuration of agent disposition and institutional oversight amplifies the incentive signal by a factor of approximately 1.9.

The pattern is even more pronounced in the RILT specification, where the three-way interaction ($\lambda_7 = 7.813$) reverses the direction of the non-significant main effect ($\lambda_1 = -0.285$), indicating that long-term incentives that are ineffective on average become economically meaningful when high risk appetite and strong governance are simultaneously present. These magnitudes underscore that the practical relevance of PFP design is inseparable from the organizational context in which it is deployed.

Regarding the control variables, Firm Size has a positive and significant relationship with performance in three models. This finding aligns with a resource-based view, which suggests that larger firms may benefit from organizational slack, broader access to capital markets, and greater institutional visibility, all of which can help translate incentive-driven managerial efforts into measurable market value (see also Krauter, 2013). In practical terms, this suggests that the PFP mechanisms examined may be more effective in firms that already possess the structural capacity to manage and implement strategic risk management. Financial Leverage does not show consistent statistical significance, implying that, once firm-level differences are accounted for through fixed effects, capital-structure choices do not independently affect performance in this sample. Similarly, Sector Risk is not statistically significant, suggesting that industry-level volatility does not materially influence the relationship between incentive structures and firm outcomes when macroeconomic shocks are controlled for using year fixed effects. Overall, these findings support the main argument that internal governance and incentive structures are more immediate determinants of performance than capital structure or industry conditions.

The within R^2 values, ranging from 0.091 to 0.121, are modest in absolute terms. However, this magnitude is consistent with the empirical regularity observed in corporate finance research, where models of market-based performance with firm and year fixed effects typically yield low explanatory power due to the substantial role of idiosyncratic and stochastic factors in determining market valuations (see also: Wooldridge, 2010).

5 Discussion and Conclusions

This study asked how the joint interaction between executive risk appetite and corporate governance quality shapes the relationship between PFP and firm performance. Our findings indicate that this relationship is neither unconditionally positive nor uniformly negative, rather, it is contingent on the simultaneous configuration of the agent's risk disposition and the firm's institutional oversight. Specifically, strong governance channels the executive's risk appetite so that PFP incentives translate into sustainable value creation, a dynamic we label the "Prudent Risk-Taking Equilibrium."

Prior literature has examined the moderating effects of incentive contracts (Aguiar & Pimentel, 2017; Araujo & Ribeiro, 2017; DuoRu et al., 2021; Ellig, 2022; Jensen & Murphy, 1990; Morrison et al., 2024), executive risk appetite (Armstrong et al., 2019; Gomez-Mejia & Wiseman, 1997; Peng et al., 2026; Wiseman & Gomez-Mejia, 1998), and governance mechanisms (Brandão, 2019; Correia et al., 2011; González & García-Meca, 2014; Rutherford et al., 2007; Shleifer & Vishny, 1997) in isolation, leaving unresolved the question of how these forces operate when they act simultaneously on the incentive-performance link. By modeling their joint, non-additive influence, our results address this gap and reframe the PFP debate from whether incentives work to the configurations of agent disposition and institutional oversight under which they generate value.

Our results show that high executive risk appetite is associated with greater sensitivity of firm performance to short-term PFP, in line with the Behavioral Agency Model, which suggests that agents interpret incentive signals through cognitive biases (Gomez-Mejia & Wiseman, 1997; Pepper & Gore, 2015; Wiseman & Gomez-Mejia, 1998). This finding suggests that executives with higher risk appetite may interpret short-term bonuses as enablers of aggressive strategies, consistent with a stronger PFP-performance link (Gao et al., 2023). In contrast, high risk appetite is associated with a weaker link for long-term PFP because the volatility of high-risk strategies conflicts with the stability required for long-term value, consistent with goal incongruence (Christensen et al., 2009).

Regarding corporate governance, the data support the substitution hypothesis for short-term incentives and the complementarity hypothesis for long-term incentives. Governance-based monitoring appears to substitute for performance-based incentives (Rutherford et al., 2007), consistent with attenuated short-term PFP effects, possibly by reducing managerial myopia and earnings management (see also Brandão, 2019; Dechow et al., 2010; González & García-Meca, 2014). At the same time, effective governance is associated with a stronger relationship between long-term PFP and performance, most likely by increasing the credibility of deferred contracts, reducing executives' discounting of future rewards, and encouraging a longer-term perspective (Bebchuk & Fried, 2005; Larraza-Kintana et al., 2007).

The primary contribution of this study, however, lies in its analysis of the three-way interaction. The significant coefficient on the joint interaction indicates that governance mechanisms appear to channel risk-taking rather than suppress it. In the presence of strong governance, the negative effects associated with a high-risk executive appear attenuated, allowing the aggressive pursuit of returns to be directed toward value-creating activities (Armstrong et al., 2019; Jin, 2024; Peng et al., 2026). Our "Prudent Risk-Taking Equilibrium" thus offers a nuanced perspective on the PFP-performance relationship. From Bedford's (2020) perspective, corporate governance operates as a compensating mechanism that appears to attenuate the "instigating effects" of excessive risk-taking while preserving its upside potential.

Taken together, these results carry a broader theoretical implication. The consistent significance of the three-way interaction across both dependent variables and both PFP horizons suggests that the mixed evidence documented in the PFP literature (Beuren et al., 2014; Cohen et al., 2023; Rousseau et al., 2023) may be partly attributable to model underspecification rather than to the inherent inefficacy of incentive contracts. When agent-level dispositions and institutional-level constraints are omitted from the model, the estimated effect of PFP on performance captures an average across heterogeneous configurations, some value-creating and others value-destroying, which produces attenuated or null coefficients. Our framework suggests that the relevant empirical question is not whether a given PFP structure improves performance on average, but whether the organizational configuration in which it operates enables or undermines its intended alignment function.

These findings have implications for the design of executive compensation. For practitioners and

risk appetite in a weak-governance environment may exacerbate agency costs rather than mitigate them (Velte, 2024).

Considering the Brazilian context, governance appears to be a prerequisite for high-powered incentives to function effectively without leading to wealth expropriation (see also Bebchuk & Fried, 2005; Brandão, 2019; Correia et al., 2011). For regulators and policymakers, the study validates the relevance of the ICBGC's "comply-or-explain" framework, indicating that adherence to governance best practices has a measurable economic impact on managerial incentive effectiveness.

It is important to acknowledge that the proposed "Prudent Risk-Taking Equilibrium" is unlikely to hold uniformly across all organizational configurations. In firms with emerging governance mechanisms, where monitoring mechanisms are present but insufficiently robust, the channeling effect may be too weak to discipline aggressive risk-taking effectively. Similarly, in highly regulated industries where governance structures are largely externally imposed, the marginal contribution of voluntary governance practices may reach a glass ceiling, limiting their capacity to complement incentive systems. These boundary conditions suggest that the equilibrium documented in this study is best understood as a contingent phenomenon rather than a universal prescription.

An alternative view of our results should also be considered. The positive three-way interaction might also indicate an inherent managerial quality, in which companies displaying strong governance, risk-tolerant leadership, and effective incentive schemes are generally better managed across various dimensions. In this interpretation, what we see as a mechanism might instead be an unobserved managerial trait that simultaneously influences governance adoption, risk attitudes, and performance. Although we cannot entirely dismiss this alternative explanation, using firm fixed effects helps address it by accounting for stable firm traits, and using lagged PFP reduces the likelihood that current performance influences both incentives and the observed interaction. Future studies using external changes in governance or incentives would better clarify which explanation is more accurate.

This study is subject to limitations inherent to archival research. First, we employ a multidimensional, accounting-based measure of Executive Risk Appetite (Jin, 2024; Peng et al., 2026) that serves as a proxy for latent cognitive traits within Upper Echelons Theory (Hambrick, 2007; Hambrick & Mason, 1984). Future research could employ psychometric surveys or experimental designs

to directly validate these behavioral mechanisms. Such individual-level measures would also enable multilevel modeling specifications, allowing researchers to separate executive-level cognitive traits from firm-level structural determinants of risk-taking.

Second, although we employed fixed effects and lagged specifications to address the dynamic interrelationships among performance, governance, and compensation (Coles et al., 2006), future research could further refine the identification of these causal mechanisms by examining exogenous shocks or regulatory shifts. Third, by restricting the sample to firms with active PFP plans, our findings address how the structure of variable compensation affects performance rather than whether the adoption of PFP itself matters. Firms that choose to implement variable pay may systematically differ from those that do not, and this self-selection constrains the generalizability of our results to the broader population of listed firms. Finally, the focus on the Brazilian market, while offering a unique institutional setting, limits the generalizability of the findings to markets with dispersed ownership structures. Comparative studies across different governance regimes would be valuable for testing the universality of the "Prudent Risk-Taking Equilibrium."

Finally, future research should broaden the scope beyond formal governance and financial incentives to examine the proposed "Prudent Risk-Taking Equilibrium" within a broader management control systems framework. For instance, scholars could investigate how the psychological and informational mechanisms explored by Santos et al. (2022) and Friedrich et al. (2023), such as information sharing and psychological empowerment, might mediate the interaction between executive risk appetite and governance constraints. Additionally, given Mucci et al.'s (2023) findings on budgetary trade-offs, further research could examine how the tension between forecasting and performance-evaluation functions affects the efficacy of the incentive structures and risk-taking behaviors documented in this study.

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