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The "Control Paradox" in High-Crime Environments: Empirical Evidence from a Large-Scale Analysis on Italian SMEs

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Received: 15 May 2025
Accepted: 09 January 2026

Funding: This study received funding from the European Union - Next-GenerationEU - National Recovery and Resilience Plan (NRRP) – MISSION 4 COMPONENT C2, INVESTMENT 1.1, CALL PRIN 2022 PNRR D.D. 1409 14/09(2022, entitled "The effect of organized crime on firm technical efficiency and R&D investments" - ID P20227XY5N_003, CUP C53D23008900001 (University "Dante Alighieri" of Reggio Calabria - Italy) – ID P20227XY5N, CUP MASTER J53D23016850001 (University of Messina).

Abstract
This study examines a "control paradox" through the lens of institutionalized agency theory: under severe institutional decay, firms may rationally weaken, rather than strengthen, governance as a strategic adaptation. Using firm-level data on 13,084 Italian SMEs matched with a provincial organized crime index, we run robust regressions linking criminal exposure to a composite measure of the size of SMEs' two key internal boards (Board of Directors and Board of Statutory Auditors). We find that higher organized crime intensity is associated with smaller administrative and control boards, even after accounting for firm and environmental determinants. Our findings contribute to theory by demonstrating the boundary conditions of traditional agency and risk-based governance models, showing how institutional decay systematically reshapes agents' incentives and thereby the role of internal governance as an adaptive, agentic response.

Keywords: Organized Crime, Internal Control Systems, Corporate Governance, Control paradox, Institutionalized Agency Theory, Italian SMEs

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Management Control (ISSN 2239-0391, ISSNe 2239-4397), 2026, 1
Doi: 10.3280/MACO2026-001008

1. Introduction

The presence of organized crime constitutes a profound environmental contingency that challenges core tenets of corporate governance and risk management. When criminal organizations erode state power and penetrate the legal economy, they create a systemic risk environment (Melnychuk, 2023) that alters the fundamental assumptions upon which companies design their control structures. Beyond direct threats like extortion and coercion, the risk of criminal infiltration into a company's ownership and management (Ravenda et al., 2018; Riccardi et al., 2016) poses a direct challenge to its governance integrity. This raises a critical question: how do companies adapt their internal control systems when the external institutional framework designed to protect them is compromised?

While an extensive body of literature examines the impact of organized crime on company performance and innovation, and a separate stream explores corporate strategies to *prevent* criminal infiltration (Cincimino et al., 2025), a significant gap remains. The question of how the *ambient* presence of organized crime shapes the governance structures of *all* companies within a territory – whether infiltrated or not – remains largely unexplored. Conventional risk management and traditional agency theory would predict that rational agents (managers), when faced with heightened environmental risks, should strengthen formal controls to safeguard assets and align with principals' interests. This study challenges that core assumption by investigating a counterintuitive alternative: a "control paradox." We posit that in environments of severe institutional decay, the weakening of oversight mechanisms is not an anomaly but a rational, agentic choice in response to a redefined risk landscape.

This paper addresses this gap by providing the first large-scale empirical evidence of the relationship between organized crime exposure and the size of the Board of Directors and Board of Statutory Auditors (which are the two main administrative and control boards in SMEs). Using a sample of 13,084 Italian Small and Medium-sized Enterprises (SMEs), we find a robust negative correlation: companies in territorial contexts with higher organized crime intensity exhibit significantly less structurally elaborate control systems. We offer a theoretical explanation for this "control paradox" through an *institutionalized agency theory*. This perspective moves beyond treating agency and institutional theories as separate, arguing instead that the institutional environment "socially constructs" the interests and perceived rational choices of agents (Aguilera and Jackson 2003). In a dysfunctional ecosystem where a perverse institutional logic created by organized crime

competes with the formal logic of the State, the costs and benefits of strong governance are inverted. We argue that weakening controls becomes a strategic survival mechanism, an active adaptation to local “rules of the game” rather than passive institutional isomorphism (Seal 2006).

Our study makes several contributions. Empirically, we document a new stylized fact about the corporate consequences of crime. Theoretically, we extend agency theory by demonstrating its boundary conditions and supporting an institutionalized view of agency, showing how external institutional decay systematically reshapes the calculations of rational agents, with effects on internal corporate governance. From a policy perspective, our findings underscore that combating organized crime is a critical economic policy for fostering robust corporate governance, a conclusion supported by evidence that anti-mafia actions can revitalize local economies.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature and develops our hypotheses. Section 3 details the research design, data, and methodology. Section 4 presents the empirical results. Finally, Section 5 discusses the findings, outlines the theoretical and practical implications, and concludes.

2. Literature review and hypotheses development

The economic environment of a company consists of the variables that significantly influence its structure, behavior, and results (Airoldi et al. 1994). Therefore, studying the effects of these variables on the companies is a central topic for economic-business research.

The presence of organized crime in the territorial context is an environmental variable attracting the attention of scholars, particularly in countries where crime is widespread. That is because it determines several effects and risks for companies. In the field of studies that have explored the effects of organized crime on companies, the literature has mainly examined the potential impact on the financial and innovation performance (Calamunci and Drago, 2020; Huang and Yuan, 2021; Migliardo and Nicolò, 2025; Riccardi et al., 2016; Saridakis et al., 2015), whether companies’ connections with organized crime result in abnormal values of balance sheet data (Bianchi et al., 2022; De Simoni, 2022; Fabrizi et al., 2017), and whether mafia-infiltrated companies are characterized by a lower quality of financial reporting or a greater adoption of earnings management practices (Ravenda et al., 2018; Ruiz, 2016; Simamora, 2022).

The geographic distribution of crime, observed to be a risk factor for business activities, is a variable that can influence companies' choices of their governance structure because, as is well known, governance structure is a key variable in the control of risks (including territorial risks, such as security, presence of local rules, legal protection, etc.). Although it is easy to hypothesize the existence of possible relationships between the presence of crime and corporate governance structures, the literature that has examined the two phenomena is predominantly made up of studies that tend to either treat them separately or focus on broader socioeconomic impacts that may imply effects on corporate governance structures. Only a few embryonic studies, which can be included in the emerging strand of Risk-Based Governance Adaptation, refer more directly to the relationship between the risk of organized crime and the structure or adaptation of corporate governance to identify what mechanisms companies have (or can have) to prevent criminal infiltration through structural and supervisory mechanisms. In other cases, they study how the presence of board members linked to criminal organizations is associated with certain financial performance that may suggest a distorted use of the company for criminal purposes. In this limited field of study, Nestor (2004) analyzes the role of ethical governance, whistleblowing, and audit committees in preventing crimes such as money laundering, tax fraud, and corruption. Alessandri et al. (2008) propose a risk-based anti-mafia governance model to prevent criminal infiltration through structural and supervisory mechanisms (so-called "Vigna Code"). Llarena (2022), with a study focused on the pharmaceutical sector, explores how companies can be involved in systemic organized crime, suggesting the need for more regulated governance. Bianchi et al. (2022) highlight that the presence of board members linked to criminal organizations is associated with lower profitability and cash reserves, suggesting a distorted use of the enterprise for illicit purposes.

To the best of our knowledge, however, no literature directly examines the relationship between the geographic presence of crime and corporate governance structure, i.e., that aims to understand whether and how the level of criminal presence in a territorial context is related to the choices of the governance structure of companies operating in the same context. This paper contributes to filling this gap by proposing an empirical analysis that, concerning the Italian context, examines how the control structure of SMEs varies as a function of the presence of organized crime.

2.1 Organized Crime and the "Control Paradox"

The extant literature has yet to directly examine how the ambient presence

of organized crime influences corporate control structures. While studies confirm that crime negatively impacts company performance and that governance mechanisms can be used to prevent infiltration (Cincimino et al., 2025), the adaptive response of the broader population of companies remains an open question.

a) The conventional paradigm and the emergence of a paradox: environmental risk and control structures

Risk-based corporate governance theory posits a direct and positive relationship between the perception of environmental threats and the strengthening of internal control systems. In stable institutional contexts, characterized by a robust rule of law, firms rationally respond to increasing risks by investing in more robust control mechanisms to protect assets and align agent interests with those of principals. This logic has been empirically confirmed. For instance, in their study on the impact of Sarbanes-Oxley regulation, Li, Lim, and Wang (2007) demonstrate that companies exposed to higher information technology-related risks tend to adopt stronger governance structures. This conventional paradigm, which posits formal controls as an effective defensive response to risk, serves as our theoretical starting point and the null hypothesis against which our study is positioned. However, this model assumes an environment in which formal institutions operate correctly and control mechanisms are considered effective. What happens when these conditions are absent? In territories characterized by a significant presence of organized crime, the institutional framework itself is compromised, creating an environment of systemic risk that challenges the assumptions of conventional theory. In such contexts, we propose a competing hypothesis grounded in the concept of a “control paradox”. This perspective suggests that in environments where formal institutions are severely eroded by criminal power, strengthening formal internal controls may be a futile or even counterproductive strategy.

b) The micro-foundations of the paradox: how organized crime subverts governance rationality

To understand why firms might choose to weaken controls, it is essential to analyze the micro-foundations of corporate behavior in high-crime environments.

The economic literature on organized crime provides crucial insights into how mafia infiltration alters firms’ operational logic. Firstly, criminal organizations do not infiltrate randomly; instead, they strategically select

their targets. Mirenda, Mocetti, and Rizzica (2022) demonstrate that the mafia tends to target firms to use them as vehicles for money laundering or rent extraction, leading to a rapid deterioration of their financial situation and, often, their liquidation. For an infiltrated firm, a robust and transparent control system is not an asset but a direct impediment to pursuing illicit objectives. Opacity becomes a functional necessity. Secondly, even when operating in the legal market, infiltrated firms adopt practices that require weak controls. Ravenda et al. (2020) study on public procurement illustrates how mafia-linked firms utilize collusive schemes, submitting anomalously low bids to win contracts, only to recover margins through subsequent cost overruns during contract execution. This business model relies on the ability to manipulate formal procedures, an activity that would be hindered by rigorous internal monitoring. Finally, these practices create negative externalities for the entire entrepreneurial ecosystem. Finally, Migliardo and Nicolò (2025) find that the environmental presence of organized crime negatively impacts the profitability of all firms. This occurs because crime distorts competition, increases operating costs (e.g., “protection costs”), and erodes trust in institutions and the market. In such an environment, the expected return on investments in strengthening governance decreases. The rules of the game are altered: success may depend more on the ability to navigate informal and illicit dynamics than on operational efficiency and sound governance.

On a theoretical level, the control paradox can be theorized through the lens of an institutionalized agency theory (Aguilera and Jackson 2003; Seal 2006). This perspective challenges the “under-socialized” view of the manager as a universally rational agent (Seal 2006) and posits instead that an agent's interests and perceived rational choices are “socially constructed” by the surrounding institutional environment (Aguilera and Jackson 2003). In territories dominated by organized crime, a perverse institutional logic emerges, competing with the formal logic of the State. The manager's choice is to navigate between the logic of the State (based on legality, transparency, and formal contracts) and the logic of organized crime (based on coercion, opacity, and the informal application of rules). Within this context, the conventional costs and benefits of strong governance are inverted. Strong controls may fail to deter criminals while simultaneously signaling resistance, thereby increasing risk. Conversely, weaker, more opaque governance may become a rational survival strategy, aligning the firm with local “rules of the game” to ensure operational continuity. Therefore, the weakening of controls is not merely passive isomorphism, but an active, agentic response to a fundamentally altered agency landscape. For infiltrated

companies, this is a necessity.[1] For legitimate companies, it can be a rational choice to reduce perceived unnecessary costs and avoid signaling “non-compliance” with the informal rules of the local area. This leads to our research hypothesis:

- **HP** - *The intensity of organized crime in a geographic context is negatively associated with the size of companies' internal administrative and control boards.*

We highlight that the plausibility of the “control paradox” is further strengthened by the specific characteristics of the Italian governance system, particularly concerning the role and perception of the Board of Statutory Auditors, one of the two components of our dependent variable. As observed, in strong institutional contexts, firms tend to strengthen controls in the face of risk. In Italy, however, the choice to weaken them is made more rational by the historical weakness of this specific control body. A historical-institutional analysis by Jones and Melis (2021) argues that the Board of Statutory Auditors has primarily served a role of “reassurance” and “legitimation” for the ruling class, rather than a substantial and effective monitoring function. This thesis finds solid empirical support in the research of Mariani, Tettamanzi, and Corno (2010). Analyzing a sample of Italian companies, these authors compared the quality of accounting audits performed by the Board of Statutory Auditors with those conducted by external auditors. Using discretionary accruals as a proxy for earnings management (and thus, inversely, for control quality), they found that financial statements audited by the Board of Statutory Auditors exhibited lower quality compared to those subjected to external audits. The combined evidence from these studies provides a useful basis for our hypothesis. If one of the primary control bodies is already perceived and measured as weak or merely symbolic, the decision not to invest in its enlargement (or even to maintain it at a minimal level) in the face of a threat like organized crime becomes a strategically less costly and more rational choice. This pre-existing institutional weakness acts as an enabling condition that amplifies the probability of the control paradox manifesting.

To operationalize the size of companies’ internal administrative and control boards, we use a composite indicator (St_Contr, see section 3.2) which is based on the numerical size of the Board of Directors and the Board

[1] Furthermore, this phenomenon could be related to the infiltration of companies: a higher prevalence of organized crime likely corresponds to a larger number of criminally infiltrated or controlled companies, which deliberately maintain weak and opaque governance to facilitate illicit activities.

of Statutory Auditors. We acknowledge that the size of these boards serves as a proxy for broader governance quality. However, in the specific context of unlisted Italian SMEs, this metric functions as a particularly salient and objective indicator of a firm's investment in formal control mechanisms for several reasons. Firstly, unlike large listed companies, granular data on governance processes (e.g., committee composition, meeting frequency, director competencies, etc.) are not widely available for our sample. The size of governance boards is one of the most consistent and comparable structural variables available to us. Secondly, for SMEs, expanding these boards is a deliberate and costly commitment to increased formality and oversight. It is an agentic choice signaling the company's strategic orientation towards more complex governance structures. Therefore, although it is not an indicator of functional effectiveness, the size of the board and statutory auditors serves as a reliable proxy for a company's preference for investing in formal governance structures. This approach is consistent with the findings of foundational studies of corporate governance that have used board size as a key variable in exploring the determinants of governance structure (Boone et al., 2007; Linck et al., 2008).

3. Research method

3.1 Sample

The sample for this study comprises 13,084 active Italian small, non-listed companies exclusively structured as limited liability companies (“Società a responsabilità limitata” - S.r.l.), for the year 2023, with data sourced from the AIDA database. We focus on a strategically defined segment of small and medium-sized enterprises (SMEs), selected using the following criteria: (i) number of employees between 11 and 50; (ii) annual turnover between €2 million and €10 million; and (iii) total assets between €2 million and €10 million. It is important to emphasize that the dimensional criteria adopted for sample selection are in line with the official definition of a “small enterprise” according to European Commission Recommendation 2003/361/EC. This consistency ensures not only the strategic relevance of the sample but also the comparability and relevance of the results in the broader context of the European debate on SME policies. Moreover, this sample is particularly well-suited for our research question for two reasons. First, unlike large, listed corporations subject to stringent and standardized governance mandates, these SMEs possess greater discretionary latitude in

configuring their control structures. This flexibility provides the necessary cross-sectional variation in our dependent variable, allowing us to empirically assess the impact of environmental factors like organized crime. Second, their deep embeddedness in local economies makes them highly exposed to territorial dynamics and less able to diversify geographic risk.

Table 1 presents the geographic distribution of the sample by region. The wide dispersion across Italy, encompassing regions with vastly different institutional and economic characteristics, is a key strength of our research design. This national heterogeneity ensures significant variation in our primary independent variable (organized crime presence) and allows us to more robustly isolate its effect from other regional factors, thereby mitigating potential selection bias.

Table 1 – Sample distribution by region

Region	Number of	Region	Number of
Abruzzo	294	Molise	41
Basilicata	67	Piemonte	939
Calabria	165	Puglia	466
Campania	859	Sardegna	148
Emilia-Romagna	1,136	Sicilia	430
Friuli-Venezia	375	Toscana	841
Lazio	849	Trentino-Alto	312
Liguria	224	Umbria	182
Lombardia	3,568	Valle d’Aosta	20
Marche	469	Veneto	1,699

Source: Aida, Authors’ elaboration

3.2 Methodology and variables

Our analysis is conducted using a robust regression approach, which applies iteratively reweighted least squares to assign a weight to each data point. This method is designed to mitigate the impact of violations of classical assumptions by the underlying data-generating process on the regression estimates. Consequently, it is less sensitive to outliers than standard linear regression. The model is specified as follows:

$$St\_Contr_i = \alpha + \beta\ CrimeInd\_prov_i + \gamma\ Controls_i + \varepsilon_i \quad (1)$$

Below, we specify the variables in our model (Equation 1):

St_Contr$_i$ represents a composite indicator synthesizing the size of companies' internal administrative and control boards, estimated using the Multi-Directional Benefit of the Doubt (MDBoD) approach (Fusco 2023), an extension of the standard Benefit of the Doubt (BoD) method (Cherchye et al. 2007). The indicator is constructed by considering two governance-related variables: the size of the Board of Directors and the size of the Board of Statutory Auditors. Before the estimation of the composite index, these two variables are normalized using the min-max normalization technique, which rescales values to the [0, 1] range, thereby ensuring comparability. The min-max normalization is specified as follows:

$$\tilde{I}_k = \frac{I_k - \min(I_k)}{\max(I_k) - \min(I_k)}, k = 1, \dots, K. \quad (2)$$

This methodology is based on the Data Envelopment Analysis (DEA) framework, which benchmarks each company's performance against a constructed frontier of "best practices". The main advantages of the MDBoD approach include the elimination of implicit compensability[2] among individual indicators and the provision of performance benchmarks for each Decision-Making Unit (DMU). The first step in implementing the MDBoD methodology is to solve the following optimization problem:

$$\max_{\tilde{y}_{j,k},\alpha_1,\dots,\alpha_N} \tilde{y}_{j,k} \quad \textit{subject to} \quad \begin{cases} \tilde{y}_{j,k} \le \sum_{i=1}^{N} \alpha_i y_{i,k}, & \forall k, \\ y_{j,h} \le \sum_{i=1}^{N} \alpha_i y_{i,h}, & \forall h \ne k, \\ \alpha_i \ge 0, & \forall i, \end{cases} \quad (3)$$

For each DMU j, the directional vector is defined as:

$$\boldsymbol{d}_j = \left(\tilde{y}_{j,1} - y_{j,1}, \tilde{y}_{j,2} - y_{j,2}, \dots, \tilde{y}_{j,K} - y_{j,K}\right), \quad (4)$$

Where K denotes the total number of individual indicators. For each DMU j, it is essential to obtain the benchmark by solving the following optimization problem that determines the proportion β required to reach the frontier:

[2] In this way, it is possible to reduce the risk of compensability and to assign an endogenous and consistent weight both to Board of Directors size and to the presence and size of the Board of Statutory Auditors. As a result, even less common variables can contribute to the analysis without being overshadowed by the more frequent dimensions.

$$\max_{\beta,\alpha_1,\ldots,\alpha_N} \beta \text{ subject to } \begin{cases} y_{j,k} + \beta d_{j,k} \leq \sum_{i=1}^{N} \alpha_i y_{i,k}, & \forall k, \\ \alpha_i \geq 0, & \forall i, \end{cases} \quad (5)$$

Finally, the composite indicator is obtained as follows:

$$CI_j = 1 - \frac{\beta^* \sum_{k=1}^{K} d_{j,k}}{\sum_{k=1}^{K} \left(y_{j,k} + \beta^* d_{j,k} \right)} \quad (6)$$

CrimeInd_prov$_i$ is our key explanatory variable and captures the intensity of organized crime, estimated using official data supplied by the Italian Ministry of Interior at the provincial level, incorporating offenses that facilitate the identification of organized crime networks. It has been calculated based on the “robust” version of the MDBoD approach by Forgione et al. (2024) and represents the provincial adaptation of the municipal-level indicator developed by Forgione and Migliardo (2025). The choice of the RMDBoD was motivated by the relevance of both avoiding subjective directional choices and addressing the pronounced sensitivity to outliers, particularly significant in crime datasets.

Controls$_i$ is a vector of control variables. To robustly isolate the effect of organized crime (HP), our model (Equation 1) includes a vector of control variables identified by corporate governance literature as fundamental determinants of governance structure. Their inclusion is essential to mitigate the risk of omitted variable bias and provide the correct specification of the model, ensuring that the effect of our key variable does not capture spurious correlations due to known firm-level or environmental characteristics. Specifically, we include the following control variables:

- **Size**, measured by the number of employees. Company size is perhaps the most robustly identified determinant of governance structure (Agus Budiyanto and Hudiwinarsih, 2016). Literature, including *Resource Dependence Theory*, suggests that larger and more complex companies require larger governance bodies to manage greater operational and strategic complexity and to access a broader pool of resources (Boone et al., 2007; Certo et al., 2001; Hillman et al., 2009; Ilaboya et al., 2016; Piot, 2004; Raheja, 2005). However, as highlighted in the literature, the relationship between company size and board size is far more articulated

and complex. Empirical studies and meta-analyses (Ahrens et al., 2025) have shown that while a positive correlation exists, the impact on performance is ambiguous. In particular, in the SME context, excessively large boards may suffer from decision-making inefficiencies or be negatively associated with performance (Bennett and Robson, 2004). Furthermore, in the context of S.r.l. companies, an increase in board members may not automatically translate into an increase in expertise. Given its undisputed, albeit complex, influence on governance structure, we include size as a control variable to ensure our effect of interest (crime) is not simply capturing differences related to company scale. Although the literature on complexity also uses more direct proxies such as diversification or internationalization (Assunção et al., 2017), in our sample of unlisted SMEs size remains the most robust and available indicator to capture operational complexity.

- **Company Age**. Several empirical studies have shown that, compared to "young firms", mature companies adopt larger boards and articulate internal committees to face increasing complexity and stakeholder pressures (Coles et al., 2008; Lehn et al., 2009; Linck et al., 2008). Further evidence indicates that the growth in size associated with age requires a richer representation of resources and expertise on the board (Boone et al., 2007). This is consistent with corporate life cycle theories, which predict that mature companies develop more sophisticated control systems to manage established operations (Ajala et al., 2023). Prior research on Italian SMEs supports this view, showing that longevity is associated with more developed control structures (Cortesi et al., 2009; Mariani et al., 2010).
- **Territorial Prosperity**. The institutional literature has shown that richer and more developed economic environments exert regulatory and competitive pressures towards high standards of governance (Porta et al., 1998). Similarly, research on internal control systems shows that territorial prosperity is reflected in more articulated governance structures and greater investment in audit mechanisms (Cortesi et al., 2009; Piot, 2004). Furthermore, in the Italian context, empirical evidence shows that the effectiveness of internal control systems and corporate performance is linked to the socio-institutional quality of the territory (Cortesi et al., 2009; Fratini and Tettamanzi, 2015). Therefore, the territorial prosperity captures a countervailing institutional force to organized crime: while crime may exert a negative pressure on governance, regional prosperity is expected to exert a positive pressure. Thus, we use territorial prosperity,

as proxied by the natural logarithm of GDP per capita, as an additional control variable.

- **Generalized social trust**. In addition to serving as an indicator of the overall quality of the institutional environment, trust has been shown to exert a significant influence on the improvement of governance systems. (Dak-Adzaklo and Wong, 2024). Furthermore, organized crime thrives where state institutions are weak, corruption is systemic, and the rule of law is eroded (Mocetti and Rizzica, 2024). In contexts where trust levels are found to be lower, the agency theory would predict greater investment in formal internal controls to mitigate higher risks. Therefore, by including this control variable, we can test a more stringent version of our “control paradox” hypothesis: Does the presence of organized crime exert a negative influence on governance powerful enough to overpower the positive counter-pressure for formal controls created by a low-trust environment? We use “generalized trust” as reported by the Italian National Institute of Statistics (ISTAT), referring to the percentage of individuals aged 14 and over who believe that most people can be trusted, out of the total population in the same age group.
- **Leverage**. While traditional agency theory suggests a disciplinary role for debt, where creditors impose monitoring on firms, this effect may be attenuated in weak institutional contexts where creditors themselves face high uncertainty and monitoring costs (John et al., 2008). An alternative perspective, more aligned with our institutionalized agency framework, posits that for SMEs in high-risk environments, high leverage is primarily a signal of financial distress. Under such pressure, agents focused on survival may rationally view investments in formal governance as a discretionary cost to be minimized to preserve critical liquidity (Jensen, 1986). Therefore, we include leverage to control whether financial distress pressures – a key characteristic of companies in degraded economic contexts – are a significant driver of the decision to adopt weaker control structures.
- **Profitability**. Firm profitability, measured by Return on Assets (ROA), is included to control for the availability of “reserve resources”. The traditional theory predicts that the most profitable companies can afford to invest more in sophisticated governance systems (Waddock and Graves 1997). However, in an environment characterized by institutional weaknesses and high risk, the strategic use of profits may be distorted. Managers may prioritize creating liquidity reserves or acquiring rents rather than reinvesting in formal structures whose effectiveness is compromised by the external context. Therefore, although the expected sign is positive, we acknowledge the possibility that in our specific research context, the influence of profitability on formal governance

choices may be mitigated. The inclusion of ROA alongside Leverage allows us to contrast the effect of resource availability (ROA) with that of financial constraint (Leverage).

- **Short-term versus long-term survival orientation**. To consider the firm's strategic orientation towards long-term value creation, we control for innovation intensity. R&D investment, particularly when leading to legally codified assets like patents, represents a significant and irreversible commitment. According to real options theory, such investments are less likely in highly uncertain environments (Dixit and Pindyck, 1994). However, firms that pursue formal innovation in high-crime contexts may represent a distinct strategic type. In the absence of reliable external protection for their intellectual property, these companies may be forced to develop a more elaborate internal control system as a private substitute for a weak public presence. We therefore expect that greater formal innovation intensity, particularly through patents, will be associated with stronger control systems, bucking general environmental pressures. We proxy the intensity of R&D expenses by considering both firm-level R&D expenditure (*R&D*) and patent rights (*Patents*), normalized by the total value of production.
- **Ownership structure**. We also control for ownership structure. Agency theory predicts different governance challenges depending on ownership concentration. In firms with dispersed ownership, the primary conflict is between managers and shareholders, whereas in firms with a dominant owner, the conflict shifts to between the controlling blockholder and minority shareholders (Shleifer and Vishny, 1997). This latter conflict is particularly pronounced in environments with weak legal protection for minority rights (Porta et al., 1998). We therefore expect that firms with a single dominant shareholder will exhibit a weaker size of companies' internal administrative and control boards. However, we also explore a more nuanced configuration: "contested dominance", where a majority owner coexists with other significant minority blockholders. In such cases, particularly where external legal recourse is unreliable, formal internal governance mechanisms can serve as a crucial substitute for the rule of law, providing a platform for monitoring and mediating potential conflicts among powerful shareholder factions. This allows us to verify whether internal governance is used as a private conflict resolution mechanism in the face of external institutional failure.[3]

[3] As a control variable, we use the Independence Indicator provided by AIDA, which measures the independence of the board from shareholders. This is a multinomial variable

Finally, we include the macro sector dummies for controlling some specific patterns in internal control systems, according to the ATECO code classification made by the Bank of Italy for the Survey of Industrial and Service Firms.

Table 2 presents the summary statistics for all variables. Notably, the mean of our dependent variable, “St_Contr”, is 0.11, with a standard deviation of 0.11, indicating substantial variation in control structures and a general tendency toward weaker governance within the sample. The “CrimeInd_prov” variable also shows considerable dispersion, reflecting the significant geographic disparities in criminal presence across Italy. Companies in the sample have an average age of about 25 years and an average size of 22 employees, confirming the focus of our research on consolidated SMEs.

Table 2 – Summary statistics

Variable	No. Observations	Mean	Standard Deviation	Min	Max
Board of Directors	13,084	2.0412	1.3260	0	15
Board of Statutory Auditors	13,084	0.1537	0.6595	0	5
St_Contr	13,084	0.1139	0.1089	0	1
CrimeInd_prov	13,084	0.3631	0.2293	0.0568	1
Size	13,084	22.1328	9.9569	11	50
Age	13,084	25.3687	15.0896	0	115
GDP	13,084	10.5533	0.2548	9.9546	10.8787
Trust	13,084	26.1155	3.6797	12.1000	37.1000
ROA	13,084	0.0895	0.1174	-2.5868	1.0832
Leverage	13,084	0.0113	0.0798	-4.7822	4.9134
R&D	13,084	0.0029	0.0254	0	1.1210
Patents	13,084	0.0028	0.0225	0	0.9915
Independence Indicator	13,084	4.7925	1.6263	1	7

consisting of seven categories, defined as follows: “A+”, companies with six or more known shareholders, none holding more than 24.9% of the shares; “A-“, companies with one to three known shareholders, none holding more than 24.9% of the shares; “B+”, companies with six or more known shareholders, none holding more than 49.9%, but at least one holding more than 24.9%; “C+”, companies with six or more shareholders, with one holding more than 49.9% of the shares; “C”, companies with four or five shareholders, with one holding more than 49.9% of the shares; “D”, companies with a single registered shareholder holding more than 50% of the shares; “U”, degree of independence unknown. According to AIDA’s classification, companies labeled as “A” are considered independent, while the level of independence decreases progressively from “A” to “U,” where “U” denotes companies that do not fall into any of the previous categories. It is important to specify how the variable has been coded. The Independence Indicator is a categorical variable coded as follows: 1 = “A+”; 2 = “A–“; 3 = “B+”; 4 = “C”; 5 = “C+”; 6 = “D”; 7 = “U”.

Table 3 reports the Pearson correlation matrix. As expected, "CrimeInd_prov" is strongly and negatively correlated with both "Trust" (-0.45) and "GDP" (-0.52), confirming that organized crime is more prevalent in contexts with lower social capital and economic prosperity. The dependent variable, "St_Contr", shows a preliminary negative correlation with the crime index (-0.07) and positive correlations with Size (0.11), Age (0.12), and GDP (0.12), consistent with our hypotheses.

Table 3 – Correlation matrix

	St_Contr	*CrimeInd_prov*	*Trust*	*ROA*	*Leverage*	*Size*	*Age*	*R&D*	*Patents*	*GDP*	*Independence Indicator*
St_Contr	1.0000										
CrimeInd_prov	-0.0681	1.0000									
Trust	0.0829	**-0.4503**	1.0000								
ROA	-0.0497	0.0099	-0.0178	1.0000							
Leverage	-0.0264	0.0068	-0.0038	-0.0499	1.0000						
Size	0.1096	0.0060	-0.0058	-0.0946	0.0162	1.0000					
Age	0.1242	-0.1067	0.0997	-0.0633	-0.0243	0.0151	1.0000				
R&D	0.0045	0.0022	0.0131	-0.0772	0.0261	0.0465	-0.0238	1.0000			
Patents	0.0390	0.0058	0.0137	-0.0371	0.0177	0.0391	-0.0398	0.0578	1.0000		
GDP	0.1191	**-0.5248**	**0.6774**	-0.0231	-0.0008	-0.0245	0.1334	0.0080	0.0257	1.0000	
Independence Indicator	-0.0711	-0.0086	0.0381	-0.0006	0.0130	0.0258	-0.1637	0.0158	0.0176	0.0639	1.0000

4. Data processing and findings

4.1 Data processing

Table 4 presents model estimates by a robust regression, which has the advantage of being robust in case of violations of the assumptions of the basic linear OLS model.

Table 4 - obust OLS Regressions

Variables	(1)	(2)	(3)	(4)
Dependent variable: "St_Contr"				
CrimeInd_prov	-0.0106***(0.0027)	-0.0117***(0.0027)	-0.0109***(0.0027)	-0.0119***(0.0027)
Trust	0.0003*(0.0002)	0.0003*(0.0002)	0.0003*(0.0002)	0.0003*(0.0002)
ROA	-0.0018(0.0045)	0.0030(0.0045)	-0.0014(0.0045)	0.0034(0.0045)

Leverage	-0.0193***(0.0065)	-0.0187***(0.0065)	-0.0196***(0.0065)	-0.0190***(0.0065)
Size	0.0006***(0.0001)	0.0005***(0.0001)	0.0006***(0.0001)	0.0005***(0.0001)
Age	0.0005***(0.0000)	0.0005***(0.0000)	0.0005***(0.0000)	0.0005***(0.0000)
R&D	0.0247(0.0205)	0.0019(0.0205)		
Patents			0.0796***(0.0231)	0.0539**(0.0231)
GDP	0.0356***(0.0030)	0.0330***(0.0030)	0.0352***(0.0030)	0.0328***(0.0030)
A+	Benchmark	Benchmark	Benchmark	Benchmark
A-	-0.0417(0.0267)	-0.0421(0.0266)	-0.0417(0.0267)	-0.0419(0.0265)
B+	-0.0337***(0.0025)	-0.0333***(0.0025)	-0.0337***(0.0025)	-0.0333***(0.0025)
C	0.0489***(0.0181)	0.0528***(0.0180)	0.0490***(0.0181)	0.0519***(0.0179)
C+	-0.0387***(0.0078)	-0.0398***(0.0078)	-0.0391***(0.0078)	-0.0401***(0.0078)
D	-0.0497***(0.0025)	-0.0496***(0.0025)	-0.0497***(0.0025)	-0.0496***(0.0025)
U	-0.0386**(0.0181)	-0.0386**(0.0180)	-0.0383**(0.0181)	-0.0387**(0.0179)
Intercept	-0.2715***(0.0290)	-0.2472***(0.0298)	-0.2678***(0.0290)	-0.2450***(0.0298)
Sector Dummies	No	Yes	No	Yes

*Standard errors are reported in parentheses. *, **, *** denote significance level at 10%, 5% and 1%, respectively.*

We further conduct a robustness check by employing quantile regression. Specifically, Table 5 presents the results of this analysis using median regression, which aims to estimate the conditional median of the dependent variable given the values of the independent variables. Unlike the ordinary least squares method, which focuses on the conditional mean, median regression models the conditional median as a linear function of the covariates, offering a more robust estimation in the presence of outliers or non-normal error distributions.[4]

Table 5 -- Quantile Regressions

Variables	(1)	(2)	(3)	(4)
Dependent variable: “St_Contr”				
CrimeInd_prov	-0.0097***(0.0026)	-0.0128***(0.0020)	-0.0102***(0.0026)	-0.0131***(0.0025)

[4] Furthermore, we estimate all our models by also including the quadratic term of the variable *CrimeInd_prov* to investigate potential non-linear effects of organized crime presence on internal controls. The results were statistically insignificant, confirming the linear negative relationship between criminal networks and the size of companies' internal administrative and control boards.

Trust	0.0003**(0.0002)	0.0002(0.0002)	0.0003*(0.0002)	0.0002(0.0002)
ROA	-0.0028(0.0054)	-0.0012(0.0053)	-0.0024(0.0056)	-0.0008(0.0054)
Leverage	-0.0184(0.0207)	-0.0184(0.0212)	-0.0184(0.0203)	-0.0184(0.0215)
Size	0.0005***(0.0001)	0.0005***(0.0001)	0.0005***(0.0001)	0.0005***(0.0001)
Age	0.0005***(0.0000)	0.0006***(0.0000)	0.0005***(0.0000)	0.0006***(0.0000)
R&D	0.0083(0.0627)	0.0030(0.0486)		
Patents			0.1325(0.0879)	0.0691(0.0444)
GDP	0.0453***(0.0031)	0.0364***(0.0028)	0.0449***(0.0031)	0.0361***(0.0029)
A+	Benchmark	Benchmark	Benchmark	Benchmark
A-	-0.0628***(0.0056)	-0.0714***(0.0120)	-0.0624***(0.0144)	-0.0716***(0.0110)
B+	-0.0482***(0.0054)	-0.0474***(0.0051)	-0.0480***(0.0054)	-0.0476***(0.0049)
C	0.0879***(0.0064)	0.1015***(0.0112)	0.0880***(0.0094)	0.1011***(0.0099)
C+	-0.0459**(0.0216)	-0.0521***(0.0110)	-0.0457**(0.0222)	-0.0521***(0.0109)
D	-0.0607***(0.0053)	-0.0636***(0.0050)	-0.0609***(0.0054)	-0.0638***(0.0049)
U	-0.0474***(0.0075)	-0.0457***(0.0082)	-0.0474***(0.0058)	-0.0458***(0.0091)
Intercept	-0.3646***(0.0313)	-0.2741***(0.0304)	-0.3607***(0.0316)	-0.2710***(0.0316)
Sector Dummies	No	Yes	No	Yes

*Robust standard errors are reported in parentheses. *, **, *** denote significance level at 10%, 5% and 1%, respectively.*

To further validate the analysis, the robust OLS and the quantile regressions are re-estimated by isolating the size of the Board of Directors used in the construction of the composite indicator. By contrast, the dimension of the Board of Statutory Auditors is not analyzed separately because it is characterized by an uneven distribution, according to regulatory standards. Nonetheless, when the Board of Statutory Auditors is in place, it represents a meaningful component of the broader internal control architecture. Its contribution emerges in the composite indicator, which captures the multifaceted nature of internal controls more effectively than any single component. For these reasons, while the Board of Statutory Auditors remains a relevant element within the composite indicator, only the size of the Board of Directors is analyzed independently. The results, shown in Tables 6 and 7, are fully consistent with the evidence from the main model.

Table 6 - Robust OLS Regressions of the board size

Variables	(1)	(2)	(3)	(4)
Dependent variable: “Board size”				
CrimeInd_prov	-0.3251***(0.0501)	-0.3463***(0.0504)	-0.3305***(0.0501)	-0.3506***(0.0504)
Trust	0.0086**(0.0036)	0.0084**(0.0036)	0.0087**(0.0036)	0.0084**(0.0036)
ROA	0.0738(0.0831)	0.1438*(0.0837)	0.0829(0.0828)	0.1537*(0.0835)
Leverage	-0.3672***(0.1211)	-0.3633***(0.1202)	-0.3749***(0.1210)	-0.3720***(0.1202)
Size	0.0067***(0.0010)	0.0052***(0.0010)	0.0065***(0.0010)	0.0051***(0.0010)
Age	0.0093***(0.0007)	0.0092***(0.0007)	0.0094***(0.0007)	0.0092***(0.0007)
R&D	0.4470(0.3810)	0.0167(0.3794)		
Patents			2.1880***(0.4294)	1.6519***(0.4286)
GDP	0.7999***(0.0549)	0.7412***(0.0550)	0.7907***(0.0549)	0.7360***(0.0551)
A+	Benchmark	Benchmark	Benchmark	Benchmark
A-	-0.5915(0.4960)	-0.6079(0.4925)	-0.5891(0.4957)	-0.6042(0.4925)
B+	-0.6806***(0.0470)	-0.6781***(0.0468)	-0.6819***(0.0470)	-0.6792***(0.0467)
C	0.0422(0.3356)	-0.1263(0.3331)	0.0462(0.3354)	-0.1201(0.3331)
C+	-0.8417***(0.1448)	-0.8512***(0.1438)	-0.8505***(0.1448)	-0.8577***(0.1439)
D	-1.0446***(0.0458)	-1.0479***(0.0455)	-1.0459***(0.0457)	-1.0486***(0.0455)
U	-0.4892(0.3356)	-0.4914(0.3331)	-0.4993(0.3353)	-0.4932(0.3330)
Intercept	-6.1891***(0.5390)	-5.7143***(0.5533)	-6.0971***(0.5390)	-5.6593***(0.5534)
Sector Dummies	No	Yes	No	Yes

*Standard errors are reported in parentheses. *, **, *** denote significance level at 10%, 5% and 1%, respectively.*

Table 7 - Quantile Regressions of the board size

Variables	(1)	(2)	(3)	(4)
Dependent variable: “Board size”				
CrimeInd_prov	-0.2057***(0.0409)	-0.2967***(0.0356)	-0.2204***(0.0401)	-0.2965***(0.0386)
Trust	0.0068**(0.0031)	0.0063***(0.0019)	0.0070***(0.0023)	0.0058***(0.0016)
ROA	0.574(0.0695)	0.1253(0.0934)	0.0675(0.0958)	0.1222(0.0913)
Leverage	-0.4194***(0.1238)	-0.4233(0.3831)	-0.4203(0.2857)	-0.4249(0.3763)
Size	0.0038***(0.0010)	0.0048***(0.0010)	0.0039***(0.0010)	0.0047***(0.0010)
Age	0.0071***(0.0008)	0.0095***(0.0007)	0.0074***(0.0007)	0.0096***(0.0007)
R&D	0.4016(0.6818)	-0.0191(1.2511)		

Patents			2.0255(1.2904)	1.6682*(0.9504)
GDP	0.9624***(0.0886)	0.7344***(0.0477)	0.9442***(0.0897)	0.7408***(0.0486)
A+	Benchmark	Benchmark	Benchmark	Benchmark
A-	-1.0688(0.7128)	-1.1565***(0.3110)	-1.0587**(0.4961)	-1.1426***(0.3121)
B+	-0.9570***(0.0202)	-0.9438***(0.0634)	-0.9552***(0.0231)	-0.9353***(0.0616)
C	-0.0209(0.0835)	-0.2007(0.1844)	-0.0257(0.1868)	-0.1929(0.2141)
C+	-1.0527**(0.4723)	-1.0823***(0.1592)	-1.0501**(0.4547)	-1.0657***(0.1704)
D	-1.2120***(0.0613)	-1.2936***(0.0647)	-1.2124***(0.0572)	-1.2875***(0.0628)
U	-0.8619***(0.1270)	-0.8764**(0.4277)	-0.8610***(0.0244)	-0.8689***(0.0794)
Intercept	-7.6907***(0.9501)	-5.4899***(0.4984)	-7.5121***(0.0244)	-5.5389***(0.5130)
Sector Dummies	No	Yes	No	Yes

*Robust standard errors are reported in parentheses. *, **, *** denote significance level at 10%, 5% and 1%, respectively.*

4.2 Findings

The empirical evidence, drawn from both the robust-OLS and the median ($\tau = 0.50$) quantile regressions, converges on a coherent set of results that address all the hypotheses advanced in Section 2.

As for the research hypothesis concerning the relationship between organized crime and control structures (HP), across all four robust-OLS models, the coefficient on the organized crime composite index is negative, tightly estimated (– 0.011 to – 0.012), and highly significant ($p < 0.01$). The median quantile regressions replicate both direction and magnitude (– 0.010 to – 0.013) as well as significance ($p < 0.01$). Economically, moving from the 25th to the 75th percentile of criminal exposure (a 0.23-point increase) reduces the composite internal-control score by roughly 2.5 percentage points, a sizeable effect given the outcome's 0-1 range. This provides robust evidence for the "control paradox": companies operating in territories with a more intense criminal presence maintain systematically weaker internal control structures, directly contradicting the notion that risk prompts stronger governance. The significance of this coefficient, even after controlling for regional trust levels, indicates that organized crime exerts a specific, direct influence on governance choices, distinct from the effect of a generally weak institutional environment.

Regarding the model specification controls, the classic firm-level drivers, represented by company size and age, behave as predicted. Company size, as measured by the number of employees, exhibits a small but robust positive elasticity, validating Resource-Dependence Theory. Company age shows a

consistent positive effect; a decade of extra operating history raises the composite indicator by roughly 0.005 points, suggesting that organizational maturation translates into more formalized oversight. These patterns persist in quantile regressions, suggesting that the relationship is not influenced by outliers. The relationships between territorial prosperity and the size of companies' internal administrative and control boards is also confirmed. The logarithm of regional GDP per capita carries a positive, highly significant coefficient in every model (≈ 0.036-0.046). A one-standard-deviation increase in prosperity (≈ 0.25 log points) lifts the internal control index by about 0.01-0.012 points, confirming that companies operating in wealthier, institutionally stronger ecosystems adopt broader control structures. This holds whether prosperity is interpreted narrowly (income) or broadly (social capital embedded in GDP differentials). In theory, economic prosperity is linked to the quality, effectiveness, and level of trust in institutions. Richer territories are expected to have higher levels of institutional effectiveness. This relationship is confirmed by the significant, positive correlation between “Trust” and “GDP” (see Table 3). Therefore, in our analysis, GDP also operates as an additional control variable, allowing us to better isolate the impact of organized crime on control structures.

The results for the “Independence Indicator” reveal a nuanced, non-linear relationship between ownership concentration and the size of companies' internal administrative and control boards. Compared to the benchmark of dispersed ownership (A+), companies with a single dominant shareholder (D) exhibit negative and significant coefficients, as agency theory would predict. However, companies in category C (a dominant shareholder coexisting with other significant minority holders) show positive and significant coefficients. This seemingly anomalous result suggests that a structure of “contested dominance” may foster stronger formal governance. In this configuration, formal control mechanisms may serve not only to monitor management but also as a crucial tool to mediate relationships among powerful owners and protect minority interests, thereby preventing costly internal conflicts. This finding points to a more complex role for governance than is often assumed in simpler models of ownership concentration.

Regarding the non-significant coefficient for ROA, this result may be a direct reflection of the survival-oriented logic imposed by a high-crime environment. In such contexts, agents may rationally prioritize the use of profits for objectives other than strengthening formal governance (e.g., accumulating precautionary cash reserves to absorb shocks, managing “informal environmental costs”, or accelerating rent extraction in the face of

high uncertainty about the firm's future). This would lead to a decoupling of profitability from investments in control structures, consistent with our findings.

As for financial structure, leverage bears a negative coefficient (≈ -0.019, $p < 0.01$) in robust-OLS but loses significance under quantile estimation, hinting that indebted companies may economize on monitoring, though the effect is not uniform across the distribution. The loss of significance of Leverage in the median regression suggests that its effect on governance is not uniform across the conditional distribution of firms. The negative relationship identified in the OLS regression may be predominantly driven by firms located at the extremes of the distribution, such as those experiencing the most severe financial distress, where cost-cutting pressures are very significant. However, the median SME may exhibit a level of leverage where the disciplinary and distress effects are insufficient to exert a systematic influence on governance choices.

Concerning the innovation orientation, internal R&D expenditure is insignificant, but the patent intensity proxy is positive and significant when included, suggesting that formal intellectual-property activity, rather than R&D outlays per se, aligns with stronger governance structures. Finally, the sector dummies do not materially alter any of the above relationships, underscoring the robustness of the core results. The differential impact of our two innovation proxies is consistent with the literature distinguishing between innovation inputs and outputs. R&D expenditure is a rough measure of innovation input that may or may not translate into a valuable asset. Patents, conversely, represent a legally codified innovation output. It is plausible that formal governance structures are more closely tied to the need to manage and protect existing, valuable intellectual property assets than to the preceding, more uncertain process of R&D investment (Hall and Ziedonis 2001).

Taken together, the behaviors of our control variables help delineate the framework for corporate strategy formulation under the shadow of organized crime, which appears to be consistent with our institutionalized agency framework. The results reveal a clear hierarchy of pressures. The threat of financial distress (Leverage) is a powerful driver for reducing governance costs, while the opportunity offered by profitability (ROA) is statistically not significant, suggesting that a logic of survival dominates an investment logic. At the same time, we observe counter-strategies. Companies with valuable and codified intellectual assets (Patents) appear to use stronger governance as a private shield in the absence of reliable public protection. Firms with "contested dominance" ownership structures (Independence Indicator - C)

use formal governance as a private substitute for the State in mediating internal power struggles. This complex pattern of results, which clearly shows the effects of various pressures and strategic choices, increases our confidence in the model's specification. The model's ability to capture these context-specific dynamics so effectively is precisely why we can place greater confidence in its primary and most innovative finding: the direct and negative impact of organized crime on control structures.

5. Discussion and conclusions

This study investigated the relationship between the territorial presence of organized crime and the internal control systems of Italian SMEs. Our empirical results consistently show that companies operating in territorial contexts with higher criminal intensity exhibit significantly less structurally elaborate governance systems. This finding supports our central “control paradox” hypothesis: in contrast to standard risk management predictions, companies in these high-risk environments do not strengthen their formal defenses by expanding the size of their internal management and control boards, but rather appear to weaken them. This phenomenon is likely driven by a combination of an infiltration effect (a higher share of criminally-controlled companies with deliberately weak controls) and a negative isomorphism effect. This phenomenon can be interpreted through the micro-foundations of criminal behavior and its externalities. Infiltrated companies structurally demand weak controls to facilitate illicit activities such as money laundering and contract manipulation, as documented by Mirenda, Mocetti, and Rizzica (2022) and Ravenda et al. (2020). This perverse logic spreads throughout the entire ecosystem, altering the strategic calculus even for legitimate companies, which perceive diminishing returns from investments in transparent governance within a market where rules are distorted. The weakening of controls thus emerges not as a failure, but as a rational adaptation to a fundamentally altered agency landscape, in line with an institutionalized agency perspective. Concurrently, we confirm that larger, older, and more prosperous companies maintain more structurally elaborate controls, highlighting an institutional tug-of-war between the corrosive influence of crime and the supportive pressures of company maturity and economic development.

Our findings offer several contributions to theory. First, we extend agency theory by providing a robust empirical demonstration of its boundary conditions. Our findings contrast with the predictions of standard risk-based

governance models (i.e., Li *et al.*, 2007) that predict a strengthening of controls. We demonstrate that this common conviction depends on context and is not valid in environments characterised by severe institutional decay. The paradox is particularly evident in the Italian context, where the historically symbolic nature of important supervisory bodies such as the Board of Statutory Auditors (Jones and Melis, 2021; Mariani et al., 2010) makes them particularly susceptible to strategic disinvestment. By documenting a "control paradox" where agents rationally weaken controls in response to risk, we show how severe institutional decay can invert the theory's core predictions. Our findings support an institutionalized view of agency (Aguilera and Jackson, 2003; Seal, 2006), demonstrating that agency costs and rational responses are not universal but are profoundly shaped by the prevailing institutional logic. In this, we move beyond a simple "negative institutional isomorphism" explanation to frame this adaptation as a strategic, agentic choice. Second, we contribute to institutional theory by identifying organized crime as a powerful, informal institutional force that not only constrains firms but actively reshapes the meaning and utility of formal corporate governance mechanisms. The adaptation we observe is not a simple passive isomorphism, but an agentic choice that shows how companies navigate between the conflicting pressures of formal institutions (the State) and informal institutions (organized crime). The results also document a novel, non-linear relationship between ownership concentration and the size of the internal administrative and control boards of SMEs. The finding that "contested dominance" correlates with a more elaboration of internal control system suggests that governance mechanisms also serve to mediate conflicts among powerful owners and minority shareholders, a function often overlooked in standard models, but that is particularly critical when recourse to external law is inconclusive. Considering the institutionalized agency framework adopted as a reference, this can be explained by assuming that the importance of formal internal governance mechanisms as a substitute for State-enforced rules is amplified in an environment of external institutional collapse due to crime, when there is a high potential for conflict between the main actors (as in the case of "contested dominance"). Finally, the research also makes a contribution to *Resource Dependency Theory* in the under-researched context of non-listed SMEs, confirming previous evidence from the literature (Boone et al., 2007; Coles et al., 2008) outside the perimeter of listed companies. In this sense, it can be pointed out that the results related to company size and age suggest that internal resources (experience, scale) can operate as a buffer against negative external constraints. Larger and more senior companies seem to be

able to maintain stronger governance structures despite the hostile environment, pointing to an important interaction between firm-specific characteristics and environmental pressures.

From a general perspective, we can affirm that the validity of our key finding is strengthened by the nuanced and theoretically consistent behavior of our control variables. Our analysis, in fact, reveals a complex logic of corporate decision-making that is perfectly aligned with the institutionalized agency theory we assumed as a reference. We find that the coercive pressures of financial distress (Leverage) dominate the opportunities presented by profitability (ROA) in shaping governance choices, indicating a survival-based approach. We observe that internal governance structures are strategically employed as private substitutes for weak public institutions, both to protect long-term investments (Patents) and to mediate internal power struggles among owners (Independence Indicator). It is precisely because our model so accurately captures these complex and known operational dynamics in a hostile institutional environment that we can have greater confidence in the validity of our key finding: the direct and corrosive impact of organized crime on the size of companies' internal administrative and control boards.

The conclusions of this study have important practical implications. For SME management, the control structure should be interpreted not as a cost center but as a strategic investment that mitigates environmental risk and indicates reliability to investors and financial intermediaries. Investors, moreover, could incorporate territorial variables into their due diligence activities, recognizing greater value in companies that, although located in disadvantaged contexts, have solid governance structures. For policymakers, the message is unequivocal: fighting organized crime is a fundamental economic policy. Our results suggest that a weak institutional environment fosters poor corporate governance. This is powerfully complemented by recent evidence showing that anti-mafia police actions lead to a direct increase in bank lending to legitimate companies in affected areas, revitalizing the local economy (Buchetti et al., 2025). Therefore, policies aimed at strengthening the rule of law and dismantling criminal networks are not merely a matter of public safety but are essential for creating an environment where transparent and effective corporate governance can thrive.

While providing interesting results, this research is not immune to limitations that open paths for future research. Although our findings robustly document the control paradox, it must be acknowledged that the strategic logic driving this adaptation could be even more heterogeneous,

deriving from fundamentally different corporate responses to institutional decay. Alongside healthy companies that weaken control structures with an agentic choice aimed at minimizing risks in a deteriorated context, and those already infiltrated that do so to create opacity and facilitate illicit transactions, there may be two other cases. Firstly, companies with resilient dynamics that invest in self-protection mechanisms to signal their robustness and increase the costs of a potential attack or infiltration. This aligns with the classical response predicted by risk management theory, although our results suggest this is not the norm. Alternatively, it may be the case that companies, though not yet infiltrated, may succumb to extortion or coercion that compromises their decision-making autonomy. An examination of these potential scenarios would require in-depth analysis beyond the scope of this article, calling for future research questions: Under what conditions (e.g., ownership structure, industry sector, international market linkages, pre-existing governance quality) are firms able to successfully pursue a resistance strategy rather than succumbing to environmental pressures? Is it possible to identify, through appropriate anomalous pattern detection techniques (e.g., financial flows, commercial partners), signals of coercive control, distinguishing it from a voluntary weakening of internal controls? These implementations would enrich the interpretation of our findings by categorizing various corporate strategies as different responses to a low-trust environment with a weak State, in which organized crime can emerge to sell "private protection" as part of a "protection market" (Gambetta 1996). Concerning other limitations, our cross-sectional design identifies strong correlations but cannot establish causality. Future research could employ longitudinal data or event-study methodologies focusing on major anti-mafia operations to better isolate causal effects. Furthermore, our indices for crime and the size of companies' internal administrative and control boards are aggregate measures. Future work could disaggregate types of crime or use more direct measures of governance effectiveness (e.g., board meeting frequency, audit fees). Qualitative studies, such as interviews with managers in high-crime areas, could provide deeper insights into the decision-making logic behind the control paradox. In addition, a critical next step is to investigate the performance implications of this paradox: is weakening controls a short-term survival strategy that is ultimately detrimental to long-term value? It should also be noted that some of our control variables, although standard, are subject to limitations. In particular, as we have pointed out, size is an imperfect indicator of business complexity. Future studies using more granular data could employ more direct measures of complexity, such as internationalization or business segmentation, to refine the analysis.

Finally, it is essential to recognize a limitation inherent in our research design. Our study focuses on the structural dimension of the apical governance bodies: the Board of Directors and the Board of Statutory Auditors. Although these bodies are crucial, especially in the context of SMES where they define the apex of the 'control environment', they do not represent the entire range of a company's internal control systems. The latter, as is known, is composed of a plurality of elements, including operating procedures, management control systems, reporting mechanisms, and information systems. The “control paradox” we document refers to a strategic choice of “disinvestment” in the apical formal governance structure; future research, perhaps qualitative or survey-based, could explore how this paradox manifests (or if it is counteracted) at more operational and procedural levels of internal control.

In conclusion, our research shows that companies operate in a fragile equilibrium. They are caught between corrosive institutional pressures from organized crime and supportive influences from their own resources and regional prosperity. By documenting the control paradox and explaining it through the lens of an institutionalized agency theory, this study sheds new light on how corporations adapt to survive in hostile environments. Fostering resilient and competitive companies in such areas critically depends on strengthening the formal institutional environment, as this remains the most essential lever for reversing the vicious cycle of institutional decay and poor corporate governance. Furthermore, while our study is grounded in the Italian context, its findings on how perverse institutional logics reshape agentic behavior have significant implications for understanding corporate governance dynamics in a wide range of weak-state or emerging market environments.

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