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Economic and Political Determinants of Corporate Crime in Russia: The First Evidence*

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Abstract: This study estimates the corporate crime rate in Russia and empirically analyzes its economic and political determinants. We found that 687 (11.4%) among 6,038 Russian companies committed 2,454 crimes between January 2020 and September 2023. International crimes accounted for 1,747 of these offenses, significantly outnumbering economic and political/social crimes. The empirical analysis indicates that, in Russia, board gender diversity and public sector presence have a deterrent effect on corporate crime. However, industrial policies, regional economic development and inequality, and international relations contribute significantly to increasing corporate crime. These findings are robust across various crime types, industrial sectors, firm sizes, and age groups.

Keywords: corporate crime, board composition, state−business relationship, regional economy, Russia

JEL Classification Codes: D22, G34, K14, L22, M21

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1 Introduction

The problem of corporate crime has attracted scholarly attention since the publication of seminal works on the subject by Sutherland (1949; 1983), who coined the term "white collar crime" in 1939. The first large-scale systematic analysis of corporate crime was proposed by Clinard and Yeager (1980), who analyzed corporate law violations by the largest Fortune 500 corporations in the United States. White collar crime usually refers to nonviolent crimes committed by professionals, and corporate crime − considered a type of white-collar crime − refers to deviant or harmful behaviours by corporations or their officials intended to benefit the corporations (Clinard and Yeager 1980). Corporate crime encompasses a wide range of activities including tax evasion, securities violations, bribery, embezzlement, fraud, money laundering, insider trading, and cybercrime. With the rise of multinationals and increased globalization, the scale and scope of corporate activities have grown, as has the number of corporate crimes committed by large corporations (Salinger 2012; Woll 2023). High-profile cases such as the Enron scandal, WorldCom scandal, Madoff's Ponzi scheme, and Volkswagen emissions scandal have raised concerns regarding and interest in the study of corporate crime, as they have exerted harmful impacts not only on the people affected but also on the economy.

While a substantial body of research has tended to focus on cases based in the U.S., new research has been conducted on corporate crime in Europe, including studies focusing on corporate crime in Central-Eastern European countries experiencing post-communist transition (Iwasaki and Kočenda 2025; van Erp et al. 2015). However, the contribution of economic research to this issue in Russia is surprisingly limited. To our knowledge, existing studies on Russian corporate crime are scarce, with notable exceptions such as research by Banerjee, Estrin, and Pal (2022), who examine corporate disclosure and compliance but do not directly address corporate crime.

In post-Soviet Russia during the early 1990s, the Russian economy and businesses were often associated with violence and criminal activities. Important research has focused on economic crime in the context of the transition to a market economy (Ledeneva and Kurkchiyan 2000) as well as organized crime in Russia (Galeotti 2002). In fact, Russia's market transition is not immune to the deep-rooted influence of organized crime (Handelman 1994; Rawlinson 2013). In addition, politicians and businesspersons close to the centre of power are known to engage in deviant activities involving natural resources, shielded by complex networks of geographical and familial ties, rendering these activities untouchable by judicial authorities (Frye 2021; Treisman 2018).

In examining criminality in Russia, it is essential to consider the authoritarian tendencies and governance practices of the country, some of which are as follows:

"unrule of law", referring to the significant influence of informal institutions and practices that undermine the formal legal system (Gel'man 2004); a lack of judicial independence evident in such practices as "telephone justice" (Ledeneva 2008); misaligned incentives for law enforcement agencies, such as the "stick system" (Nazrullaeva, Baranov, and Yakovlev 2013); and insecure property rights. Each of these factors affects the corporate crime landscape and nature of criminal prosecution in Russia.

In terms of organized criminality in a global context, Russia exhibits poor records, which has drawn considerable attention from the international community. According to the Global Initiative Against Transnational Organized Crime (2023), an independent civil society organization based in Geneva, Switzerland, Russia ranked 19th out of 193 countries globally and 1st out of 44 European countries in terms of criminality in 2023. Conversely, Russia's resilience score ranked 144th out of 193 countries and 43rd out of 44 European countries, making it the lowest ranked among middle-income nations. States with worse rankings in both criminality and resilience include only designated terrorist states and low-income countries in the Middle East, South America, and Africa. From this perspective, Russia performs the worst among the post-socialist emerging markets.

While these prior studies help enhance our understanding of the criminal landscape in Russia, they do not directly involve economic analyses of corporate crime. A considerable gap exists in our understanding of corporate crime rates and activities in Russian companies. This stands in stark contrast with the robust body of research on corporate fraud and crime in developed economies and China, which has grown steadily over the years (Chen et al. 2006; Chen, Fan, and Zhang 2022; Chu, Oldford, and Wang 2023; Dote-Pardo and Severino-González 2025; Ghazi-Tehrani and Pontell 2022; Zhou 2017). Addressing this gap in research on Russian corporations is imperative.

To bridge this academic gap, the current study systematically collects data on corporate crime in Russia from an information source previously unused in the literature. Using this novel dataset, we estimate corporate crime rates in Russia and empirically examine the economic and political determinants of such crimes. In considering these determinants, we draw on opportunity theory developed by criminologists while also paying close attention to perspectives from the field of corporate finance.

According to opportunity theory, corporate crime is induced by the presence of an environment or structure that enables fraudulent or illegal acts to occur. Therefore, particular attention is paid to factors such as weak board oversight and internal controls over top management, poor security and law enforcement capacity, inadequate

penalties, and the existence of grey commercial practices (Benson et al. 2024; Clarke 1997; Cornish and Clarke 2017; Wilcox and Cullen 2018). Economists broadly agree that these factors can serve as a breeding ground for corporate crime and, from the perspective of agency theory − which explores how the relationship between shareholders and managers can lead to misconduct − they place special emphasis on the effect of board composition on corporate crime (Macey 1991). As discussed below, however, they also recognize that diverse macroeconomic factors − such as economic development, income inequality, and the international business environment − are likely to be related to corporate crime.

Therefore, in this study, we investigate whether the arguments and empirical findings of previous research by criminologists and economists hold true in the Russian context. At the same time, from our own perspective, we also consider, predict, and empirically examine the impact of Russia's unique state–business relationship on corporate crime. Consequently, our empirical analysis focuses on factors such as Russia's distinctive industrial policies; the independence and gender diversity of corporate boards − key elements of corporate governance; the role of the public sector; regional economic development and inequality; and international business relations.

The remainder of this paper is organized as follows. The next section presents a series of hypotheses regarding the economic and political determinants of corporate crime in Russia. The third section describes the data and methodology used for hypothesis testing. The fourth section provides an overview of corporate crime in Russia. The fifth section reports the empirical results, and the final section concludes the paper with a summary of the main findings and their implications.

2 Hypothesis Development

In this section, based on previous literature and related studies, we discuss the possible determinants of corporate crime rates in Russia and present testable hypotheses.

As mentioned in the Introduction, both opportunity theory and agency theory indicate that weak supervision and control over top management are major causes of corporate crime. Our first perspective therefore concerns the corporate governance system. Over the past decades, researchers in corporate finance and business administration have repeatedly demonstrated that managerial discipline depends heavily on board composition. Here, we focus on board independence from top management and board gender diversity. These two elements are crucial for evaluating the functioning of corporate boards in emerging market firms, particularly in Russian companies (Garanina and Muravyev 2021; Iwasaki 2008; Iwasaki, Ma, and Mizobata

2024a, 2024b).

Board independence is a crucial firm-level factor that determines the effectiveness of the board's function of oversight and prevention of corporate misconduct and crime. Board independence is frequently highlighted in corporate crime research as a significant factor influencing the incidence of misconduct and is typically assessed by the route of appointing a board chairperson and proportion of outside/independent directors on boards. For instance, Uzun, Szewczyk, and Varma (2004) demonstrated the effectiveness of board independence in reducing corporate misconduct by identifying a negative correlation between the incidence of corporate misconduct in the USA from the 1970s to 2000s and the number of independent directors serving on boards and their audit and remuneration committees. Ebaid (2023) analyzed listed firms in Saudi Arabia and reported that greater board independence correlates with a lower likelihood of financial statement manipulation.

Board gender diversity is also a focal point of several studies on corporate misconduct. Arnaboldi et al. (2021) investigated the frequency of fines received by European banks from US regulators over a 10-year period from 2008 to 2018 and found that greater female representation on boards leads to a proportional reduction in the frequency of fines, equivalent to the savings of $7.48 million per year. These authors argue that the preventive effect of board gender diversity on misconduct stems from relatively higher ethical standards and stronger risk aversion among female directors, and not just from their contribution to diversity. Cumming, Leung, and Rui (2015) identified a negative correlation between securities fraud committed in China from 2001 to 2010 and board gender diversity, supporting the hypothesis that the presence of female professionals effectively reduces both the frequency and severity of misconduct in the male-dominated securities industry. Luo, Peng, and Zhang (2020) used data from Chinese listed firms to support their hypothesis that firms with female chief financial officers (CFOs) are less likely to engage in risky and unethical behaviour than those with male CFOs.

Based on the above arguments and empirical findings, and consistent with opportunity theory and agency-based perspectives in corporate finance, stronger board oversight is expected to reduce opportunities for managerial misconduct. We therefore test the following hypothesis regarding the effects of board independence and gender diversity on corporate crime in Russia:

Hypothesis H_1: *Board independence and gender diversity reduce corporate crimes.*

Our second perspective concerns state-business relations in Russia. A particular model of state-business relations has developed over the decades in post-Soviet Russia

(Adachi 2015; Orttung 2006; Yakovlev 2014). Yakovlev (2006) highlights nuanced dynamics of the state-business relations in Russia, illustrating a system characterized by reciprocal influence between the state and business.

Since Vladimir Putin assumed the presidency in 2000, the state has strengthened its grip over business, particularly in the strategic sectors of the economy. Indeed, the administration's industrial policy has reflected statist orientation and the 2008 law on strategic sectors is a case in point (Federal Law N57-FZ "On Procedures for Foreign Investments in the Business Entities of Strategic Importance for Russian National Defense and State Security"). The law specified the strategic sectors of the Russian economy, and in effect, restricted foreign participation in strategic sectors while encouraging investment by state-controlled firms (Adachi 2009; Fortescue 2009; Pomeranz 2010). This law had been in the making stage since early 2005, when the president designated it a legislative priority in his address to the Federal Assembly.

The same year, when the law on strategic sectors came into force, the policy of supporting strategically or systematically important enterprises came to the fore. The government compiled a list of the so-called system-forming enterprises − that is, companies considered essential to sustaining Russia's economic system − with a view to prioritize companies in need of state support. This policy reflects Russia's state-led economic management (Adachi 2021). According to studies focusing on the 2008 enterprise list, the enterprises belonging to large business groups considered to have strong ties with the administration are more likely to be prioritized for state support (Kislitsyn 2013). A characteristic feature of firms receiving state support is that they are large, state-controlled, and oriented towards the public sector (Simachev and Kuzyk 2010).

Under the Putin administration, firms deemed strategic are expected to act as industrial and public policy tools, and big businesses in particular are supposed to cooperate in pursuing state interests (e.g. the Yukos affair in 2003 made it clear that firms that fall out of the Kremlin favour have a lower chance of successful business opportunities). Given such an environment, developing our hypothesis from the viewpoint of state–business relations requires some supposition on Russia-related economic sanctions as long as our study covers the sanction period. As documented elsewhere, Russia has been under economic sanctions imposed by the US, the European Union (EU), and other countries following the annexation of Crimea in 2014 and the invasion of Ukraine in 2022. As explained in detail below, the data we use take sanctions into consideration (e.g. Global Risk Information Database (GRID) data, in which risk codes such as DEN and SAN are sanction-related (Moody's Analytics 2021)). Therefore, we

must consider issues concerning the possible link between corporate crime and sanctions.

Studies have shown that economic sanctions have criminalizing consequences (Andreas 2005; Gottschalk 2025). Sanctions can necessitate deviant activities by firms that can be deemed criminal. This is the case not only for firms in targeted countries but also for those in a sanctioning country (Gottschalk 2025). With the expansion of the scope of sanctions, it may become increasingly difficult to not violate sanction laws, as sanction avoidance potentially constitutes illegal activities.

Incorporating the above discussion of Russia's state–business relations and firms under economic sanctions, the following can be conjectured. Russian firms considered strategic by the Kremlin are more likely to fall under Russia-related international sanctions imposed by the West. This is because (a) firms important for implementing industrial policy are strategically important for the Kremlin, and (b) such firms are expected by the state to cooperate in pursuing state interests. If strategically important firms are more sanction-prone and sanctions have criminalizing consequences, then firms contributing to the Kremlin's industrial policy may be more susceptible to deviant behaviour. From an opportunity-theoretic perspective, industrial policy targeting may expand firms' exposure to sanction-related risks and thereby increase opportunities for illegal behaviour. Thus, we test the following hypothesis regarding state–business relations in Russia:

Hypothesis H_2: *Crime rates are higher among firms subject to industrial policy.*

While the previous hypothesis highlights a pattern of reciprocal dynamics of the state–business relations in Russia – where the state relies on business cooperation to achieve industrial goals – there is also a contrasting aspect in which the relationship is one-sided, with the state acting as a sole provider of order and security within a country.

The public sector fundamentally plays a pivotal role in upholding societal order. Its core responsibilities encompass the enforcement of laws, provision of security, promotion of social stability, and regulation of institutional frameworks. Seeing the role of the state in this light, the state could have a disciplining effect on business. This dynamic is applicable in the context of the Russian state under the Putin presidency, where the structures and functions of state apparatus have been strengthened.

Rochlitz, Kazun, and Yakovlev (2020) argued that since 2009, the Russian state has become less tolerant of lower-level corruption and predatory behaviour by state agencies. Following the surge in corporate raiding in the 2000s, raiding attacks and corrupt behaviours by state agencies became less frequent and more centralized. This suggests that the public sector element acts as a deterrent against corrupt and criminal

activities.

This by no means implies that the public sector is corruption-free or a paragon of efficient governance. However, in the Russian context of a stronger and more centralized system of governance, public sector presence may deter corporate misconduct. At the same time, public sector presence may affect not only underlying misconduct but also the likelihood of detection and prosecution. Hence, we test the following hypothesis:

Hypothesis H_3: *Public sector presence reduces corporate crime.*

Corporate crime committed by individuals and corporations is often rooted in macro-level factors that extend beyond organizational characteristics or individual traits. While such crimes are frequently attributed to individual motivations, organizational and criminological studies emphasize the role of broader economic pressures that shape corporate behaviour (Kennedy 2019; van Erp 2018). Unlike conventional street crimes, which are often driven by immediate financial needs or personal hardship, corporate crime is typically embedded in wider economic forces and market conditions, including profit maximization imperatives; competitive pressures; and, in some cases, cross-border market dynamics (Alexander and Cohen 2011; van Erp 2018).

In this regard, it is typically argued that economic development is accompanied by stronger legal institutions, increased transparency, and more effective regulatory enforcement. This process is generally associated with lower levels of corruption, which constitutes an important form of corporate crime (Treisman 2000; 2007). In advanced economies, these institutional features are often well-established, contributing to relatively effective deterrence of corporate misconduct (La Porta et al. 1999; Paldam and Gundlach 2008).

However, this relationship may not hold uniformly across different institutional contexts. In countries experiencing accelerated economic development without corresponding improvements in legal institutions, economic growth may instead generate opportunities conducive to corporate crime. In such contexts, accelerated development is often accompanied by intensified market competition, expanding business opportunities, and increasing pressure on firms to achieve high levels of financial performance. When regulatory and judicial institutions remain underdeveloped or inconsistently enforced, these market pressures may encourage firms to engage in unlawful or unethical practices as a means of maintaining or enhancing their competitive position.

With economic development, corporations face heightened competitive pressures to expand their market share, maximize profits, and meet investor expectations. Market competition drives firms within the same industry or region to compete for resources

such as management talent, human capital, financial assets, and raw materials. Kennedy (2019) argues that competitive business environments often incentivize companies to adjust the game's rules through unlawful practices to maintain competitive advantages. Scholars have noted that intense economic development can intensify these behaviours, as firms respond to increased demands for economic performance (Clinard and Yeager 1980; Sutherland 1983).

Furthermore, economic development accompanied by increased social mobility enhances contact among businesspersons, creating opportunities for crime (Benson 2013; Shover and Hochstetler 2006). Based on these dynamics, we hypothesize that economic development fosters conditions conducive to corporate crime in specific institutional settings.

The Russian context provides an illustrative example of this process (Ledeneva 2006; Volkov 2002). Economic development in certain regions has proceeded intensely, while the capacity of legal and enforcement institutions has remained uneven. Under such conditions, economic expansion may increase both the motives and opportunities for corporate crime, while the risks of detection and punishment remain relatively low. This pattern is consistent with perspectives emphasizing the role of opportunity structures and institutional asymmetries in facilitating corporate offending, especially during periods of intense economic expansion.

Accordingly, rather than suggesting that economic development universally increases corporate crime, this study proposes a conditional relationship in which economic development, when not accompanied by commensurate institutional development, can foster corporate crime. Based on this reasoning, we present the following hypothesis:

Hypothesis H_4: *Economic development encourages corporate crime under weak institutions.*

Inequality is another factor that shapes criminal environments, but its role in corporate crime operates through different mechanisms. A large body of literature on inequality and crime focuses on the poor. For instance, intense income inequality has been linked to higher rates of theft, robbery, or burglary, as the disadvantaged face lower opportunity costs for crime and greater temptation when living near wealth (Fajnzylber, Lederman, and Loayza 2002; Hicks and Hicks 2014; Kelly 2000). Analyzing 114,000 firms in 122 countries, Krammer et al. (2023) found that a one-decile increase in the Gini coefficient corresponds to roughly a 4% rise in crime risk targeting businesses. These studies imply that stark economic gaps fuel resentment or desperation among the poor, potentially driving some to criminal behaviour against affluent individuals or

corporations (Amin 2010; Bu, Luo, and Zhang 2022; Buonanno 2003).

However, in turning to corporate crime, the impact of inequality is linked to power asymmetries and perceived impunity. Sutherland (1983) noted that crimes by the rich and powerful differ in how they are policed and punished, often receiving more lenient treatment. In a highly unequal society, the wealthy business elite enjoy disproportionate influence over the legal and regulatory system. They may have close ties to government officials, law enforcement leaders, or media gatekeepers, which can shield them from strict accountability (Forti and Visconti 2019). In other words, extreme inequality can foster an environment where elite offenders face a lower risk of punishment – a form of de facto impunity. Scholars have pointed out that in unequal contexts, businesspeople may be "segregated" from other criminals and insulated from harsh criticism or prosecution due to their social status and connections. This reduced deterrence emboldens some corporate actors to engage in corporate crimes, given the likely weak enforcement of laws against them (Forti and Visconti 2019). Braithwaite (1984) goes so far as to suggest that inequality worsens both the crimes of poverty and of wealth − the former driven by need, the latter enabled by greed and power imbalances.

In the Russian context, these dynamics are especially pertinent. Russian society features significant income and wealth disparities, coinciding with uneven rule of law. High-level business figures often maintain patronage networks with political elites, creating informal protection that diminishes the fear of legal consequences (Frye 2021; Ledeneva 2006; Treisman 2018). Corporate executives might exploit structural inequality intentionally, knowing that their status can help them avoid punishment or public scrutiny for wrongdoing. Moreover, inequality can erode the moral threshold among those left behind: extreme wealth gaps may breed resentment, potentially lowering societal condemnation of corporate offenses. Thus, inequality might indirectly encourage corporate crime by reducing both oversight of the rich and social cohesion that would otherwise pressure firms to behave.

In summary, our hypothesis is that economic inequality creates conditions conducive to corporate crime by enabling an atmosphere of impunity for powerful actors. In unequal regions, wealthy corporate insiders can leverage their influence to evade or mitigate punishment, making illicit behaviour more enticing; we formalize this as follows:

Hypothesis H_5: *Economic inequality encourages corporate crime.*

Globalization and international business integration have a complex relationship with corporate crime. One can argue that operating internationally can impose stricter standards on firms, as companies active in global markets are subject to oversight from multiple jurisdictions and international regulatory regimes. Multinational enterprises

must comply with international laws such as anti-bribery and disclosure requirements across countries (Coffee Jr. 2002), which can make large-scale corporate abuses harder to conceal. In addition, foreign investors and international business partnerships may transmit higher compliance expectations and governance standards, thereby strengthening internal control mechanisms.

As Rose-Ackerman and Palifka (2016) emphasize, international anti-corruption initiatives that are often promoted by international financial institutions, treaties, and transnational norms can strengthen monitoring and accountability by constraining discretionary power and corrupt transactions, benefiting ordinary citizens and legitimate businesses. From this perspective, greater international engagement is commonly expected to deter corporate misconduct through enhanced external scrutiny and reputational concerns, even if such measures are frequently contested by political and business elites who benefit from weak enforcement.

However, internationalization can also operate through a countervailing mechanism. While global market participation may strengthen compliance for some firms, cross-border operations can create new opportunities for corporate crime in contexts characterized by uneven legal enforcement. Passas (1999) argues that differences in regulatory standards and enforcement capacities across countries allow firms operating in multiple jurisdictions to engage in regulatory arbitrage, for example, by channelling transactions through locations with weaker oversight to facilitate tax evasion or illicit financial flows. Empirical evidence further shows that anonymous shell companies and untraceable corporate bank accounts remain readily accessible within the international financial system, despite formal transparency and disclosure requirements (Sharman 2010). Such corporate vehicles enable firms to obscure ownership structures and financial transactions, thereby extending the scope of illicit activities beyond what is feasible in purely domestic settings. As Shover and Hochstetler (2006) note, the expansion of the global economy has generated white-collar crime opportunities that often exceed the jurisdictional reach of domestic law enforcement agencies.

This aspect is particularly salient in the Russian context. International ties forged by Russian firms have increasingly tended to facilitate evasion rather than enforce compliance, as companies rely on informal networks and offshore structures to circumvent legal and regulatory constraints. Access to foreign partners, offshore entities, or intermediary jurisdictions enables firms to undertake activities such as offshore fraud or sanctions violations that are difficult to pursue within purely domestic settings. Crucially, in these cross-border cases, corporate crime may include violations of international law or the laws of other jurisdictions (e.g. sanctions) even when domestic

enforcement is weak or absent (Connolly 2018).

In summary, international business connectivity can, under certain conditions, increase corporate crime by expanding access to jurisdictions with weaker oversight and by creating complex transactions that are difficult for any single regulator to monitor. We therefore posit the following hypothesis:

Hypothesis H_6: *International relationships encourage corporate crime.*

In the following sections, we describe the empirical analysis conducted to test the six hypotheses concerning the impacts of board composition, industrial policy, public sector presence, regional economic conditions, and international relationships on corporate crime in Russia.

3 Data and Empirical Methodology

This section describes the data and empirical methodology used in this study as the first step in testing the hypotheses presented in the previous section.

3.1 Data

The dataset employed for the empirical analysis is compiled from four sources. The first source is Orbis, a comprehensive company database operated by Bureau van Dijk, a Moody's Analytics company. As of 2024, Orbis is the largest commercial database, covering more than 400 million firms and organizations across various industries worldwide. It provides extensive information on not only listed firms but also privately held companies in Russia. Orbis offers detailed business descriptions and financial statements for each registered firm along with the data on ownership and board structures. This makes it an ideal source for the current research.

The board structure data provided by Orbis include the job titles and genders of individual board members. This allows for a detailed analysis of the total number of board members per firm, their appointment processes (internal vs. external), and their genders. By using this feature of the Orbis database, we searched for the Russian listed and unlisted firms confirmed to have had certain business activities from 2017 to 2018 and demonstrated ongoing activities in 2019, ensuring that information on the job titles and genders of all board members was available. The final sample comprised 6,038 firms, of which 412 were listed and 5,626 were unlisted. For each sample firm, we computed three board composition variables: (1) outside board chairmanship, assigning a value of 1 to firms that elect the chairman of the board from outside board directors; (2) board independence, proxied by the ratio of outside/independent directors to all directors; and

(3) female board representation, denoting the proportion of female directors on the board, in addition to board size measured by the total number of directors.

Table 1 presents a breakdown of the 6,038 sample firms, organized into four groups of federal districts. These firms are further categorized by their listing status (listed vs. unlisted), number of employees, and industry sector. As shown in this table, our sample covers firms of various sizes and spans a wide range of industrial sectors. According to the official statistics available, it is sufficiently representative of Russian firms.[1] In addition to information on the board structure of each sample firm, we collected data on industrial sector, firm size, firm age, and financial performance from Orbis.

The second data source is GRID, provided by Moody's Analytics. GRID is a unique source that compiles a comprehensive range of risk-relevant information worldwide. It includes media reports, official gazettes, and other publications by international organizations and national government agencies, as well as additional data on sanctions and penalties applied to corporations and businesspeople. Its risk data are linked to company- and ownership-related data maintained by Orbis, which effectively reduces false positives that may arise during the process of screening companies and individuals. We screened the 6,038 sample firms for criminal information using their names and locations in GRID, and extracted criminal data that matched the corporate IDs in Orbis.[2] Of the 57 crime categories registered in GRID, our data confirm that 30 were committed by one or more of the sample firms between January 2020 and September 2023. The details are presented in **Table 2**. Based on the search results, we identify the number of crime records for each sample firm, for all crimes combined and by crime type.[3]

As mentioned above, GRID collects corporate crime information from a wide variety of sources, and its content is highly diverse. However, as far as the economic, political, and social crimes in Russia listed in **Table 2** are concerned, the information relies mostly on accusations by Russian security authorities and judgments by national judicial

[1] Compared with the actual firm population, our sample contains a relatively small proportion of small- and medium-sized firms with fewer than 100 employees. This discrepancy primarily results from the limited number of small- and medium-sized firms that have a corporate board compared with their larger counterparts with more than 100 employees. We have confirmed that the sample is not biased in any other respects.

[2] Although criminal information extracted from GRID may include some records of crimes committed by individual managers or employees, most concern organized crime and misconduct committed by firms.

[3] Further details on Orbis and GRID can be found on the Moody's Analytics website (https://www.moodys.com/web/en/us/capabilities/company-reference-data/orbis.html; https://www.moodys.com/web/en/us/kyc/products/grid.html).

institutions concerning serious crimes, as well as mass media reports on such crimes. Thus, the information collected by GRID rarely includes rumours or minor misdemeanours related to Russian corporate crime. Meanwhile, most of the information on international crimes committed by Russian companies comes from official announcements by foreign governments (mainly developed countries, the EU, and Ukraine) and international organizations.[4] Therefore, both domestic and international criminal information on Russian companies is backed by reliable sources to a considerable extent and consists of cases of considerable seriousness.

To test Hypothesis H_2, we refer to two state documents as the third source of data. The first is the list of the so-called system-forming enterprises approved by the government commission to boost sustainability of the Russian economy's development in 2008. The second is the Federal Law N57-FZ "On Procedures for Foreign Investments in the Business Entities of Strategic Importance for Russian National Defense and State Security" dated 29 April 2008. The first list identifies 307 firms and organizations that are systemically important in sustaining and managing the economic system during a financial crisis. The listed firms and organizations belong to various industries ranging from transport, energy, power generation, and defence to communication and food. They hold strong ties with the administration and have priority access to state support; specifically, firms are state-controlled and oriented towards the public sector. They are attached to firm-level dummy variables. We also construct industry-level dummy variables based on Federal Law N57-FZ. This document lists 50 activities in strategic industries, ranging from (1) work performance on the active influence on hydrometeorological processes and phenomena to (50) activities to ensure the physical protection of fuel and energy complex facilities from acts of illegal interference at such facilities. The industry of NACE codes corresponding to these activities is given a dummy variable coded as 1. Based on these documents, we construct dummy variables for firms operating in sectors of strategic importance and those designated as systemically important corporations.

The fourth data source is the official regional statistics provided by the Federal State Statistics Service of Russia. To test Hypotheses H_3–H_6, we employed 10 region-level variables related to the public sector, economic development and inequality, and international relationships. We employed the Gini coefficient[5] and ratio of foreign trade

[4] Some of the international criminal information relates to violations by Russian companies of sanctions imposed by foreign governments or international organizations. It is therefore possible that these sanction violations are not recognized as corporate crimes under Russian law.

[5] We acknowledge that the Gini coefficient does not directly measure mechanisms such as elite

volume to gross regional product (GRP) to represent economic inequality and international relationships, respectively, whereas four variables were selected for public sector presence and economic development. Therefore, for the latter two factors, we generated the first principal components of the corresponding variables and employed them as comprehensive indicators.

A limitation in data selection regarding Hypothesis H_5 (inequality) must be noted. The Gini coefficient is a broad indicator of income dispersion and does not directly capture mechanisms such as elite impunity or selective enforcement. Nevertheless, we argue that it serves as a reasonable proxy in the Russian regional context. Regions with higher Gini values are typically characterized by pronounced disparities between wealthy elites and poorer populations, conditions that are often associated with power imbalances and weakened accountability. Previous cross-national research has similarly relied on the Gini coefficient to identify the effects of inequality on crimes targeting businesses.

We further recognize that economic inequality is unlikely to generate corporate crime directly unless it operates through institutional channels, such as reduced enforcement or elite influence over regulatory processes. However, direct measures of perceived impunity or legal selectivity are not available at the regional level in Russia. Accordingly, our empirical strategy relies on the theoretically established linkage between inequality and institutional capture. We also note that inequality may interact with other regional characteristics, including governance quality, which we address by incorporating relevant control variables and discussing this limitation in the analysis.

The estimation results of principal component analysis are presented in **Appendix Table A1**.

3.2 Empirical Methodology

Hypotheses H_1 and H_2, concerning the effect of board composition and industrial policy on corporate crime, are tested by regressing the number of crimes (*crime*) committed by the *i*-th firm against one of the three board composition variables (*board_composition*) and two industrial policy variables (*industrial_policy*), while controlling for the nine firm

impunity or selective enforcement. In the Russian regional context, however, higher Gini values tend to be associated with pronounced income disparities and power imbalances. While economic inequality is unlikely to affect corporate crime directly, its influence may operate through institutional channels, such as enforcement capacity or elite influence, for which no direct regional-level measures are available. Accordingly, our analysis relies on the theoretically established association between inequality and institutional capture.

attributes (*control*) that potentially influence the incidence of crime and the fixed effects of the industry and region to which the *i*-th firm belongs. The Poisson maximum likelihood estimator is used to estimate the following equation:

$$crime_{i,t} = \mu + \beta \cdot board\_composition_{i,t-1} + \sum_{m=1}^{2} \gamma_m \cdot industrial\_policy_{m,i,t-1} + \sum_{n=1}^{9} \delta_n \cdot control_{n,i,t-1} + \theta_j + \varphi_k + \varepsilon_i, (1)$$

where μ is a constant term; β, γ, *and* δ are the parameters to be estimated; ϑ represents the fixed effects for the *j*-th industry to which the *i*-th firm belongs; φ represents the fixed effects of the *k*-th federal constituent entity (i.e. republics, territories (*krais*), regions (*oblasts*), federal cities, autonomous regions/areas) in which the *i*-th firm is located; and ε is a disturbance term.

Hypotheses H_3–H_6, which predict the relationship between corporate crime and public sector presence, economic development/inequality, and international relationships in the regions where the sample firms operate, are tested by estimating one of the corresponding region-level variables (*region_factor*). These variables are introduced instead of regional-level fixed effects, controlling for all firm attributes, including board composition and industrial policy variables, as outlined in the following equation:

$$crime_{i,t} = \mu + \alpha \cdot region\_factor_{k,t-1} + \sum_{l=1}^{3} \beta_l \cdot board\_composition_{l,i,t-1} + \sum_{m=1}^{2} \gamma_m \cdot industrial\_policy_{m,i,t-1} + \sum_{n=1}^{9} \delta_n \cdot control_{n,i,t-1} + \theta_j + \varepsilon_i, (2)$$

where α represents the parameter associated with each region-level variable.

Drawing on research by Yu (2013); Cumming, Dannhauser, and Johan (2015); Cole, Johan, and Schweizer (2021); Iwasaki and Kočenda (2025); and Ma and Iwasaki (2026), along with empirical results from previous studies cited in the section of hypothesis development, we employ nine variables as controls. These variables capture (a) board size, (b) listing status, (c) ownership concentration, (d) state ownership, (e) foreign ownership, (f) firm size, (g) firm age, (h) profitability, and (i) solvency, and are estimated

simultaneously with board composition, industrial policy, and region-level variables.

According to the above literature, larger boards create more opportunities for board members to engage in free riding, which can undermine the effectiveness of board oversight. In other words, the larger the board size, the weaker is the deterrent effect of the board on corporate crime. Listed firms under state and market surveillance are less likely to commit corporate crimes than are their unlisted counterparts, *ceteris paribus*. Similarly, firms controlled by large shareholders, the state, or foreign investors, where managers are subject to strict oversight, also show a lower propensity for misconduct. Conversely, large corporations and firms that have been operational for an extended period tend to have a higher likelihood of misconduct and crime because of the complex relationships within their internal organizations and with stakeholders. Furthermore, researchers have argued and demonstrated that highly profitable firms are more prone to crimes due to lax managerial discipline, whereas firms with high solvency often avoid criminal risks because of their ample cash reserves. Therefore, five variables − listing status, ownership concentration, state ownership, foreign ownership, and solvency − are expected to act in ways that reduce corporate crime, while four variables − board size, firm size, firm age, and profitability − are expected to act in ways that encourage it.

Table 3 lists the names, definitions, and descriptive statistics of the aforementioned variables. As indicated by regression equations (1) and (2), 26 independent variables, ranging from outside board chairmanship to solvency, are predetermined relative to the dependent variables. Specifically, the corporate crime variable refers to events occurring from January 2020 to September 2023, while 24 variables, including the three board composition variables, two industry policy variables, 12 region-level variables from public employment to foreign trade, and seven control variables from board size to firm age, pertain to events in 2019 or before; the remaining two variables of profitability and solvency are calculated as averages for the period from 2017 to 2019. Thus, we can avoid endogeneity arising from the simultaneous causality between the dependent and independent variables.[6] Industry-level fixed effects, ϑ, are controlled by incorporating a total of 13 industry dummy variables, with the manufacturing industry serving as the reference category.[7] The statistical significance of the regression coefficients is computed using heteroscedasticity-consistent robust standard errors.

[6] Although the correlation matrix is not included here due to space constraints, the correlation coefficients for all combinations of variables estimated simultaneously remain well below the threshold of 0.70, a level that could indicate potential multicollinearity.

[7] The industrial sector categories correspond to those listed in **Table 1**.

4 Corporate Crime in Russia: A Statistical Overview

Before reporting the empirical results, this section provides a statistical overview of corporate crimes in Russia using the dataset described in the previous section.

As illustrated in **Figure 1**, 687 (11.4%) among the 6,038 Russian companies committed offenses corresponding to the crime categories listed in **Table 2**. Of the companies implicated in crimes, 333 (48.5%) had committed a single offense, 217 (31.6%) had 2–5 criminal records, and 137 (19.9%) were involved in six or more offenses, indicating that approximately half of the firms engaged in misconduct were habitual offenders. **Figure 2** shows that these firms committed 2,454 offenses during the observation period, with 396 (16.1%) classified as economic crimes, 311 (12.7%) as political and social crimes, and the remaining 1,747 (71.2%) as international crimes. Furthermore, **Figure 3** illustrates the time-series trends in corporate crime during the period from January 2020 to September 2023. The figure indicates that the notable increase in the total number of crimes from 2021 to 2022 appears to have been largely driven by international crimes, while other types of crime remained relatively stable. This pattern is highly likely to be associated with the Russian military invasion of Ukraine and its impacts on the behaviour of Russian firms in the global economy.

The situation in Russia described above reveals its peculiarities when compared to other Central and Eastern European (CEE) countries. According to our additional survey of 18,309 companies in 19 CEE countries, 880 firms (4.8% of the total) had at least one criminal record in GRID. These 880 criminal corporations committed 1,770 crimes, of which 1,061 (59.9%) were economic, 658 (37.2%) political and social, and the remaining 51 (2.9%) international crimes. In other words, the corporate crime rate in Russia is more than twice as high as in other CEE economies, and this is due to the extremely high number of international crimes. The fact that the international crime rate of Russian firms is abnormally high suggests that our empirical analysis should be based on hypothesis testing for not only total corporate crime, but also each crime type, with special attention to international crime.[8]

[8] Here, focusing on domestic cases, we compare the corporate crime exposure rates in Russia and CEE countries. In the case of Russia, the number of domestic crimes registered in GRID divided by the number of firms is 0.117 per firm, while the figure is 0.093 per firm for the 19 countries in the CEE region. Thus, Russia's corporate crime exposure rate is 1.26 times higher than that of the CEE countries. This finding is consistent with the view of many researchers who believe that the environment and structures creating opportunities for corporate crime are broader and deeper in Russia than in the CEE region. If Russia's corporate crime exposure rate − measured using GRID, which relies mainly on publicly available information − were significantly lower than that of the

Table 4 shows the breakdown of corporate crimes by the group of federal districts. Here, we confirm that firms with criminal records are concentrated in the Central and North West districts, followed by the Volga and Ural districts. The proportion of criminal corporations is also higher in these districts than that in the North Caucasus and Southern districts, and Siberian and Far Eastern districts, while there is no marked difference in the breakdown of criminal corporations by the number of crimes between these four district groups. Regarding the composition of corporate crimes by type, the proportion of international crimes is lower in North Caucasus and Southern districts than that in other districts. These findings indicate that, in Russia, there exist certain regional disparities in corporate crime.

Table 5 clarifies whether the incidence of corporate crime is associated with firm-level attributes. This table compares the differences between criminal and non-criminal firms, as well as among the three groups of criminal firms categorized by the number of offenses. The mean values of the board composition variables are lower for criminal firms than those for non-criminal ones, except for outside board chairmanship. The differences between criminal and non-criminal firms are statistically significant according to the *t*-test for board independence and female board representation, and the test of difference in proportions for outside board chairmanship. Furthermore, among the three groups of criminal firms, although multiple group comparisons using analysis of variance (ANOVA) reject the null hypothesis of no difference between the groups in the case of outside board chairmanship and female board representation, no clear inverse correlation is observed between the values of these two variables and the number of criminal cases. Thus, Hypothesis H_1 is partially supported. By contrast, comparisons using industrial policy variables show results consistent with Hypothesis H_2 that the probability of criminal corporations coming from Russian firms subject to industrial policy is higher, and the number of their crimes is also higher than that of non-policy-target companies.

Table 5 presents results of univariate comparisons using control variables. These results suggest that criminal corporations tend to have larger boards and firm sizes, higher firm age, and profitability but lower solvency than non-criminal firms, as we assume. A predicted correlation with the number of criminal cases is also observed for board size, ownership concentration, foreign ownership, firm size, and solvency. The

CEE countries, it would strongly suggest the possibility of low reporting incentives or information manipulation by the Russian state. However, the GRID crime records provide no evidence to suggest this. These results imply that the reliability of corporate crime information for Russia used in this study is not substantially lower than that for CEE countries.

results with state-ownership variables are quite different from our expectations, implying that in Russia, state-owned enterprises (SOEs) have a greater probability of becoming criminal corporations and committing more crimes than their private counterparts.

The linkage between corporate crime rates and regional characteristics is examined in **Figure 4**. Scatter plots are presented for the proportion of criminal corporations in the total sample of firms calculated for each federal constituent entity and the six region-level variables from public employment to foreign trade. The approximate lines drawn downward to the right in Panels (a) and (b) of the figure indicate a negative correlation between public sector presence and corporate crime rate, consistent with Hypothesis H_3. By contrast, as predicted in Hypotheses H_4–H_6, Panels (c)−(f) display approximate lines that rise to the right, implying a positive correlation between the corporate crime rate and economic development, inequality, and international relationships in the regions.

Finally, **Table 6** presents correlations between the number of offenses committed by firms and the variables of board composition, industrial policy, and regional factors. The coefficients have been calculated for all corporate crimes and by crime types. The correlation coefficient between the total number of offenses and the female board representation variable is significantly negative, in line with Hypothesis H_1, whereas the outside board chairmanship and board independence variables show inconsistent or insignificant coefficients. Female board representation is also negatively associated with the number of international crimes with statistical significance at the 1% level, but is not significantly related to the number of the other two crime types. The correlation coefficients of the industrial policy variables imply that firms in strategically important sectors tend to be primarily involved in international crimes, whereas systemically important corporations are likely to commit offenses in all areas of crime.

The correlation coefficients of region-level variables are consistent with our expectations of Hypotheses H_3–H_6. The public sector variables show a significant and negative coefficient in all 20 cases, while the economic development, inequality, and international relationships variables demonstrate a significant and positive correlation in all but one case, suggesting that these regional factors are closely related to corporate crime.

The findings presented in this section support Hypotheses H_2–H_6, whereas for Hypothesis H_1, we find support only for the crime-deterrent effect of board gender diversity. However, univariate analyses do not control for other factors that may affect the incidence of corporate crime. Therefore, the final judgement on hypothesis testing is deferred to regression analysis, described in the next section.

5 Empirical Results

This section reports the results of hypothesis testing conducted using the data and methods described in the third section. The first subsection reports the baseline estimation results, and the second subsection evaluates their statistical robustness.

5.1 Baseline Results

Table 7 presents the estimation results for Eq. (1) that tests Hypotheses H_1 and H_2. In this and in the following tables, we account for the strikingly high involvement of Russian firms in international crime compared with their counterparts in other CEE countries mentioned in the previous section and report not only the test results for the total number of crimes but also those for each crime type to examine the universality of our hypotheses.

Models [1]–[4] in **Table 7** show that the female board representation variable is estimated to be statistically significant with a negative sign, whereas the statistical significance of outside board chairmanship and board independence is below the 10% level. These results support Hypothesis H_1 concerning the deterrent effect of board gender diversity on corporate crime. However, Models [5]–[7] show that its impact is limited to international crimes and is invalid for other crime types.

Both the industrial policy variables are given a significant and positive estimate in Models [1]–[4], thus strongly supporting Hypothesis H_2. Nevertheless, the asymmetric effects between different crime types are represented in Models [5]–[7], indicating that firms in strategically important sectors are more likely to be involved in international crimes than other firms, while systemically important corporations tend to commit both economic and international crimes.

Among the control variables, ownership concentration, foreign ownership, firm size, profitability, and solvency show robust estimates, consistent with the findings of previous studies. Notably, all five variables are significant in Model [7] which considers the number of international crimes as the dependent variable. The finding that firms with larger corporate boards are more likely to commit crimes other than international ones deserves attention. By contrast, the state ownership variable shows results that are opposite to findings from most previous studies on developed economies with robust and positive estimates, suggesting that, compared with their private counterparts, Russian SOEs are more prone to crime despite being under direct state supervision and control. However, this finding is consistent with the positive estimates of the industrial

policy variables, which demonstrate the deep involvement of policy target companies in international crime.

The estimation results of Eq. (2), which tests Hypothesis H_3, are reported in **Table 8**. Models [1]–[5] estimate every public sector variable to be significant and negative. Additionally, the comprehensive PS index retains its negative effect across all crime types, as shown in Models [6]–[8]. These results provide strong empirical evidence for Hypothesis H_3. In this table, the board composition and industrial policy variables show results similar to those in **Table 7**, suggesting that board gender diversity and state policy targeting are more closely related to international crime than to the other two crime types.

The results in **Table 9** also strongly support Hypothesis H_4 with positive estimates for the economic development variables in all eight models. In other words, the higher the level of economic development in Russian regions, the more likely it is that all kinds of corporate crime will occur. Judging from the coefficients and statistical significance of the comprehensive ED index, the magnitude of the crime-promoting effect of economic development is greatest for international crime.

Finally, **Table 10** tests Hypotheses H_5 and H_6. Our expectation that economic inequality breeds corporate crime in Russia is strongly supported by the significantly positive estimates of the Gini variable in Models [1]–[4]. Models [5]–[8] reveal that international relationships encourage international crime, especially in the case of board gender diversity.

5.2 Robustness Checks

The baseline results reported in the previous subsection strongly support Hypotheses H_3–H_5 by demonstrating the universal effects of public sector presence, economic development, and inequality across all crime types. On the contrary, Hypotheses H_1, H_2, and H_6 are supported by the reservation that the effects of board gender diversity, industrial policy targeting, and international relationships are likely to be limited to international crime. In this subsection, we proceed to further evaluate the statistical robustness of the hypothesis testing results from two perspectives.

The first robustness test involves estimations applying various sample constraints. Here, we focus on three factors: the industrial sector, size, and age of the sample firms. To this end, estimations are performed by dividing the sample firms into mining and manufacturing sectors versus other sectors, and categorizing firms into upper and lower halves based on median firm size and age. The results are summarized in **Appendix Table A2**.

According to the table, the region-level variables from the comprehensive PS index to foreign trade repeatedly show significant estimates with a predicted sign in 23 out of the 24 models, which aligns well with Hypotheses H_3–H_6. The only exception is Model [4], which suggests that international relations proxied by foreign trade volume have no impact on the number of crimes committed by mining and manufacturing firms.

Compared with regional factors, the scope of the influence of board composition and industrial policy is more limited. Indeed, the statistically significant crime-deterrent effects of board gender diversity are detected only for larger or younger firms, as shown in Models [9]–[12] and Models [21]–[24]. In addition, the dummy variable for firms in sectors of strategic importance is estimated to be insignificant for non-mining and manufacturing industries, and for smaller/younger firms. The dummy for systemically important corporations is not a significant estimate for non-mining and manufacturing industries and younger firms. These results indicate that the Russian corporate governance system is not fully functional in preventing corporate crime across all industries and sizes and ages of companies, and that the Russian federal government's industrial policy has criminalizing effects on domestic companies only to the extent that they are of a certain industry or size and have specific management experience.

The second robustness check examines the effect of the data structure on our empirical results. As shown in **Figure 1**, a vast majority of the sample firms have never engaged in any criminal activity. This implies that the data presented in this study are zero-inflated count data. Although the Poisson regression model is a typical functional form for analyzing count data as dependent variables, applying this model to zero-inflated data exhibiting overdispersion, where the variance exceeds the mean, may lead to incorrect estimations of the errors in the regression coefficients. To examine the impact of this issue on the results reported in the previous subsection, we employ the Poisson complementary log-log regression of a hurdle model that combines a point mass at zero with a positive count distribution (Zeileis, Kleiber, and Jackman 2008). Assuming that the probability a firm commits at least one offense is $\pi = P(Y > 0)$, and considering the probability distribution of the number of offenses before truncation as $p(y|\theta)$, the hurdle model can be expressed using the following equation:

$$P(Y = y) = (1 - \pi)I(y = 0) + \pi \frac{p(y|\theta)}{1 - p(0|\theta)} I(y > 0), (3)$$

where $I(y = 0), I(y > 0)$ are indicator variables that return 1 if the logical expression within parentheses is true and 0 if it is false. As demonstrated by this equation, the hurdle model is a regression model that employs a structure wherein a positive count is observed only if the hurdle of zero occurrence is overcome.

Appendix Table A3 shows the estimation results of the Poisson complementary log-log hurdle regression model. The estimates for the first and second terms on the right-hand side of Eq. (3) are reported as the c-loglog stage and Poisson stage, respectively. Again, the region-level variables exhibit significant estimates with the expected sign in 15 out of 16 models, except for Model [6]. However, these significant results are found in the c-loglog stage in most cases, meaning that the regional factors in question have an effect on turning Russian firms into criminal corporations, but do not strongly affect how often criminal firms commit crimes.

The impacts of board composition are also complicated: The female board representation variable shows significant and negative estimates in the models in Panels (a) and (d) of the table that examine its impact on all types of corporate and international crimes, respectively. These results are consistent with those in **Table 7**, but at the same time, suggest that board gender diversity has no effect on preventing repeat offenses, as the insignificant results of the variable in the Poisson stage prove. Moreover, in contrast to Model [7] in **Table 7**, the variable of outside board chairmanship exhibits a significant and negative effect on economic crimes in the c-loglog stage in Models [5]–[8] in Panel (b), indicating that the appointment of board chairpersons from outside has a certain effect in preventing the company from committing economic crimes. Significant and positive estimates of the board independence variable in the c-loglog stage in the four models in Panel (b) and in the Poisson stage in the seven models in Panels (a) and (d) raise questions about the effectiveness of external and independent directorships in Russia.

With respect to the industrial policy variables, on one hand, the dummy for firms in the sectors of strategic importance is estimated to be significant with a positive sign in the c-loglog stage in the models in Panels (a) and (d). On the other hand, the dummy for systemically important corporations shows significant and positive estimates in the same models, but in the Poisson stage. The asymmetric estimation results for these two variables imply a truly complex picture of the state−business relationships in Russia.

6 Conclusions

In this study, we estimate the crime rates of 6,038 Russian companies from January 2020 to September 2023 and empirically examine the economic and political determinants of corporate crime. The results show that 687 companies, accounting for 11.4% of the sample, committed 2,454 illegal acts. As reported in the fourth section, the 11.4% crime rate among Russian companies is more than twice as high as that among firms in 19 other CEE countries, further aggravating Russia's reputation in terms of criminality. The

alarmingly high level of Russian corporate involvement in international crime is even more striking. Of the 2,454 recorded offenses, 1,747 were classified as international crimes, far exceeding the 396 cases of economic crimes and the 311 cases of political and social crimes. In stark contrast, the number of international crimes recorded across 1,770 criminal cases in 19 other CEE countries was only 51. This highlights the exceptional level of international criminality associated with Russian companies.

These findings are closely linked to the numerous international sanctions imposed on Russia following its annexation of Crimea in 2014. While most Russian companies have navigated these sanctions through legal means, some have chosen to engage in illegal sanction evasion or operate in legal grey areas. These sanctions have placed significant pressure on Russian companies.

In addition, it is important to emphasize that the timeframe covered in this study, from January 2020 to September 2023, has been marked by extraordinary turbulence, shaped by the COVID-19 pandemic and the war in Ukraine. Since 2022, pressure on businesses has intensified, involving deprivatization, an increasing number of lawsuits, and targeted redistribution of assets. These actions reflect broader trends in state–business relations and the politicization of legal mechanisms.

The empirical results presented in the previous section largely support our predictions in the second section regarding the factors that influence corporate crime rates in Russia. Specifically, gender diversity on boards of directors and public sector presence exert a strong inhibitory effect on corporate crime, whereas involvement in industrial policy, regional economic development and inequality, and international linkages significantly increase the likelihood of criminal behaviour among Russian firms. These empirical findings are statistically robust across industry sectors, firm sizes, and firm ages.

The observation that companies operating in strategically important industries or designated as systemically important corporations exhibit significantly higher crime rates than those with lower involvement in industrial policy, holding other factors constant, aligns with Yakovlev's (2006) long-standing argument. The continued validity of his exchange model between the state and businesses suggests that Russian companies benefiting from preferential industrial policies are more prone to illegal or grey activities in accordance with the policy objectives of the state.

Taken together, our findings are consistent with opportunity theory, which emphasizes that corporate crime emerges where institutional constraints are weak and opportunities for illegal behaviour expand. In the Russian context, state-led industrial policies, uneven regional development, and international sanctions reshape opportunity

structures faced by firms. At the same time, insights from corporate finance help explain why internal governance mechanisms − most notably, board gender diversity − can partially mitigate these risks by strengthening oversight and ethical constraints. Thus, the interaction between external opportunity structures and internal governance arrangements is central to understanding corporate crime in contemporary Russia.

Four years have passed since the military invasion of Ukraine in February 2022. During this period, research and study on Russia was severely restricted. Many researchers have assumed that the relationship between the state and businesses has evolved into a close and unique form, and that Russian companies have been compelled to align with the government's policy management during the war. However, there is a lack of solid evidence supporting this assumption. By estimating corporate crime rates and identifying their key political and economic determinants, this study contributes to a deeper understanding of the realities faced by the state and corporations in wartime Russia under international sanctions.

References

Adachi, Yuko. 2009. "Subsoil Law Reform in Russia under the Putin Administration." *Europe-Asia Studie*s 61 (8): 1393-1414. https://www.jstor.org/stable/27752355.

Adachi, Yuko. 2015. "Dynamics of State-Business Relations and the Evolution of Capitalism in Russia in an Age of Globalization." In *Capitalism and the World Economy*, edited by Toshiaki Hirai, 254-277. Abingdon and New York: Routledge.

Adachi, Yuko. 2021. "Kiki-ka Roshia no daikigyo taisei to kokka sangyo shihai" [State Support for 'System-Forming Enterprises' during Economic Crises under the Putin Administration]. *ERINA Report (Plus)* 162: 3-10.

Alexander, Cindy R., and Mark A. Cohen. 2011. "The Causes of Corporate Crime: An Economic Perspective." In *Prosecutors in the Boardroom: Using Criminal Law to Regulate Corporate Conduct*, edited by Anthony S. Barkow and Rachel E. Barkow, 11-37. New York and London: New York University Press.

Amin, Mohammad. 2010. "Crime and Security in the Eastern Europe and Central Asia Region." *Enterprise Note* 15. Washington, D.C.: World Bank.

Andreas, Peter. 2005. "Criminalizing Consequences of Sanctions: Embargo Busting and Its Legacy." *International Studies Quarterly,* 49 (2): 335-360. https://doi.org/10.1111/j.0020-8833.2005.00347.x.

Arnaboldi, Francesca, Barbara Casu, Angela Gallo, Elena Kalotychou, and Anna Sarkisyan. 2021. "Gender Diversity and Bank Misconduct." *Journal of Corporate Finance* 71: Article 101834. https://doi.org/10.1016/j.jcorpfin.2020.101834.

Banerjee, Suman, Saul Estrin, and Sarmistha Pal. 2022. "Corporate Disclosure, Compliance and Consequences: Evidence from Russia." *European Journal of Finance* 28 (17): 1770–1802. https://doi.org/10.1080/1351847X.2021.2007972.

Benson, Michael L. 2013. *Crime and the Life Course*. 2nd ed. New York and London: Routledge.

Benson, Michael L., Sally S. Simpson, Melissa Rorie, and Jay P. Kennedy. 2024. *White-Collar Crime: An Opportunity Perspective*. 4th ed. London and New York: Routledge.

Braithwaite, John. 1984. *Corporate Crime in the Pharmaceutical Industry*. London: Routledge & Kegan Paul.

Bu, Juan, Yadong Luo, and Huan Zhang. 2022. "The dark side of informal institutions: How crime, corruption, and informality influence foreign firms' commitment." *Global Strategy Journal* 12 (2): 209-244. https://doi.org/10.1002/gsj.1417.

Buonanno, Paolo. 2003. "The Socioeconomic Determinants of Crime: A Review of the Literature." University of Milano-Bicocca, Department of Economics, Working Paper 63, Milano. http://repec.dems.unimib.it/repec/pdf/mibwpaper63.pdf.

Chen, Gongmeng, Michael Firth, Daniel N. Gao, and Oliver M. Rui. 2006. "Ownership Structure, Corporate Governance, and Fraud: Evidence from China." *Journal of Corporate Finance* 12 (3): 424-448. https://doi.org/10.1016/j.jcorpfin.2005.09.002.

Chen, Jiamin, Yaoyao Fan, and Xuezhi Zhang. 2022. "Rookie Independent Directors and Corporate Fraud in China." *Finance Research Letters* 46 (B): Article 102411. https://doi.org/10.1016/j.frl.2021.102411.

Chu, Shaner, Erin Oldford, and Jun Wang. 2023. "Corporate Social Responsibility and Corporate Fraud in China: The Perspective of Moderating Effect of Board Gender Diversity." *International Review of Economics & Finance* 88 (C): 1582-1601. https://doi.org/10.1016/j.iref.2023.07.062.

Clarke, Ronald V., ed. 1997. *Situational Crime Prevention: Successful Case Studies.* 2nd ed. New York: Harrow and Heston.

Clinard, Marshall B., and Peter C. Yeager. 1980. *Corporate Crime*. New York: Free Press.

Coffee Jr., John C. 2002. "Racing towards the Top? The Impact of Cross-Listings and Stock Market Competition on International Corporate Governance." *Columbia Law Review* 102 (7): 1757-1831. https://doi.org/10.2307/1123661.

Cole, Rebel, Sofia Johan, and Denis Schweizer. 2021. "Corporate Failures: Declines, Collapses, and Scandals." *Journal of Corporate Finance* 67: Article 101872. https://doi.org/10.1016/j.jcorpfin.2020.101872.

Connolly, Richard. 2018. *Russia's Response to Sanctions: How Western Economic Statecraft is Reshaping Political Economy in Russia*. Cambridge and New York: Cambridge University Press.

Cornish, Derek B., and Ronald V. Clarke, eds. 2017. *The Reasoning Criminal: Rational Choice Perspectives on Offending*. London and New York: Routledge.

Cumming, Douglas, Robert Dannhauser, and Sofia Johan. 2015. "Financial Market Misconduct and Agency Conflicts: A Synthesis and Future Directions." *Journal of Corporate Finance* 34: 150-168. https://doi.org/10.1016/j.jcorpfin.2015.07.016.

Cumming, Douglas, T. Y. Leung, and Oliver Rui. 2015. "Gender Diversity and Securities Fraud." *The Academy of Management Journal* 58 (5): 1572-1593. https://www.jstor.org/stable/24758234.

Dote-Pardo, Jairo Stefano, and Pedro Severino-González. 2025. "Economic and Financial Crimes: Evidence from the Literature in Emerging Markets." *Journal of Money Laundering Control* 28 (2): 253-274. https://doi.org/10.1108/JMLC-07-2024-0120.

Ebaid, Ibrahim El-Sayed. 2023. “Board Characteristics and the Likelihood of Financial Statements Fraud: Empirical Evidence from an Emerging Market.” *Future Business Journal* 9: Article 47. https://doi.org/10.1186/s43093-023-00218-z.

Fajnzylber, Pablo, Daniel Lederman, and Norman Loayza. 2002. “Inequality and Violent Crime.” *Journal of Law & Economics* 45 (1): 1-39. https://doi.org/10.1086/338347.

Fortescue, Stephen. 2009. “The Russian Law on Subsurface Resources: A Policy Marathon.” *Post-Soviet Affairs* 25 (2): 160–184. https://doi.org/10.2747/1060-586X.24.2.160.

Forti, Gabrio, and Arianna Visconti. 2019. “From Economic Crime to Corporate Violence: The Multifaceted Harms of Corporate Crime.” In *The Handbook of White-Collar Crime*, edited by Melissa L. Rorie, 64-80. Hoboken: Wiley-Blackwell.

Frye, Timothy. 2021. *Weak Strongman: The Limits of Power in Putin’s Russia*. Princeton, N.J.: Princeton University Press.

Galeotti, Mark, ed. 2002. *Russian and Post-Soviet Organized Crime*. London and New York: Routledge.

Garanina, Tatiana, and Alexander Muravyev. 2021. “The Gender Composition of Corporate Boards and Firm Performance: Evidence from Russia.” *Emerging Markets Review* 48: Article 100772. https://doi.org/10.1016/j.ememar.2020.100772.

Gel’man, Vladimir. 2004. “The Unrule of Law in the Making: The Politics of Informal Institution Building in Russia.” *Europe-Asia Studies* 56 (7): 1021–1040. https://doi.org/10.1080/1465342042000294347.

Ghazi-Tehrani, Adam K., and Henry N. Pontell. 2022. *Wayward Dragon: White-Collar and Corporate Crime in China*. Cham: Springer.

Global Initiative Against Transnational Organized Crime. 2023. *Global Organized Crime Index 2023: A Fractured World*. Geneva: Global Initiative Against Transnational Organized Crime.

Gottschalk, Petter. 2025. “When Economic Sanctions Cause White-Collar and Corporate Crime: The Case of Hidden Russian Ownership Revealed by a Norwegian Insurance Firm.” *Deviant Behavior* 46 (1): 101-110. https://doi.org/10.1080/01639625.2024.2335546.

Handelman, Stephen. 1994. *Comrade Criminal: Theft of the Second Russian Revolution*. London: Michael Joseph.

Hicks, Daniel L., and Joan Hamory Hicks. 2014. “Jealous of the Joneses: Conspicuous Consumption, Inequality and Crime.” *Oxford Economic Papers* 66 (4): 1090-1120. https://doi.org/10.1093/oep/gpu019.

Iwasaki, Ichiro. 2008. “The Determinants of Board Composition in a Transforming Economy: Evidence from Russia.” *Journal of Corporate Finance* 14 (5): 532-549. https://doi.org/10.1016/j.jcorpfin.2008.09.005.

Iwasaki, Ichiro, and Evžen Kočenda. 2025. “Corporate Crime in European Emerging Markets.” *Borsa Istanbul Review* 25 (6): 1270-1292. https://doi.org/10.1016/j.bir.2025.07.008.

Iwasaki, Ichiro, Xinxin Ma, and Satoshi Mizobata. 2024a. “Board Gender Diversity in China and Eastern Europe.” *Asia and the Global Economy* 4 (1): Article 100077. https://doi.org/10.1016/j.aglobe.2024.100077.

Iwasaki, Ichiro, Xinxin Ma, and Satoshi Mizobata. 2024b. “Board Structure in Emerging Markets: A Simultaneous Equation Modeling.” *Journal of Economics and Business* 128: Article 106160. https://doi.org/10.1016/j.jeconbus.2024.106160.

Kelly, Morgan. 2000. “Inequality and Crime.” *Review of Economics and Statistics* 82 (4): 530-539. https://doi.org/10.1162/003465300559028.

Kennedy, Jay P. 2019. “Organizational and Macro-Level Corporate Crime Theories.” In *The Handbook of White-Collar Crime*, edited by Melissa L. Rorie, 175-190. Hoboken: Wiley-Blackwell.

Kislitsyn, Dmitrii. 2013. “Политика господдержки предприятий в период кризиса 2008—2009 гг.: критерии отнесения к «системообразующим»” [Government Support Policy of the Russian Enterprises during the 2008-2009 Crisis: Criteria of Treating the Companies as ‘Strategic’]. *Voprosy Ekonomiki* 2013 (6): 84-99. https://doi.org/10.32609/0042-8736-2013-6-84-99.

Krammer, Sorin M. S., Addisu A. Lashitew, Jonathan P. Doh, and Hari Bapuji. 2023. “Income Inequality, Social Cohesion, and Crime against Businesses: Evidence from a Global Sample of Firms.” *Journal of International Business Studies* 54: 385–400. https://doi.org/10.1057/s41267-022-00535-5.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1999. “The Quality of Government.” *Journal of Law, Economics, and Organization* 15 (1): 222-279. https://doi.org/10.1093/jleo/15.1.222.

Ledeneva, Alena V. 2006. *How Russia Really Works: The Informal Practices That Shaped Post-Soviet Politics and Business*. Ithaca and London: Cornell University Press.

Ledeneva, Alena V. 2008. “Telephone Justice in Russia.” *Post-Soviet Affairs* 24 (4): 324-350. https://doi.org/10.2747/1060-586X.24.4.324.

Ledeneva, Alena V., and Marina Kurkchiyan. 2000. *Economic Crime in Russia*. London: Kluwer Law International.

Luo, Jin-hui, Chenchen Peng, and Xin Zhang. 2020. “The Impact of CFO Gender on Corporate Fraud: Evidence from China.” *Pacific-Basin Finance Journal* 63: Article 101404. https://doi.org/10.1016/j.pacfin.2020.101404.

Ma, Xinxin, and Ichiro Iwasaki. 2026. “Board Composition, Private Sector Development, and Corporate Crime: Evidence from China.” *Quarterly Review of Economics and Finance* 105: Article 102081. https://doi.org/10.1016/j.qref.2025.102081.

Macey, Jonathan R. 1991. “Agency Theory and the Criminal Liability of Organizations.” *Boston University Law Review* 71: 315-340.

Moody’s Analytics. 2021. *KYC Risk Code Glossary*. Moody’s Analytics.

Nazrullaeva, Eugenia, Alexey Baranov, and Andrei Yakovlev. 2013. “Criminal Persecution of Business in Russia’s Regions: Private Interests vs. “Stick” System.” Unpublished manuscript, last modified May 10, 2013. PDF file. https://enazrullaeva.github.io/papers/nazrullaeva_baranov_yakovlev.pdf.

Orttung, Robert. 2006. “Business-State Relations in Russia.” *Russian Analytical Digest* 08/06: 2-5. https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/RAD-8-2-5.pdf

Paldam, Martin, and Erich Gundlach. 2008. “Two Views on Institutions and Development: The Grand Transition vs the Primacy of Institutions.” *Kyklos* 61 (1): 65-100. https://doi.org/10.1111/j.1467-6435.2008.00393.x.

Passas, Nikos. 1999. “Globalization, Criminogenic Asymmetries and Economic Crime.” *European Journal of Law Reform* 1 (4): 399-423.

Pomeranz, William E. 2010. “Russian Protectionism and Strategic Sectors Law.” *American University International Law Review* 25 (2): 213-224.

Rawlinson, Patricia. 2013. “Russia’s Gangster Capitalism: Portent for Contemporary States?” In *The Hidden History of Crime, Corruption, and States*, edited by Renate Bridenthal, 216-236. New York: Berghahn Books.

Rochlitz, Michael, Anton Kazun, and Andrei Yakovlev. 2020. “Property Rights in Russia after 2009: From Business Capture to Centralized Corruption?” *Post-Soviet Affairs* 36 (5-6): 434-450. https://doi.org/10.1080/1060586X.2020.1786777.

Rose-Ackerman, Susan, and Bonnie J. Palifka. 2016. *Corruption and Government: Causes, Consequences, and Reform*. 2nd ed. Cambridge University Press. https://doi.org/10.1017/CBO9781139962933.

Rosstat. 2021. Регионы России: социально-экономические показатели 2020. [Regions of Russia: Social and Economic Indicators 2020]. Moscow: Rosstat.

Rosstat. 2022. Регионы России: социально-экономические показатели 2021. [Regions of Russia: Social and Economic Indicators 2021]. Moscow: Rosstat.

Salinger, Lawrence M., ed. 2012. *Encyclopedia of White-Collar & Corporate Crime*, Vols. 1 and 2. Thousand Oaks, London, and New Delhi: Sage Publications.

Sharman, Jason C. 2010. “Shopping for Anonymous Shell Companies: An Audit Study of Anonymity and Crime in the International Financial System.” *Journal of Economic Perspectives* 24 (4): 127-140. https://doi.org/10.1257/jep.24.4.127.

Shover, Neal, and Andy Hochstetler. 2006. *Choosing White-Collar Crime*. New York: Cambridge University Press.

Simachev, Iurii, and Mikhail Kuzyk. 2010. “Государственная гарантийная поддержка системообразующих компаний как инструмент российской антикризисной политики: особенности, проблемы, уроки на будущее” [State Guarantee Support for Systemically Important Companies as an Instrument of Russian Anti-Crisis Policy: Features, Problems, and Lessons for the Future]. *Ekonomicheskaia Politika* 3: 64-89.

Sutherland, Edwin H. 1949. *White Collar Crime.* New York: Dryden Press.

Sutherland, Edwin H. 1983. *White Collar Crime: The Uncut Version*. New Haven: Yale University Press.

Treisman, Daniel. 2000. “The Causes of Corruption: A Cross-National Study.” *Journal of Public Economics* 76 (3): 399-457. https://doi.org/10.1016/S0047-2727(99)00092-4.

Treisman, Daniel. 2007. “What Have We Learned about the Causes of Corruption from Ten Years of Cross-National Empirical Research?” *Annual Review of Political Science* 10 (1): 211-244. https://doi.org/10.1146/annurev.polisci.10.081205.095418.

Treisman, Daniel, ed. 2018. *The New Autocracy: Information, Politics, and Policy in Putin’s Russia*. Washington, D.C.: Brookings Institution Press.

Uzun, Hatice, Samuel H. Szewczyk, and Raj Varma. 2004. “Board Composition and Corporate Fraud.” *Financial Analysts Journal* 60 (3): 33-43. http://www.jstor.org/stable/4480570.

van Erp, Judith, Wim Huisman, Gudrun Vande Walle, and Joep Beckers, eds. 2015. *The Routledge Handbook of White-Collar and Corporate Crime in Europe*. London and New York: Routledge.

van Erp, Judith. 2018. “The Organization of Corporate Crime: Introduction to Special Issue of Administrative Sciences.” *Administrative Sciences* 8 (3): 36. https://doi.org/10.3390/admsci8030036.

Volkov, Vadim. 2002. *Violent Entrepreneurs: The Use of Force in the Making of Russian Capitalism*. Ithaca and London: Cornell University Press.

Wilcox, Pamela, and Francis T. Cullen. 2018. "Situational Opportunity Theories of Crime." *Annual Review of Criminology* 1 (1): 123-148. https://doi.org/10.1146/annurev-criminol-032317-092421.

Woll, Cornelia. 2023. *Corporate Crime and Punishment: The Politics of Negotiated Justice in Global Markets*. Princeton and Oxford: Princeton University Press.

Yakovlev, Andrei. 2006. "The Evolution of Business-State Interaction in Russia: From State Capture to Business Capture?" *Europe-Asia Studies* 58 (7): 1033-1056. https://doi.org/10.1080/09668130600926256.

Yakovlev, Andrei. 2014. "Russian Modernization: Between the Need for New Players and the Fear of Losing Control of Rent Sources." *Journal of Eurasian Studies* 5 (1): 10-20. https://doi.org/10.1016/j.euras.2013.09.004.

Yu, Xiaoyun. 2013. "Securities Fraud and Corporate Finance: Recent Developments." *Managerial and Decision Economics* 34 (7-8): 439-450. https://doi.org/10.1002/mde.2621.

Zeileis, Achim, Christian Kleiber, and Simon Jackman. 2008. "Regression Models for Count Data in R." *Journal of Statistical Software* 27 (8): 1-25. https://doi.org/10.18637/jss.v027.i08.

Zhou, Zhenjie. 2017. *Corporate Crime in China: History and Contemporary Debates*. London: Routledge.

Table 1. Composition of sample firms by listing status, number of employees, and industry by group of federal districts

	Number of sample firms					Proportion (%)				
	Whole federation	North Caucasus and Southern Districts	Central and North West Districts	Volga and Ural Districts	Siberian and Far East Districts	Whole federation	North Caucasus and Southern Districts	Central and North West Districts	Volga and Ural Districts	Siberian and Far East Districts
Composition by listing status										
Listed companies	412	32	169	143	68	6.8	4.6	6.3	7.9	8.0
Unlisted companies	5,626	671	2,512	1,660	783	93.2	95.4	93.7	92.1	92.0
Composition by number of employees										
Firms with less than 100 employees	1,618	216	726	442	234	26.8	30.7	27.1	24.5	27.5
Firms with 100 to 499 employees	2,870	371	1,283	821	395	47.5	52.8	47.9	45.5	46.4
Firms with 500 to 999 employees	783	66	348	263	106	13.0	9.4	13.0	14.6	12.5
Firms with 1000 or more employees	767	50	324	277	116	12.7	7.1	12.1	15.4	13.6
Composition by industry										
Agriculture, forestry, and fishing	532	128	171	132	101	8.8	18.2	6.4	7.3	11.9
Mining and quarrying	172	14	42	67	49	2.8	2.0	1.6	3.7	5.8
Manufacturing	2,310	239	1,047	777	247	38.3	34.0	39.1	43.1	29.0
Electricity, gas, steam, and air conditioning supply	418	74	162	120	62	6.9	10.5	6.0	6.7	7.3
Water supply, sewerage, waste management, and remediation activities	100	17	31	37	15	1.7	2.4	1.2	2.1	1.8
Construction	373	33	160	129	51	6.2	4.7	6.0	7.2	6.0
Wholesale and retail trade, repair of motor vehicles and motorcycles	467	39	228	122	78	7.7	5.5	8.5	6.8	9.2
Transportation and storage	560	95	191	150	124	9.3	13.5	7.1	8.3	14.6
Accommodation and food service activities	66	10	30	15	11	1.1	1.4	1.1	0.8	1.3
Information and communication	112	5	74	30	3	1.9	0.7	2.8	1.7	0.4
Financial and insurance activities	104	1	76	18	9	1.7	0.1	2.8	1.0	1.1
Real estate activities	213	9	117	60	27	3.5	1.3	4.4	3.3	3.2
Professional, scientific, and technical activities	568	36	328	135	69	9.4	5.1	12.2	7.5	8.1
Administrative and support service activities	43	3	24	11	5	0.7	0.4	0.9	0.6	0.6
Total	6,038	703	2,681	1,803	851	100.0	100.0	100.0	100.0	100.0

Source: Authors' computations based on the Orbis Company Information Database.

Table 2. Types and categories of crimes committed by Russian companies registered in the Global Risk Information Database (GRID) from January 2020 to September 2023

Crime type[a]	Crime category[b]
Economic crimes	Business crimes (78); shams and frauds (116); money laundering (26); regulatory action (178); securities violations (4); tax evasion (29)
Political and social crimes	Arson (1); assault/battery (6); bribery (103); copyright infringement (7); counterfeiting (2); cybercrime (1); environmental crimes (22); misdemeanours/fraud (2); murder (5); nonspecific crimes (3); organized crime (21); perjury (60); political asylum (2); sex offenses (1); theft (100); virtual currency (2); illegal weapon possession (2)
International crimes	Denied entity (253); listing on the international sanctions list (1); Iran connections (7); sanctions connections (331); spying (3); terrorism (26); watch list (government-designated listing of persons/organizations involved in terrorist acts, proliferation of weapons of mass destruction, and other security and diplomatic issues) (1305)

Notes:

[a] Classification by the authors

[b] Figures in parentheses are the total number of crime records

Source: Moody's Analytics (2021).

Table 3. Names, definitions, and descriptive statistics of variables used in empirical analysis

Variable name	Definition	Descriptive statistics				
		Mean	Median	S.D.	Min	Max
Dependent variables[a]						
Corporate crimes	Number of corporate crimes of all types registered in the Global Risk Information Database (GRID)	0.406	0	1.813	0	24
Economic crimes	Number of economic crimes registered in the Global Risk Information Database (GRID)	0.066	0	0.408	0	13
Political and social crimes	Number of political and social crimes registered in the Global Risk Information Database (GRID)	0.052	0	0.364	0	7
International crimes	Number of international crimes registered in the Global Risk Information Database (GRID)	0.289	0	1.574	0	23
Board composition variables[b]						
Outside board chairmanship	Dummy for firms with an outside board chairman	0.264	0	0.441	0	1
Board independence	Proportion of outside/independent directors to the total number of board directors (%)	55.868	66.667	31.881	0.000	100.000
Board female representation	Proportion of female directors to the total number of board directors (%)	27.903	25.000	20.395	0.000	100.000
Industrial policy variables[b]						
Firms in sectors of strategic importance	Dummy for firms operating in sectors of strategic importance designated by the federal government in 2008	0.218	0	0.413	0	1
Systemically important corporations	Dummy for systemically important corporations designated in the 2008 federal law	0.010	0	0.101	0	1
Public sector (PS) variables[c]						
Public employment	Proportion of public sector workers in total employment (%)	29.467	28.950	9.649	14.628	82.358
Public official	Proportion of officials in territorial branches of federal governments and local governments in total employment (%)	25.662	25.260	8.151	13.511	68.127
Police	Number of police officers per 1000 residents	4.888	4.809	1.118	0.073	13.760
State and municipal enterprise	Proportion of state and municipally owned enterprises in the total number of firms (%)	8.483	7.969	5.238	0.915	37.908
Comprehensive PS index	First principal component score of the four PS variables above	0.019	-0.227	1.744	-2.447	11.549
Economic development (ED) variables[d]						
Monthly money income	Logarithms of average monthly money income	10.470	10.374	0.369	9.716	11.331
Service industrialization	Total value added by service industry to gross regional product (GRP) (%)	49.501	48.700	13.608	9.900	70.600
Urbanization	Ratio of urban population (%)	77.635	77.500	13.060	29.300	100.000
Higher education	Share of workers with higher education in total employment (%)	34.609	32.300	7.503	23.100	50.400
Comprehensive ED index	First principal component score of the four FD variables above	-0.034	-0.788	1.662	-2.999	3.513
Economic inequality variable[b]						
Gini	Gini coefficient	0.383	0.390	0.025	0.334	0.437
International relationship variable[b]						
Foreign trade	Foreign trade volume to GRP (%)	39.325	29.985	27.898	0.422	118.137
Control variables[e]						
Board size	Total number of board directors	8.768	7	6.229	3	102
Listing status	Dummy for listed companies	0.068	0	0.252	0	1
Ownership concentration	Average ownership share per shareholder/member	0.536	0.500	0.338	0.001	1.000
State ownership	Dummy for firms with the state as the ultimate owner at the 50% control threshold	0.190	0	0.392	0	1
Foreign ownership	Dummy for firms with a foreign investor as the ultimate owner at the 50% control threshold	0.071	0	0.257	0	1
Firm size	Natural logarithm of total number of workers	5.508	5.380	1.177	0.000	13.515
Firm age	Years in operation	33.832	27	27.936	5	436
Profitability	3-year average of profit margins	5.578	4.308	14.095	-94.627	87.450
Solvency	3-year average of solvency ratio	48.589	50.740	30.917	-97.757	99.890

Notes:

[a] Observation period was from January 2020 to September 2023.

[b] Observation period was 2019.

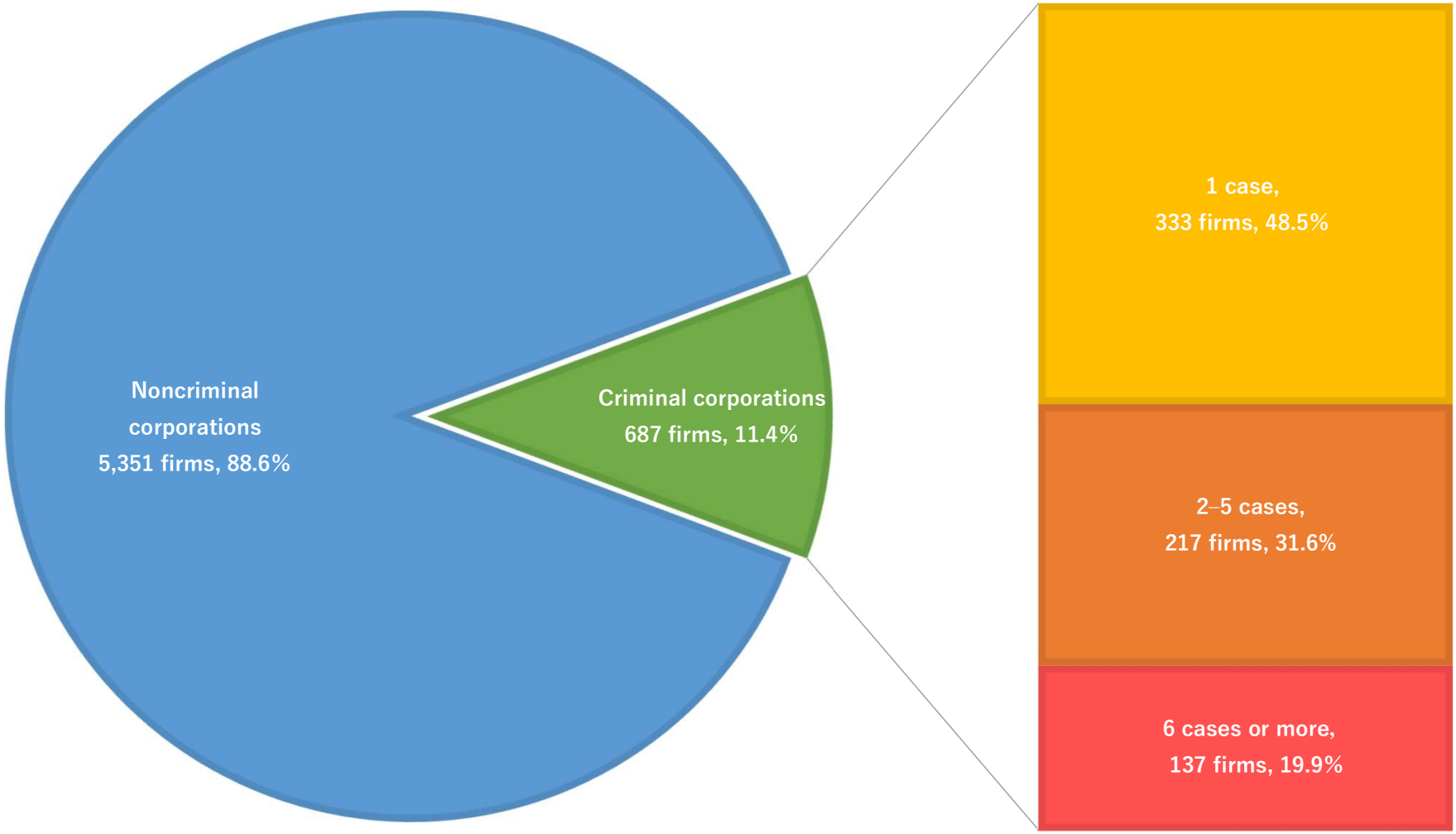
[c] Observation period of the police variable was 2016, while that of other variables was 2019. Panel (a) of Appendix Table A1 reports the results of principal component analysis to produce the comprehensive PS index.

[d] Observation period was 2019. Panel (b) of Appendix Table A1 reports the results of principal component analysis to produce the comprehensive ED index.

[e] Observation period of the variables of profitability and solvency was 2017–2019, while that of other variables was 2019.

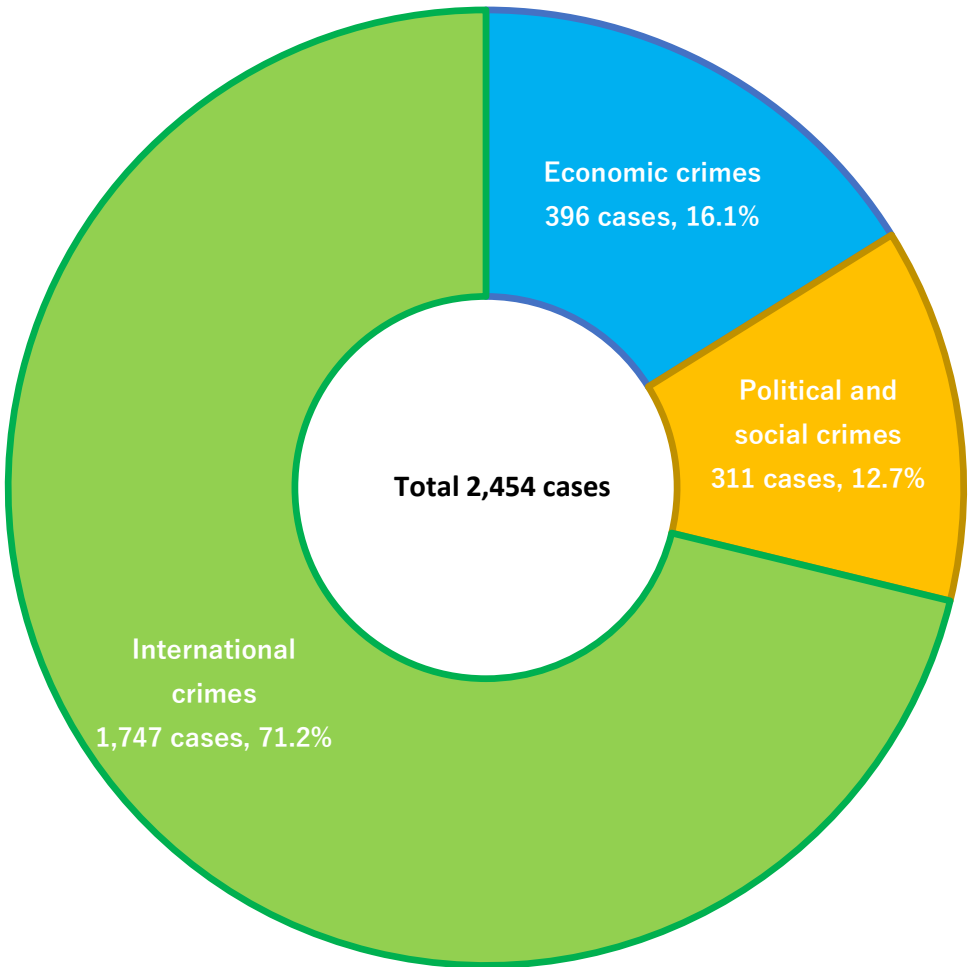
Sources: The number of corporate crimes is derived from the Global Risk Information Database (GRID). Industrial policy variables are compiled by the authors, based on the list of systemically important organizations approved by the government commission for boosting sustainability of the Russian economy's development in 2008 and Federal Law N57-FZ "On Procedures for Foreign Investments in the Business Entities of Strategic Importance for Russian National Defense and State Security" (29 April 2008). The variables from economic development to foreign relationship are from statistical yearbooks on "Regions of Russia: Social and Economic Indicators" (Rosstat 2021; 2022). Board composition and control variables are from the Orbis Company Information Database.

Figure 1. Proportion of criminal corporations and the number of crimes among 6,038 companies in Russia



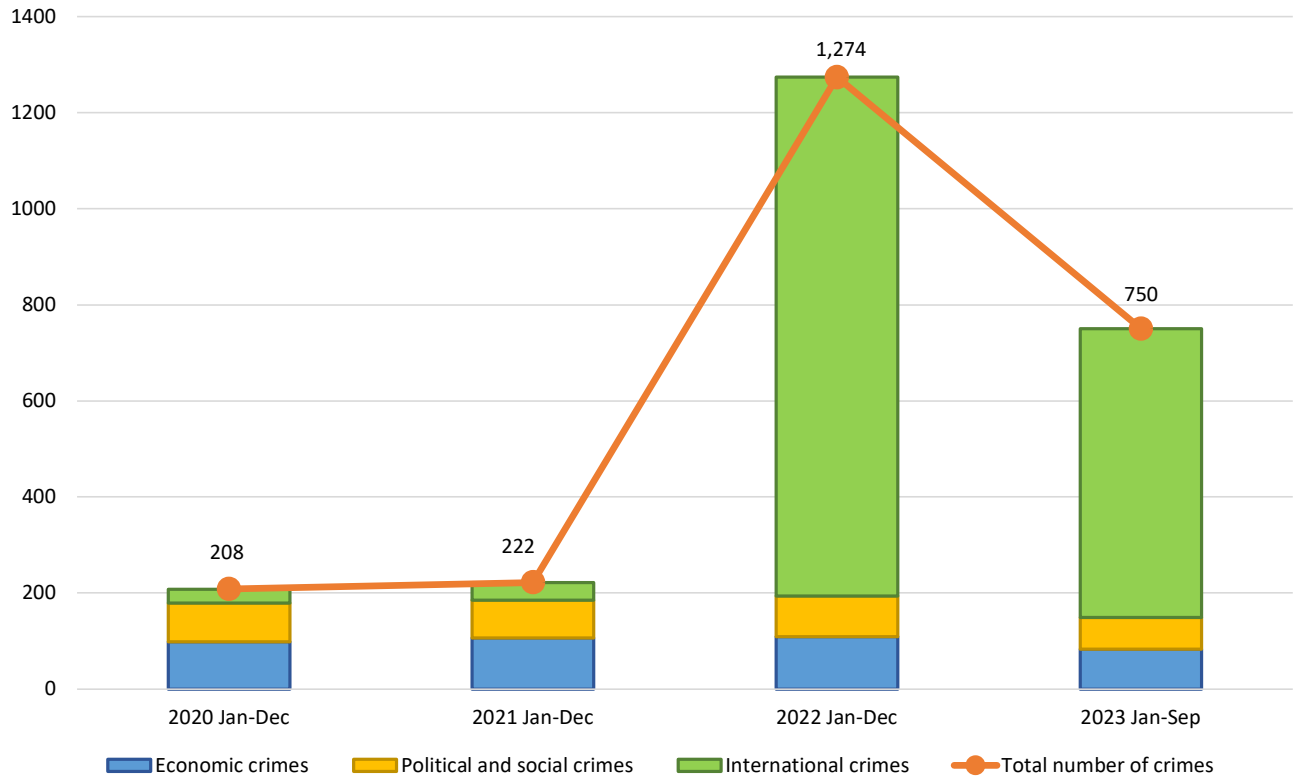
Source: Authors' illustration based on the Global Risk Information Database (GRID) and Orbis Company Information Database.

Figure 2. Distribution of corporate crimes committed by type among 687 Russian firms



Source: Authors' illustration based on the Global Risk Information Database (GRID) and Orbis Company Information Database.

Figure 3. Time-series trends in corporate crime in Russia



Source: Authors' illustration based on the Global Risk Information Database (GRID).

Table 4. Breakdown of corporate crimes by group of federal districts

Group of federal districts	Number of sample firms (a)	Number of criminal corporations (b)	Proportion of criminal corporations (b/a, %)	Breakdown of criminal corporations by number of cases						Total number of corporate crimes	Breakdown of corporate crimes by type					
				Number of firms			Proportion (all criminal corporations=100)				Number of corporate crimes			Proportion (all corporate crimes=100)		
				1 case	2–5 cases	6 cases or more	1 case	2–5 cases	6 cases or more		Economic crimes	Political and social crimes	International crimes	Economic crimes	Political and social crimes	International crimes
North Caucasus and Southern Districts	703	65	9.2	32	20	13	49.2	30.8	20.0	211	53	49	109	25.1	23.2	51.7
Central and North West Districts	2681	345	12.9	166	100	79	48.1	29.0	22.9	1317	194	121	1002	14.7	9.2	76.1
Volga and Ural Districts	1803	205	11.4	100	78	27	48.8	38.0	13.2	607	117	99	391	19.3	16.3	64.4
Siberian and Far East Districts	851	72	8.5	35	19	18	48.6	26.4	25.0	319	32	42	245	10.0	13.2	76.8

Source: Authors' computations based on the Global Risk Information Database (GRID) and Orbis Company Information Database.

Table 5. Univariate comparison between noncriminal and criminal corporations and among criminal corporations by number of cases in terms of firm-level attributes

	Noncriminal corporations (a)	Criminal corporations				Comparison between non-criminal and criminal corporations (a, b)[a]	Multiple comparison between criminal corporations by number of cases (c, d, e)[b]
		All criminal corporations (b)	Corporations with 1 criminal case (c)	Corporations with 2–5 criminal cases (d)	Corporations with 6 or more criminal cases (e)		
Board composition variables							
Outside board chairmanship	0.256	0.328	0.300	0.309	0.423	-4.01 †††	3.61 **
Board independence	56.237	53.000	51.023	55.234	54.267	2.51 **	1.42
Board female representation	28.412	23.939	24.425	25.294	20.612	5.42 ***	2.74 *
Industrial policy variables							
Firms in sectors of strategic importance	0.204	0.333	0.279	0.332	0.467	-7.741 †††	7.85 ***
Systemically important corporations	0.007	0.032	0.018	0.018	0.088	-6.008 †††	8.70 ***
Control variables							
Board size	8.432	11.387	10.078	10.558	15.883	-11.841 ***	16.73 ***
Listing status	0.064	0.105	0.087	0.111	0.139	-4.038 †††	1.43
Ownership concentration	0.537	0.531	0.555	0.527	0.478	0.435	2.72 *
State ownership	0.172	0.333	0.285	0.313	0.482	-10.176 †††	8.90 ***
Foreign ownership	0.071	0.067	0.099	0.037	0.036	0.426	5.40 ***
Firm size	5.432	6.100	5.966	6.052	6.499	-14.224 ***	6.76 ***
Firm age	33.359	37.514	36.483	36.387	41.803	-3.673 ***	1.73
Profitability	5.284	7.868	8.473	6.853	8.005	-4.531 ***	0.68
Solvency	49.282	43.192	45.319	43.331	37.803	4.869 ***	3.03 **
Total number of sample firms	5351	687	333	217	137		

Notes: The numbers in the figure represent the mean value of the variable in question.

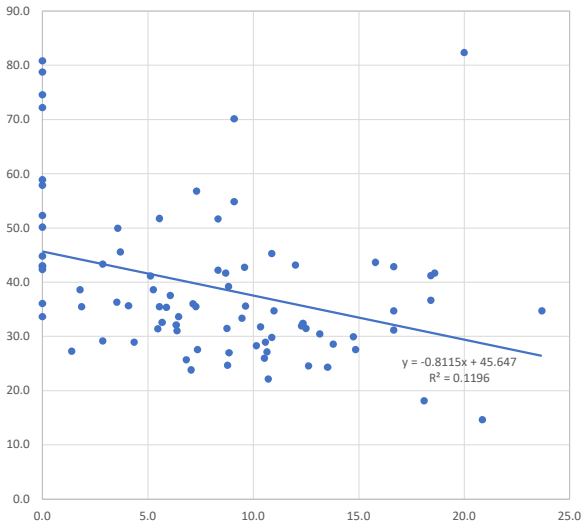
[a] ***: The means are significantly different between the two at the 1% level by *t* -test; **: at the 5% level; †††: The ratios are significantly different between the two at the 1% level by the test of difference in proportions.

[b] ** ： The ratios are significantly different between the three groups of criminal corporations at the 5% level by ANOVA; *: at the 10% level.

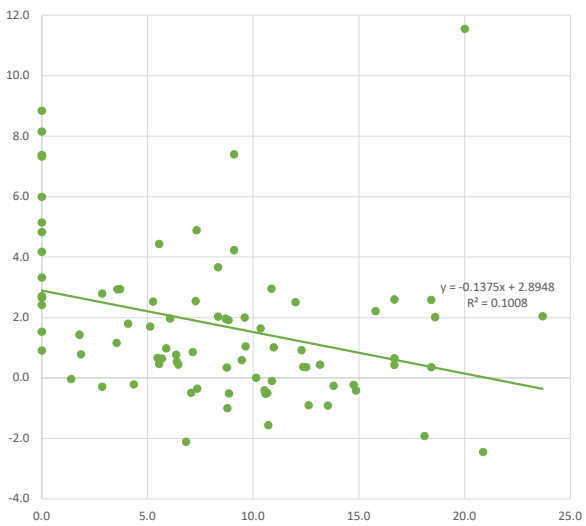
Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.

Figure 4. Scatterplot of proportion of criminal corporations and regional characteristics by federal constituent entity

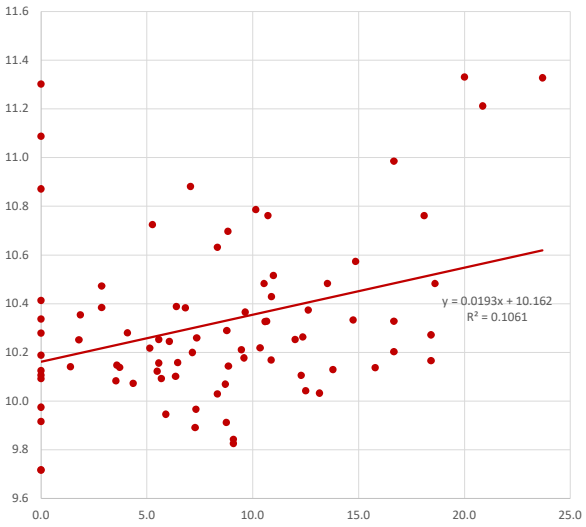
(a) Public employment



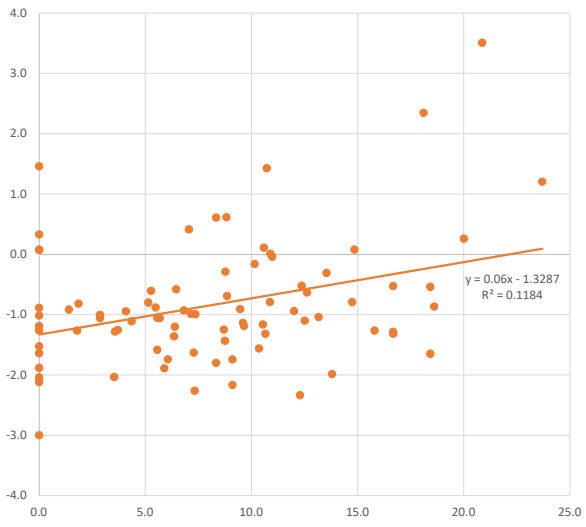
(b) Comprehensive PS index



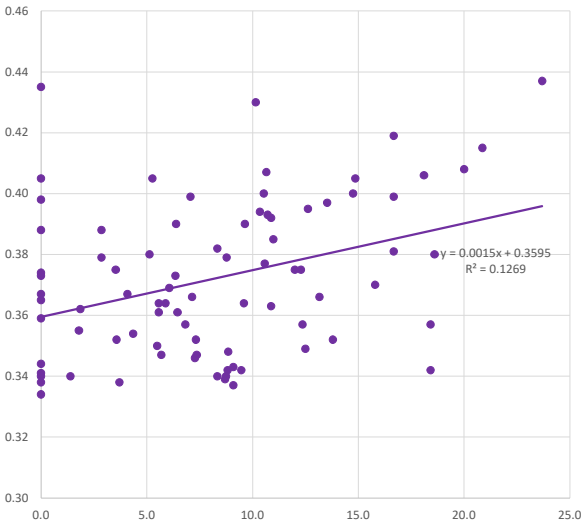
(c) Monthly money income



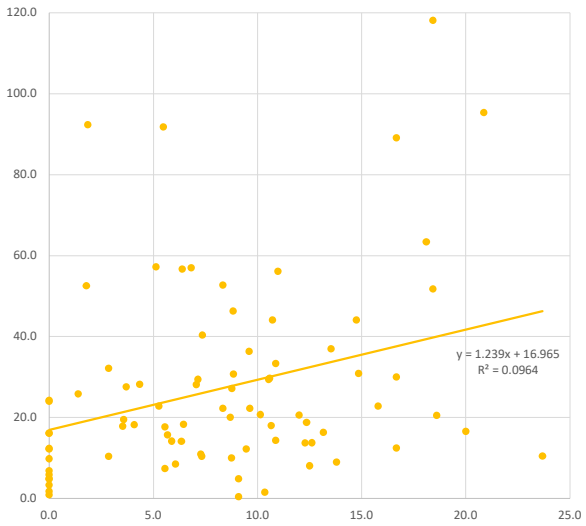
(d) Comprehensive ED index



(e) Gini



(f) Foreign trade



Note: Horizontal axis represents the proportion of criminal corporations among sampled firms (%).
Source: Authors' illustration based on the Global Risk Information Database (GRID) and Orbis Company Information Database. See Table 3 for definitions and descriptive statistics of the variables used.

Table 6. Correlation coefficients between the number of corporate crimes and board composition variables, industrial policy variables, and other region-level variables

	All corporate crimes	Crime type		
		Economic crimes	Political and social crimes	International crimes
Board composition variables				
Outside board chairmanship	0.0491 ***	0.0281 **	0.0123	0.0465 ***
Board independence	-0.0082	0.0141	-0.0022	-0.0127
Board female representation	-0.0663 ***	-0.0104	-0.0193	-0.0693 ***
Industrial policy variables				
Firms in sectors of strategic importance	0.1006 ***	-0.0123	0.0199	0.1144 ***
Systemically important corporations	0.1539 ***	0.0360 ***	0.0217 *	0.1629 ***
Public sector variables				
Public employment	-0.0893 ***	-0.0544 ***	-0.0388 ***	-0.0798 ***
Public official	-0.0884 ***	-0.0528 ***	-0.0381 ***	-0.0793 ***
Police	-0.0316 **	-0.0283 **	-0.0292 **	-0.0223 *
State and municipal enterprise	-0.0941 ***	-0.0456 ***	-0.0379 ***	-0.0879 ***
Comprehensive PS index	-0.0892 ***	-0.0527 ***	-0.0412 ***	-0.0795 ***
Economic development variables				
Monthly money income	0.0898 ***	0.0535 ***	0.0308 **	0.0824 ***
Service industrialization	0.0836 ***	0.0527 ***	0.0318 **	0.0753 ***
Urbanization	0.0909 ***	0.0325 **	0.0177	0.0922 ***
Higher education	0.0865 ***	0.0519 ***	0.0254 **	0.0803 ***
Comprehensive ED index	0.1017 ***	0.0547 ***	0.0292 **	0.0962 ***
Economic inequality variable				
Gini	0.0787 ***	0.0569 ***	0.0439 ***	0.0657 ***
International relationship variable				
Foreign trade	0.0905 ***	0.0472 ***	0.0218 *	0.0870 ***

Notes: ***: Correlation coefficient with the number of corporate crimes is statistically significant at the 1% level; **: significant at the 5% level; *: significant at the 10% level.

Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.

Table 7. Impact of board composition and industrial policy on corporate crimes

Dependent variable (crime type)	Corporate crimes				Economic crimes	Political and social crimes	International crimes
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Board composition variables							
Outside board chairmanship	0.04200			0.04257	-0.11047	0.08223	0.07523
	(0.1309)			(0.1345)	(0.2031)	(0.2400)	(0.1595)
Board independence		0.00096		0.00077	0.00479 *	-0.00119	0.00026
		(0.0019)		(0.0020)	(0.0025)	(0.0032)	(0.0025)
Board female representation			-0.00721 **	-0.00721 **	-0.00019	-0.00415	-0.00903 **
			(0.0032)	(0.0031)	(0.0043)	(0.0051)	(0.0040)
Industrial policy variables							
Firms in sectors of strategic importance	0.56435 ***	0.56691 ***	0.53263 ***	0.53129 ***	-0.19006	-0.08374	0.68399 ***
	(0.1574)	(0.1574)	(0.1528)	(0.1538)	(0.2776)	(0.2717)	(0.1810)
Systemically important corporations	0.90970 ***	0.91792 ***	0.87911 ***	0.87880 ***	0.70666 *	0.42547	0.77535 ***
	(0.2633)	(0.2643)	(0.2643)	(0.2633)	(0.3681)	(0.5661)	(0.3003)
Control variables							
Board size	0.00694	0.00710	0.00778	0.00760	0.01585 *	0.02475 **	0.00584
	(0.0055)	(0.0056)	(0.0055)	(0.0055)	(0.0093)	(0.0115)	(0.0062)
Listing status	-0.30462	-0.29220	-0.30091	-0.32071	-0.33360	-0.62804 *	-0.28135
	(0.1971)	(0.1936)	(0.1918)	(0.1958)	(0.2587)	(0.3671)	(0.2293)
Ownership concentration	-0.57200 ***	-0.56349 ***	-0.56422 ***	-0.54700 ***	-0.00238	-0.31928	-0.67923 ***
	(0.1781)	(0.1718)	(0.1746)	(0.1723)	(0.2508)	(0.2667)	(0.2171)
State ownership	0.97499 ***	0.96253 ***	0.94486 ***	0.94153 ***	-0.14794	0.44175 *	1.16783 ***
	(0.1276)	(0.1279)	(0.1258)	(0.1297)	(0.1897)	(0.2444)	(0.1599)
Foreign ownership	-0.40308 *	-0.39924 *	-0.41939 *	-0.41798 *	0.19069	-0.06956	-0.83519 ***
	(0.2405)	(0.2413)	(0.2409)	(0.2400)	(0.3622)	(0.4351)	(0.2596)
Firm size	0.27347 ***	0.27643 ***	0.25944 ***	0.26144 ***	0.25154 ***	0.05437	0.29582 ***
	(0.0478)	(0.0485)	(0.0480)	(0.0484)	(0.0949)	(0.1028)	(0.0556)
Firm age	-0.00111	-0.00110	-0.00090	-0.00101	-0.00416	-0.00100	-0.00105
	(0.0016)	(0.0016)	(0.0015)	(0.0016)	(0.0043)	(0.0039)	(0.0018)
Profitability	0.01035 **	0.01049 **	0.00986 **	0.00992 **	0.00470	0.01245	0.01064 *
	(0.0044)	(0.0044)	(0.0043)	(0.0044)	(0.0060)	(0.0082)	(0.0055)
Solvency	-0.00850 ***	-0.00855 ***	-0.00824 ***	-0.00828 ***	-0.00664 ***	-0.00639 **	-0.00840 ***
	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0025)	(0.0025)	(0.0018)
Const.	-2.17924 ***	-2.23769 ***	-1.92168 ***	-1.98627 ***	-4.37041 ***	-3.30536 ***	-2.40524 ***
	(0.3107)	(0.3482)	(0.3262)	(0.3545)	(0.6324)	(0.7172)	(0.4094)
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	6038	6038	6038	6038	6038	6038	6038
Log pseudolikelihood	-6088.46	-6087.97	-6070.96	-6069.97	-1463.82	-1275.39	-4466.35
Pseudo R^2	0.1887	0.1887	0.1910	0.1911	0.0983	0.0654	0.2609
Wald test (χ^2)	632.37 ***	637.27 ***	631.98 ***	642.58 ***	200.93 ***	4980.92 ***	714.87 ***

Notes: Standard errors are computed using the Huber–White sandwich estimator and are reported in parentheses beneath the corresponding coefficients. The Wald test examines the null hypothesis that all regression coefficients are zero. *** and * denote statistical significance at the 1% and 10% levels, respectively.

Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.

Table 8. Impact of public sector presence on corporate crimes

Dependent variable (crime type)	Corporate crimes					Economic crimes	Political and social crimes	International crimes
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Public sector (PS) variables								
Public employment	-0.02549 ***							
	(0.0065)							
Public official		-0.02994 ***						
		(0.0078)						
Police			-0.11550 ***					
			(0.0375)					
State and municipal enterprise				-0.05019 ***				
				(0.0126)				
Comprehensive PS index					-0.15164 ***	-0.11276 ***	-0.17310 ***	-0.15873 ***
					(0.0365)	(0.0432)	(0.0549)	(0.0454)
Board composition variables								
Outside board chairmanship	-0.02358	-0.02201	0.00928	-0.02341	-0.02502	-0.12507	0.03717	-0.02566
	(0.1340)	(0.1340)	(0.1362)	(0.1345)	(0.1340)	(0.2011)	(0.2398)	(0.1589)
Board independence	0.00140	0.00140	0.00098	0.00150	0.00148	0.00537 **	-0.00013	0.00092
	(0.0019)	(0.0019)	(0.0020)	(0.0019)	(0.0019)	(0.0026)	(0.0032)	(0.0024)
Board female representation	-0.00601 *	-0.00600 *	-0.00660 **	-0.00635 **	-0.00605 *	-0.00020	-0.00349	-0.00756 *
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0043)	(0.0050)	(0.0039)
Industrial policy variables								
Firms in sectors of strategic importance	0.51730 ***	0.51536 ***	0.52799 ***	0.49830 ***	0.51332 ***	-0.19658	-0.10866	0.66135 ***
	(0.1511)	(0.1513)	(0.1544)	(0.1513)	(0.1514)	(0.2741)	(0.2601)	(0.1781)
Systemically important corporations	0.96591 ***	0.96456 ***	0.97449 ***	0.90603 ***	0.95591 ***	0.59466	0.20677	0.96890 ***
	(0.2546)	(0.2543)	(0.2569)	(0.2532)	(0.2538)	(0.3688)	(0.5739)	(0.2786)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	6038	6038	6038	6038	6038	6038	6038	6038
Log pseudolikelihood	-6053.45	-6055.02	-6093.13	-6046.86	-6047.67	-1467.31	-1285.79	-4472.93
Pseudo R^2	0.1933	0.1931	0.1881	0.1942	0.1941	0.0962	0.0578	0.2598
Wald test (χ^2)	621.63 ***	620.32 ***	626.23 ***	647.16 ***	629.32 ***	174.56 ***	5966.25 ***	644.85 ***

Notes: Standard errors are computed using the Huber–White sandwich estimator and are reported in parentheses beneath the corresponding coefficients. The Wald test examines the null hypothesis that all regression coefficients are zero. *** and * denote statistical significance at the 1% and 10% levels, respectively.

Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.

Table 9. Impact of economic development on corporate crimes

Dependent variable (crime type)	Corporate crimes					Economic crimes	Political and social crimes	International crimes
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Economic development (ED) variables								
Monthly money income	0.46063 ***							
	(0.1412)							
Service industrialization		0.01707 ***						
		(0.0041)						
Urbanization			0.01453 ***					
			(0.0044)					
Higher education				0.02009 ***				
				(0.0072)				
Comprehensive ED index					0.11704 ***	0.06714 *	0.08903 *	0.13471 ***
					(0.0310)	(0.0392)	(0.0527)	(0.0373)
Board composition variables								
Outside board chairmanship	-0.01294	-0.00454	-0.00822	-0.00904	-0.01750	-0.11836	0.05334	-0.01814
	(0.1341)	(0.1351)	(0.1351)	(0.1343)	(0.1342)	(0.1995)	(0.2389)	(0.1596)
Board independence	0.00106	0.00092	0.00131	0.00106	0.00121	0.00507 **	-0.00075	0.00068
	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0026)	(0.0032)	(0.0024)
Board female representation	-0.00649 **	-0.00629 **	-0.00662 **	-0.00645 **	-0.00637 **	-0.00053	-0.00408	-0.00783 **
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0043)	(0.0050)	(0.0039)
Industrial policy variables								
Firms in sectors of strategic importance	0.51713 ***	0.52073 ***	0.50537 ***	0.52361 ***	0.51466 ***	-0.19919	-0.10049	0.66310 ***
	(0.1516)	(0.1513)	(0.1520)	(0.1514)	(0.1508)	(0.2732)	(0.2612)	(0.1774)
Systemically important corporations	0.94804 ***	0.92593 ***	0.90735 ***	0.95488 ***	0.93098 ***	0.60178	0.21710	0.93575 ***
	(0.2559)	(0.2562)	(0.2522)	(0.2548)	(0.2541)	(0.3677)	(0.5717)	(0.2798)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	6038	6038	6038	6038	6038	6038	6038	6038
Log pseudolikelihood	-6075.55	-6049.00	-6072.15	-6080.84	-6061.27	-1470.63	-1293.18	-4473.09
Pseudo R^2	0.1904	0.1939	0.1908	0.1897	0.1923	0.0941	0.0524	0.2597
Wald test (χ^2)	632.28 ***	626.78 ***	639.16 ***	623.31 ***	635.22 ***	168.70 ***	5175.86 ***	655.64 ***

Notes: Standard errors are computed using the Huber–White sandwich estimator and are reported in parentheses beneath the corresponding coefficients. The Wald test examines the null hypothesis that all regression coefficients are zero. *** and * denote statistical significance at the 1% and 10% levels, respectively.

Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.

Table 10. Impact of economic inequality and international relationships on corporate crimes

Dependent variable (crime type)	Corporate crimes	Economic crimes	Political and social crimes	International crimes	Corporate crimes	Economic crimes	Political and social crimes	International crimes
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Economic inequality variable								
Gini	8.49170 ***	9.53142 ***	11.65855 ***	7.68118 ***				
	(2.2907)	(3.0583)	(3.8050)	(2.8354)				
International relationship variable								
Foreign trade					0.00638 ***	0.00253	0.00303	0.00774 ***
					(0.0017)	(0.0025)	(0.0029)	(0.0021)
Board composition variables								
Outside board chairmanship	-0.01094	-0.12757	0.05331	-0.00614	0.00141	-0.10924	0.06620	0.00965
	(0.1351)	(0.2014)	(0.2416)	(0.1606)	(0.1344)	(0.2001)	(0.2395)	(0.1600)
Board independence	0.00108	0.00523 **	-0.00048	0.00049	0.00112	0.00490 *	-0.00108	0.00069
	(0.0019)	(0.0025)	(0.0032)	(0.0024)	(0.0019)	(0.0026)	(0.0032)	(0.0024)
Board female representation	-0.00629 **	-0.00023	-0.00372	-0.00786 **	-0.00680 **	-0.00064	-0.00436	-0.00847 **
	(0.0031)	(0.0043)	(0.0049)	(0.0039)	(0.0031)	(0.0043)	(0.0050)	(0.0039)
Industrial policy variables								
Firms in sectors of strategic importance	0.51856 ***	-0.19450	-0.10283	0.67003 ***	0.51916 ***	-0.19797	-0.09502	0.66695 ***
	(0.1524)	(0.2721)	(0.2585)	(0.1799)	(0.1510)	(0.2737)	(0.2639)	(0.1778)
Systemically important corporations	0.93901 ***	0.62167 *	0.23886	0.93782 ***	0.92735 ***	0.62448 *	0.25466	0.91858 ***
	(0.2578)	(0.3648)	(0.5560)	(0.2885)	(0.2535)	(0.3664)	(0.5643)	(0.2819)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	6038	6038	6038	6038	6038	6038	6038	6038
Log pseudolikelihood	-6066.66	-1464.40	-1285.78	-4495.29	-6068.07	-1471.96	-1295.22	-4475.36
Pseudo R^2	0.1916	0.0980	0.0578	0.2561	0.1914	0.0933	0.0509	0.2594
Wald test (χ^2)	629.57 ***	175.88 ***	5499.76 ***	643.74 ***	650.78 ***	170.41 ***	5641.60 ***	672.80 ***

Notes: Standard errors are computed using the Huber–White sandwich estimator and are reported in parentheses beneath the corresponding coefficients. The Wald test examines the null hypothesis that all regression coefficients are zero. *** and * denote statistical significance at the 1% and 10% levels, respectively.

Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.

Appendix Table A1. Estimation results of principal component analysis

(a) Public sector (PS) variables

Eigenvalue of the correlation matrix				Eigenvectors of the first component	
Component no.	Eigenvalue	Difference	Cumulative percentage of total variance	Variables	Eigenvector
1	3.0833	2.383	0.771	Public employment	0.5559
2	0.7002	0.486	0.946	Public official	0.5566
3	0.2144	0.212	1.000	Police	0.3815
4	0.0020	-	1.000	State and municipal enterprise	0.4854

(b) Economic development (ED) variables

Eigenvalue of the correlation matrix				Eigenvectors of the first component	
Component no.	Eigenvalue	Difference	Cumulative percentage of total variance	Variables	Eigenvector
1	2.8515	2.159	0.713	Monthly money income	0.5392
2	0.6926	0.398	0.886	Service industrialization	0.3836
3	0.2944	0.133	0.960	Urbanization	0.5117
4	0.1615	.	1.000	Higher education	0.5480

Note: For definitions and descriptive statistics of the variables, see Table 3.

Appendix Table A2. Robustness check with sample constraints

(a) Mining and manufacturing versus other industries

Dependent variable (crime type)	Corporate crimes							
Sample constraints	Mining and manufacturing				Agriculture, forestry, fisheries; construction; and services			
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Region-level variables								
Comprehensive PS index	-0.12009 **				-0.18032 ***			
	(0.0474)				(0.0558)			
Comprehensive ED index		0.10569 **				0.12319 ***		
		(0.0476)				(0.0400)		
Gini			7.32739 **				9.34251 ***	
			(3.0725)				(3.5456)	
Foreign trade				0.00354				0.00826 ***
				(0.0027)				(0.0024)
Board composition variables								
Outside board chairmanship	-0.02036	-0.00247	-0.00954	0.02307	-0.17155	-0.16921	-0.15296	-0.17038
	(0.1792)	(0.1798)	(0.1802)	(0.1813)	(0.2016)	(0.2025)	(0.2040)	(0.2017)
Board independence	-0.00078	-0.00108	-0.00115	-0.00110	0.00535 **	0.00503 *	0.00492 *	0.00501 *
	(0.0029)	(0.0030)	(0.0030)	(0.0030)	(0.0026)	(0.0026)	(0.0026)	(0.0026)
Board female representation	-0.00576	-0.00585	-0.00579	-0.00665	-0.00467	-0.00514	-0.00510	-0.00520
	(0.0044)	(0.0044)	(0.0044)	(0.0045)	(0.0044)	(0.0044)	(0.0043)	(0.0044)
Industrial policy variables								
Firms in sectors of strategic importance	0.66106 ***	0.66157 ***	0.67735 ***	0.67139 ***	0.09953	0.10485	0.08911	0.12325
	(0.1861)	(0.1857)	(0.1864)	(0.1856)	(0.2241)	(0.2213)	(0.2249)	(0.2199)
Systemically important corporations	0.96915 ***	0.93990 ***	0.95909 ***	0.93452 ***	0.59054	0.59307	0.60249	0.61546
	(0.2567)	(0.2592)	(0.2664)	(0.2650)	(0.4681)	(0.4667)	(0.4649)	(0.4700)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	3000	3000	3000	3000	3038	3038	3038	3038
Log pseudolikelihood	-2921.73	-2924.53	-2924.38	-2935.58	-3056.64	-3069.19	-3075.18	-3061.67
Pseudo R^2	0.2132	0.2124	0.2125	0.2094	0.1936	0.1903	0.1888	0.1923
Wald test (χ^2)	395.82 ***	405.76 ***	405.18 ***	412.39 ***	383.32 ***	385.04 ***	368.56 ***	396.36 ***

(b) Larger versus smaller companies

Dependent variable (crime type)	Corporate crimes							
Sample constraints	Larger companies				Smaller companies			
Model	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
Region-level variables								
Comprehensive PS index	-0.12488 ***				-0.25108 ***			
	(0.0412)				(0.0782)			
Comprehensive ED index		0.09814 ***				0.20298 ***		
		(0.0361)				(0.0621)		
Gini			5.70276 **				16.65540 ***	
			(2.6224)				(4.4404)	
Foreign trade				0.00542 ***				0.01036 ***
				(0.0020)				(0.0034)
Board composition variables								
Outside board chairmanship	0.07555	0.08411	0.09296	0.10291	-0.37797	-0.38038	-0.36525	-0.35660
	(0.1691)	(0.1689)	(0.1701)	(0.1690)	(0.2370)	(0.2371)	(0.2396)	(0.2380)
Board independence	0.00028	0.00004	0.00007	0.00004	0.00422	0.00406	0.00347	0.00347
	(0.0024)	(0.0025)	(0.0025)	(0.0025)	(0.0035)	(0.0035)	(0.0035)	(0.0036)
Board female representation	-0.00816 **	-0.00847 **	-0.00813 **	-0.00888 **	-0.00150	-0.00214	-0.00258	-0.00273
	(0.0038)	(0.0038)	(0.0037)	(0.0038)	(0.0051)	(0.0051)	(0.0051)	(0.0051)
Industrial policy variables								
Firms in sectors of strategic importance	0.65423 ***	0.65517 ***	0.66267 ***	0.65861 ***	-0.07319	-0.06424	-0.06437	-0.05732
	(0.1763)	(0.1756)	(0.1778)	(0.1754)	(0.2479)	(0.2464)	(0.2442)	(0.2491)
Systemically important corporations	0.76043 ***	0.73558 ***	0.73689 ***	0.73163 ***	1.93885 ***	1.89615 ***	1.97994 ***	1.94112 ***
	(0.2394)	(0.2400)	(0.2456)	(0.2377)	(0.5359)	(0.5430)	(0.5353)	(0.5673)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	3022	3022	3022	3022	3016	3016	3016	3016
Log pseudolikelihood	-3638.55	-3643.72	-3653.70	-3646.74	-2253.26	-2260.95	-2253.86	-2269.23
Pseudo R^2	0.2465	0.2454	0.2433	0.2448	0.0807	0.0775	0.0804	0.0742
Wald test (χ^2)	3712.29 ***	3719.45 ***	6053.46 ***	3807.58 ***	108.74 ***	94.77 ***	108.52 ***	86.31 ***

(c) Older versus younger companies

Dependent variable (crime type)	Corporate crimes							
Sample constraints	Older companies				Younger companies			
Model	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]
Region-level variables								
Comprehensive PS index	-0.15227 ***				-0.18183 ***			
	(0.0488)				(0.0572)			
Comprehensive ED index		0.09162 **				0.16894 ***		
		(0.0423)				(0.0460)		
Gini			4.95877 *				13.96000 ***	
			(2.9945)				(3.5202)	
Foreign trade				0.00560 **				0.00719 ***
				(0.0024)				(0.0026)
Board composition variables								
Outside board chairmanship	-0.06379	-0.04608	-0.03289	-0.02340	-0.02141	-0.02320	0.00093	-0.00304
	(0.1612)	(0.1636)	(0.1636)	(0.1650)	(0.2280)	(0.2272)	(0.2286)	(0.2286)
Board independence	-0.00063	-0.00054	-0.00050	-0.00042	0.00295	0.00266	0.00246	0.00231
	(0.0036)	(0.0037)	(0.0037)	(0.0037)	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Board female representation	-0.00124	-0.00152	-0.00144	-0.00203	-0.00724 *	-0.00770 **	-0.00764 **	-0.00819 **
	(0.0049)	(0.0049)	(0.0049)	(0.0049)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
Industrial policy variables								
Firms in sectors of strategic importance	0.81830 ***	0.82532 ***	0.84415 ***	0.81907 ***	-0.01529	-0.01089	-0.01573	0.00475
	(0.1767)	(0.1780)	(0.1782)	(0.1786)	(0.2698)	(0.2650)	(0.2711)	(0.2699)
Systemically important corporations	0.81082 ***	0.78239 ***	0.77818 ***	0.76429 ***	0.74734	0.68046	0.80912	0.72870
	(0.2617)	(0.2656)	(0.2719)	(0.2698)	(0.6812)	(0.7008)	(0.6599)	(0.7050)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	2380	2380	2380	2380	3658	3658	3658	3658
Log pseudolikelihood	-2653.35	-2670.41	-2676.51	-2668.74	-3248.89	-3242.52	-3238.41	-3264.70
Pseudo R^2	0.2790	0.2743	0.2727	0.2748	0.1302	0.1319	0.1330	0.1259
Wald test (χ^2)	4341.18 ***	4692.38 ***	4919.15 ***	4945.06 ***	411.75 ***	464.61 ***	426.24 ***	430.45 ***

Notes: Standard errors are computed using the Huber–White sandwich estimator and are reported in parentheses beneath the corresponding coefficients. The Wald test examines the null hypothesis that all regression coefficients are zero. *** and * denote statistical significance at the 1% and 10% levels, respectively.

Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.

Appendix Table A3. Estimation of Poisson complementary log-log hurdle model

(a) Dependent variable: Corporate crimes

Model	[1]		[2]		[3]		[4]	
	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage
Region-level variables								
Comprehensive PS index	-0.11773 ***	-0.04864						
	(0.0266)	(0.0328)						
Comprehensive ED index			0.10983 ***	0.02250				
			(0.0225)	(0.0275)				
Gini					9.69995 ***	0.12567		
					(1.7613)	(1.9565)		
Foreign trade							0.00533 ***	0.00145
							(0.0013)	(0.0016)
Board composition variables								
Outside board chairmanship	-0.00973	-0.14448	-0.00963	-0.13973	-0.00666	-0.12873	-0.00093	-0.13294
	(0.0984)	(0.1205)	(0.0983)	(0.1210)	(0.0988)	(0.1215)	(0.0985)	(0.1207)
Board independence	-0.00086	0.00317 *	-0.00101	0.00310 *	-0.00109	0.00305	-0.00120	0.00307 *
	(0.0014)	(0.0018)	(0.0014)	(0.0019)	(0.0014)	(0.0019)	(0.0014)	(0.0019)
Board female representation	-0.00427 *	-0.00248	-0.00445 **	-0.00263	-0.00426 *	-0.00267	-0.00472 **	-0.00277
	(0.0022)	(0.0028)	(0.0022)	(0.0028)	(0.0022)	(0.0028)	(0.0022)	(0.0028)
Industrial policy variables								
Firms in sectors of strategic importance	0.40746 ***	0.08138	0.40759 ***	0.08088	0.41341 ***	0.08037	0.41674 ***	0.07980
	(0.1058)	(0.1165)	(0.1051)	(0.1169)	(0.1056)	(0.1177)	(0.1052)	(0.1169)
Systemically important corporations	0.21628	0.70272 ***	0.20774	0.69205 ***	0.22033	0.69995 ***	0.24218	0.68981 ***
	(0.2662)	(0.1849)	(0.2620)	(0.1871)	(0.2657)	(0.1866)	(0.2603)	(0.1878)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	6038		6038		6038		6038	
Log pseudolikelihood	-3799.79		-3803.03		-3799.77		-3806.48	
Wald test (χ^2)	464.78***		471.69***		482.94***		465.36***	

(b) Dependent variable: Economic crimes

Model	[5]		[6]		[7]		[8]	
	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage
Region-level variables								
Comprehensive PS index	-0.07959 **	-0.12619						
	(0.0369)	(0.0858)						
Comprehensive ED index			0.03613	0.07600				
			(0.0379)	(0.0630)				
Gini					7.55603 ***	5.37222		
					(2.8832)	(5.2820)		
Foreign trade							0.00029	0.00794 **
							(0.0024)	(0.0037)
Board composition variables								
Outside board chairmanship	-0.32247 *	0.19905	-0.31436 *	0.20385	-0.32351 *	0.21881	-0.30209 *	0.17567
	(0.1696)	(0.2597)	(0.1697)	(0.2530)	(0.1697)	(0.2573)	(0.1700)	(0.2540)
Board independence	0.00533 **	0.00351	0.00505 **	0.00303	0.00523 **	0.00319	0.00490 **	0.00265
	(0.0024)	(0.0043)	(0.0024)	(0.0043)	(0.0024)	(0.0042)	(0.0024)	(0.0044)
Board female representation	0.00233	-0.00685	0.00207	-0.00687	0.00232	-0.00649	0.00200	-0.00826
	(0.0035)	(0.0070)	(0.0035)	(0.0071)	(0.0035)	(0.0070)	(0.0035)	(0.0072)
Industrial policy variables								
Firms in sectors of strategic importance	-0.17124	-0.33969	-0.17244	-0.34465	-0.16661	-0.33427	-0.17303	-0.38432
	(0.2066)	(0.4142)	(0.2066)	(0.4132)	(0.2059)	(0.4170)	(0.2079)	(0.4066)
Systemically important corporations	0.69083 *	-0.25823	0.69992 *	-0.24689	0.71287 *	-0.23471	0.72228 *	-0.21512
	(0.4105)	(0.7479)	(0.4086)	(0.7465)	(0.4065)	(0.7492)	(0.4060)	(0.7448)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	6038		6038		6038		6038	
Log pseudolikelihood	-1228.31		-1230.66		-1227.40		-1229.23	
Wald test (χ^2)	177.16***		173.95***		179.68***		172.14***	

(c) Dependent variable: Political and social crimes

Model	[9]		[10]		[11]		[12]	
	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage
Region-level variables								
Comprehensive PS index	-0.15439 ***	-0.04383						
	(0.0552)	(0.0628)						
Comprehensive ED index			0.11752 ***	-0.07967				
			(0.0439)	(0.0636)				
Gini					10.95906 ***	3.78845		
					(3.2845)	(4.2301)		
Foreign trade							0.00416 *	-0.00328
							(0.0025)	(0.0037)
Board composition variables								
Outside board chairmanship	0.09707	0.31281	0.10279	0.31003	0.10910	0.32889	0.12043	0.29199
	(0.1921)	(0.3174)	(0.1927)	(0.3106)	(0.1933)	(0.3208)	(0.1930)	(0.3118)
Board independence	-0.00139	0.00297	-0.00171	0.00225	-0.00169	0.00290	-0.00212	0.00245
	(0.0029)	(0.0032)	(0.0029)	(0.0031)	(0.0029)	(0.0032)	(0.0029)	(0.0031)
Board female representation	-0.00601	0.00205	-0.00631	0.00281	-0.00616	0.00281	-0.00672	0.00290
	(0.0044)	(0.0056)	(0.0044)	(0.0054)	(0.0044)	(0.0053)	(0.0044)	(0.0055)
Industrial policy variables								
Firms in sectors of strategic importance	-0.02325	-0.24233	-0.01955	-0.19395	-0.01610	-0.24262	-0.00808	-0.19172
	(0.2155)	(0.2456)	(0.2142)	(0.2518)	(0.2142)	(0.2484)	(0.2160)	(0.2524)
Systemically important corporations	0.29428	0.11804	0.27838	0.04058	0.31727	0.09509	0.31775	0.02532
	(0.5139)	(0.7884)	(0.5156)	(0.8027)	(0.5069)	(0.7467)	(0.5114)	(0.8265)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	6038		6038		6038		6038	
Log pseudolikelihood	-961.38		-962.36		-960.74		-964.95	
Wald test (χ^2)	10962.75***		5429.07***		7126.12***		5523.38***	

(d) Dependent variable: International crimes

Model	[13]		[14]		[15]		[16]	
	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage	c-loglog stage	Poisson stage
Region-level variables								
Comprehensive PS index	-0.12337 ***	-0.04402						
	(0.0363)	(0.0339)						
Comprehensive ED index			0.15277 ***	0.00189				
			(0.0272)	(0.0315)				
Gini					12.41001 ***	-2.25801		
					(2.2816)	(2.2570)		
Foreign trade							0.00847 ***	0.00014
							(0.0016)	(0.0019)
Board composition variables								
Outside board chairmanship	0.07096	-0.24474 *	0.05810	-0.22637	0.06892	-0.20808	0.07002	-0.22580
	(0.1212)	(0.1446)	(0.1209)	(0.1458)	(0.1216)	(0.1468)	(0.1212)	(0.1445)
Board independence	-0.00218	0.00430 *	-0.00212	0.00420 *	-0.00244	0.00408 *	-0.00226	0.00420 *
	(0.0017)	(0.0023)	(0.0017)	(0.0023)	(0.0017)	(0.0023)	(0.0017)	(0.0023)
Board female representation	-0.00831 ***	0.00086	-0.00841 ***	0.00053	-0.00816 ***	0.00037	-0.00878 ***	0.00052
	(0.0029)	(0.0034)	(0.0029)	(0.0033)	(0.0029)	(0.0033)	(0.0029)	(0.0033)
Industrial policy variables								
Firms in sectors of strategic importance	0.58570 ***	0.06113	0.58263 ***	0.05885	0.58880 ***	0.05928	0.59647 ***	0.05897
	(0.1255)	(0.1307)	(0.1242)	(0.1319)	(0.1251)	(0.1333)	(0.1242)	(0.1319)
Systemically important corporations	0.23902	0.69294 ***	0.22135	0.69095 ***	0.21774	0.69578 ***	0.26700	0.69071 ***
	(0.2959)	(0.1977)	(0.2872)	(0.1989)	(0.2983)	(0.1986)	(0.2885)	(0.1998)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-level fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-level fixed effects	No	No	No	No	No	No	No	No
N	6038		6038		6038		6038	
Log pseudolikelihood	-2607.87		-2603.16		-2600.37		-2605.28	
Wald test (χ^2)	566.92***		589.09***		582.07***		587.16***	

Notes: Robust standard errors are reported in parentheses. The Wald test examines the null hypothesis that all regression coefficients are zero. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' estimations. See Table 3 for definitions and descriptive statistics of the variables used.