

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

## International Journal of Law, Crime and Justice

journal homepage: [www.elsevier.com/locate/ijlcrj](http://www.elsevier.com/locate/ijlcrj)

Position Paper

# Effects of bounded rationality on prosecutorial decision making: Analysis of penalties on corporate fraud violators

Claire Nolasco Braaten<sup>a,\*</sup>, Lily Chi-Fang Tsai<sup>b</sup>

<sup>a</sup> College of Arts and Sciences, Department of Criminology, Texas A&M-San Antonio, One University Way, San Antonio, TX, 78224, USA

<sup>b</sup> Department of Criminal Justice, University of Maryland, Eastern Shore, 1 College Backbone Road, Princess Anne, MD, 21853, USA

## ARTICLE INFO

## Keywords:

Bounded rationality  
 Prosecutorial decision making  
 Corporate penalties  
 Financial institutions  
 White collar crime  
 Corporate fraud

## ABSTRACT

Our study analyzes data from the Corporate Prosecution Registry of the University of Virginia School of Law and Duke University School of Law. This registry provides information on federal organizational prosecutions in the United States, including detailed information about every federal organizational prosecution since 2001, as well as deferred and non-prosecution agreements with organizations since 1990. We examine a subset of corporate violators, namely those who allegedly committed five types of fraud, namely, accounting fraud, mail fraud and wire fraud prosecutions, health care fraud, securities fraud, and tax fraud. We utilize the framework of bounded rationality of decision making to hypothesize that prosecutors are influenced by internal and external factors that affect the total penalties ultimately levied on corporate violators. Specifically, our results indicate that corporate penalties are significantly more likely to be lower when U.S. Department of Justice sections are involved in the prosecution and the company's country of incorporation has a Free Trade Agreement with the U.S. but significantly more likely to be higher when the violator is a U.S. public company.

## 1. Introduction

During the financial crisis of 2007–2008, Occupy Wall Street protesters were riled at the fact that Wall Street banks were treated as “too big to fail” and bailed out while individuals lost their homes, savings, and livelihoods (Goering, 2011). Critics also asked why “too big to jail” banks and financial institutions were not held accountable for crimes (Nelson, 2017; Rakoff, 2014; Rothfeld, 2014). Garrett (2020) notes that in the last twenty months of the Obama Administration, \$14.15 billion in total corporate penalties were levied on seventy-one financial institutions and thirty-four public companies prosecuted by the Department of Justice (“DOJ”). This declined to \$3.4 billion in total penalties during the first twenty months of the Trump Administration imposed on seventeen financial institutions and thirteen public companies prosecuted by DOJ. Most of the cases with large penalties in the first twenty months of the Trump Administration were legacy cases that were initiated and investigated under the Obama Administration (Warin et al., 2019). Amidst public perceptions of pervasive corporate wrongdoing, the decline in corporate penalties reflects federal prosecutors’ approach toward corporate violators.

Studies on prosecutorial decision making in corporate litigation have been largely descriptive and qualitative. Garrett (2020), for instance, presents data on the decline of corporate penalties and explains the decline through a qualitative approach that traces agency policies and practices with respect to corporate violators. Alexander and Cohen (2015) descriptively examine differences in criminal

\* Corresponding author.

E-mail addresses: [cnolasco@tamusa.edu](mailto:cnolasco@tamusa.edu), [claire.braaten@tamusa.edu](mailto:claire.braaten@tamusa.edu) (C. Nolasco Braaten), [Ltsai@umes.edu](mailto:Ltsai@umes.edu) (L. Chi-Fang Tsai).

<https://doi.org/10.1016/j.ijlcrj.2023.100634>

Received 18 May 2023; Received in revised form 25 October 2023; Accepted 14 November 2023

Available online 23 November 2023

1756-0616/© 2023 Elsevier Ltd. All rights reserved.

settlements obtained by prosecutors with U.S. public companies through the different forms of disposition agreements (plea agreements, non prosecution agreements, and deferred prosecution agreements) from the period 1997–2011. Other research traces the legal evolution of corporate prosecution strategies, focusing on laws and cases that illustrate federal approaches to corporate offenders (Griffin, 2007). In the realm of political economy, empirical studies focus on behavior models that examine how prosecutors' embeddedness in their political and social environment affect their choices (Gordon and Huber, 2009). There has been a dearth of empirical research that applies behavioral models of prosecutorial decision making in the context of corporate violators. Although several studies describe the general decline in corporate penalties over the years, inferential studies are needed to further dissect this trend.

Our study analyzes data from the Corporate Prosecution Registry of the University of Virginia School of Law and Duke University School of Law (Garrett and Ashley, 2023). This registry provides information on federal organizational prosecutions in the United States, including detailed information about every federal organizational prosecution since 2001, as well as deferred and non-prosecution agreements with organizations since 1990. We examine a subset of corporate violators, namely those who allegedly committed five types of fraud: (1) accounting fraud, namely, federal crimes relating to false statements or entries, such as under 18 U.S.C. § 1001 (a); (2) mail fraud and wire fraud prosecutions under 18 U.S.C. § 1341 and 1343, as well as other fraud crimes, such as conspiracy to defraud the federal government under 18 U.S.C. §371; (3) health care fraud under 18 U.S.C. § 1347; (4) securities fraud under 18 U.S.C. § 1348; and (5) tax fraud under 26 U.S.C. § 7201 and 7201 regarding attempted federal tax evasion and fraud and false statements to tax authorities. We utilize the framework of bounded rationality of decision making to hypothesize that prosecutors are influenced by internal and external factors that affect the total penalties ultimately levied on corporate violators. Specifically, our results indicate that corporate penalties are significantly more likely to be lower when U.S. DOJ sections are involved in the prosecution and the company's country of incorporation has a Free Trade Agreement with the U.S. but significantly more likely to be higher when the violator is a U.S. public company. The next sections of the paper are arranged as follows: (1) review of literature on the trend of declining corporate penalties and the framework of bounded rationality (3) hypotheses; (4) data and methods; (5) results; and (6) discussion.

## 2. Literature review

### 2.1. Systems approach to understanding corporate crime and prosecution

The systems approach is a holistic and interdisciplinary method used in various fields, including social sciences, to understand complex phenomena by examining them as systems composed of interconnected elements (Bertalanffy, 1969; Rothe and Kauzlarich, 2022). It emphasizes the interdependence and interactions among the components of a system, rather than analyzing them in isolation. In the social sciences, the systems approach is employed to study various social systems, such as organizations, communities, and societies. It acknowledges that social systems are made up of individuals, groups, institutions, and their interactions. This approach emphasizes the interconnectedness of various elements within a social system so that changes in one part of the system can have ripple effects throughout the entire system. The concepts of system criminality and systems analysis can aid our understanding of corporate crimes and illustrate their symbiotic nature (Rothe and Kauzlarich, 2022). System criminality has been conceptualized as crimes that are committed by individual actors and organizations that constitute a complex whole with varying levels of participation (Nollkaemper and Van der Wilt, 2009; Rothe and Collins, 2011).

Nezhurbida (2013) asserts that through the application of systems analysis, the concept of a criminological system can be defined based on several key features. First, a criminological system comprises a comprehensive set of interconnected elements, essentially forming systems of lower levels. Additionally, a criminological system establishes a unique unity with its surrounding environment. Furthermore, in most cases, any criminological system being studied is itself a part of a higher-level system, functioning as either a subsystem or a component of a larger macro system. Within this framework, the elements within the criminological system under examination are viewed, for specific objectives, as systems of lower levels. Finally, it is imperative that the interactions and relationships among the elements of the system take on a cooperative character to achieve a focused and advantageous outcome.

The continuing perpetration of corporate crime can be analyzed through a systems approach. Recognizing that corporations are legal entities with internal systems (composed of corporate rules, employees, officers, etc.) and are also external actors functioning within a greater political, economic, and social context, a systems approach is necessary to determine the politico-social context within which corporate crime has subsisted and continues to exist. For instance, one pressing issue in regulation studies is the decline in corporate penalties imposed on corporate offenders. Under the Obama Administration, the DOJ imposed significant corporate penalties, but during the first twenty months of the Trump Administration, penalties declined, primarily involving legacy cases (Garrett, 2020; Warin et al., 2019).

Scholars note that the decline in corporate penalties may be attributed to policy changes in corporate prosecution from the Obama administration to the Trump administration (Garrett, 2014, p. 63; Garrett, 2020, p. 110). During the Obama Administration, for example, the DOJ implemented a new form of declination in corporate cases which allowed the agency to refrain from prosecuting companies that substantially cooperated and self-reported corporate violations (U.S. DOJ, 2016). This declination is used in "a case that would have been prosecuted or criminally resolved except for the company's voluntary disclosure, full cooperation, remediation, and payment of disgorgement, forfeiture, and/or restitution" (U.S.A.M. § 9–47.120). Thus, the DOJ declines to prosecute a meritorious case that would have resulted in a conviction because of the new declination remedy (Nolasco, 2016, 2019).

The decline in federal corporate criminal penalties can also be attributed to policy preferences of incumbent DOJ officials (Garrett, 2020). For example, then-Deputy Attorney General Rod Rosenstein stated in a March 2018 speech that in corporate prosecutions,

prosecutors should “avoid imposing penalties that disproportionately punish innocent employees, shareholders, customers and other stakeholders” (Protest et al., 2018). The DOJ then announced a policy in May 2018 discouraging “piling on” of fines, where a company might pay fines to multiple enforcers in relation to investigations of the same misconduct. The DOJ remarked that, “(p)iling on” can cause uncertainties for a company that has entered into a final settlement with one enforcement authority and that the agency needed to consider the impact of multiple payments on innocent stakeholders such as employees, customers, and investors (Rosenstein, 2018). Another change to DOJ policy on corporate prosecutions was to decline all criminal charges against fully cooperating corporations accused of foreign bribery violations. This policy, announced in Spring (2018), prohibits prosecutors from filing charges if they find that a company sufficiently cooperated and reported their crimes (U.S.A.M. § 9–47.120). In March 2018, the DOJ extended the new declination approach to all corporate prosecutions beyond FCPA matters (Singer, 2018).

Another persistent issue in corporate prosecutions is whether financial institutions such as banks and bank executives are being held criminally accountable (Rakoff, 2014). Years after the financial crisis from 2007 to 2008, the DOJ prosecuted a large number of banks, levied increasing fines, and entered into plea agreements with them instead of offering deferred or non-prosecution agreements as in the past (Garrett, 2016). Plea agreements with banks involved penalties that “broke records” for the largest fines ever imposed in criminal cases in the U.S. (Garrett, 2020, p. 122). For example, \$9 billion in total penalty was imposed on French bank BNP Paribas as part of its plea for sanctions violations (U.S. DOJ, 2014). However, the above practice changed with fewer bank prosecutions since 2017. In the last twenty months of the Obama Administration, seventy-one financial institutions were prosecuted, while during the first twenty months of the Trump Administration, seventeen financial institutions were prosecuted.

Garrett (2020) describes several examples from settlements with financial institutions to show not only the decline in prosecutions of banks and decreased fines but also an increased leniency towards corporate criminals, including banks. In May 2017, the first criminal prosecution was settled with a bank under the Trump Administration (Corkery and Protest, 2017). Federal prosecutors settled a money laundering case with Banamex, a defunct subsidiary of Citibank, with a non-prosecution agreement that led to a forfeiture of \$97 million dollars. No criminal charges were filed against the bank itself or against any individuals. A second sign of increased leniency was the handling of HSBC, the large multi-national bank based in the U.K. In January 2018, HSBC settled a new deferred prosecution agreement over rigging currency transactions by paying \$101.5 million in fines (Stempel and Sangameswaran, 2018).

The decline in corporate penalties resulted from changes in DOJ written policy that reflected its leniency toward corporations, namely: (1) DOJ’s new practice of not “piling on” financial penalties, in which a company might pay penalties to multiple enforcers; (2) DOJ’s pilot policy in the FCPA context of declining all criminal charges against fully cooperating corporations accused of foreign bribery violations; (3) expansion in March 2018 of declination remedy to all corporate prosecutions; (4) lax implementation of the Yates Memo in Fall (2017) to permit settlements with corporations when individual investigations are pending; (5) DOJ’s decision not to renew the position of compliance counsel who could evaluate whether a company was effectively engaging in compliance efforts; and (6) DOJ’s new guidelines on corporate compliance and monitors that suggested that a monitor “will not be necessary” unless based on some “demonstrated need” (Garrett, 2020, pp. 135–136).

The decline in corporate prosecution and penalties also resulted from institutional instability due to the high-level of vacancies within the DOJ and other enforcement agencies under the Trump administration. During the Trump Administration, DOJ vacancies were extremely slow to fill. For example, the DOJ postponed its search for the third-in-command Associate Attorney General position after the departure in early 2018 of the incumbent Atty. Rachel Brand and several candidates declined to be considered (Gurman and Viswanatha, 2018). Vacancies in the position of chief of several divisions, including the Criminal Division, remain unfilled as of early 2019, with the Chief of the Fraud Section being hired only in July 2019 (Shubber, 2019). In early 2018, DOJ affiliated agencies such as the Drug Enforcement Agency and the U.S. Marshals Service also had unfilled leadership positions (Johnson, 2018). These transitions in staffing compromised these agencies’ ability to coordinate resolution of complex cases.

## 2.2. The framework of bounded rationality

Scholars of political economy analyze prosecutorial decision making within the framework of bounded rationality (O’Brien, 2009). Bounded rationality is a school of thought about decision making that developed from dissatisfaction with the comprehensively rational economic and decision theory models of choice. Rational models assume that decision makers maximize their net benefits, or utilities, by choosing the option that yields the highest level of benefits (discounted by costs) (Jones, 1999, 2003). Bounded rationality explains that people engage in a decision-making process that attempts to satisfy, rather than optimize, based on a limited amount of information and their cognitive capacity (Simon, 1947). They decide on a course of action that is good enough, rather than the optimal decision. Bounded rationality assumes that actors are goal-oriented but have cognitive limitations that affect their choices.

A brief review of research on prosecutorial behavior explain that their charging decisions are guided by two major groups of factors: legal or case related factors (Beichner and Spohn, 2005; Hirschel and Hutchinson, 2001; Rauma, 1984; Worrall et al., 2006) and non-case related factors such as administrative reasons or equitable reasons (Bowers, 2010) that may be either internal or external to the prosecutor (Harding, 2019). Thus, a prosecutor may decline to prosecute because of lack of sufficient proof of legal guilt, the desire to preserve limited resources, or the perception that the prospective defendant is insufficiently blameworthy.

Case-related factors that play a significant role in prosecutors’ decisions include the strength of evidence, seriousness of offense, and the defendant’s criminal history (Frederick and Stemen, 2012). When evaluating the strength of the evidence, their evaluation “is not simple or mathematic” but depends on the quality of the evidence and its authentication, durability, and nature (Harding, 2019, p. 197). For example, some prosecutors favor physical evidence over testimonial evidence because of lapses in witness’ memory or susceptibility to decay over time. When considering the seriousness of the offense, a prosecutor weighs his limited resources and whether the interests of justice will be served by prosecuting the case (Harding, 2019, p. 199). The offender’s criminal history increases

a prosecutor's belief in the likelihood of conviction and influences the decision to prosecute (Frederick and Stemen, 2012).

Prosecutors' decisions about a case are not entirely optimal, based entirely on case-related factors. Instead, their analysis may be imperfect because their cognitive facilities are susceptible to error and oversight, and their preexisting internal filters affect their understanding and perception of external information. Factors beyond the case consist of internal influences (cognitive bias, ordinary bias, self-interest, prosecutor's philosophy and policy preferences) and external influences (office policies and culture, resources, and actors in the criminal justice system).

### 2.2.1. Internal influences

Extant research discusses the impact of cognitive bias on prosecutorial decision-making (Burke, 2006; Shiyuan, 2017; Weinstein, 2003; Yakren, 2015). Because of cognitive bias, individuals seek to confirm instead of disconfirm, any hypothesis under study (confirmation bias) and overvalue information that is consistent with one's preexisting theories (selective information processing). Cognitive biases affect prosecutors by potentially skewing their perception of the strength of the evidence and influencing the conduct of investigations (Harding, 2019). Prosecutors are also susceptible to implicit biases or the subconscious disfavoring of a group of people, self-interests, and personal philosophies (Greenwald and Krieger, 2006). For example, prosecutors decide to prosecute if their political careers are advanced (George, 2005). A prosecutor with a conviction philosophy will also likely focus almost solely on conviction.

### 2.2.2. External influences

**2.2.2.1. DOJ policies.** Two specific types of office policies affect charging decisions—those specifically controlling the prosecutors' exercise of discretion, such as bans on making plea offers for certain offenses and personnel policies. Agency policies and the preferences of their political principals (e.g., the President) heavily influence their decisions on whether or not to prosecute. With respect to corporate criminal liability first discussed by the U.S. Supreme Court in the case of *New York Central & Hudson River Railroad Co. v. United States* (1909), the DOJ did not provide any specific guidance regarding prosecutions of corporate crime until the mid-1990s. The DOJ then issued several policies providing guidance on the use of prosecutorial discretion in dealing with corporate violators, including the Holder Memo in 1999, the Thompson Memo in 2001, the McNulty Memo in 2006, and the Yates Memo in 2015. Prosecutors were instructed to consider whether prosecution was necessary at all or whether civil or regulatory fines sufficiently punish and deter. These policies indicate the DOJ's adoption of the goal of structural reform and rejection of a deterrence approach to organizational punishment—the DOJ does not primarily seek punitive fines in its settlements, instead emphasizing restitution to compensate victims. The Sentencing Commission has also adopted guidelines that reject optimal punishment and instead mitigate fines if a firm has "effective compliance" programs, thereby hindering DOJ from adopting optimal deterrence as its goal (Diamantis, 2008, p. 543; Nagel and Swenson, 1993, p. 217). Even in the context of egregious corporate violations, DOJ has sought structural reform remedies early to avoid the harsh effects of an indictment (Garrett, 2007).

In June 1990, then-Deputy Attorney General Eric Holder issued a policy memorandum that provided the first comprehensive guidelines for federal prosecution of corporate crime ("Holder Memo"). The Holder Memo identified eight factors for prosecutors to consider when deciding whether to charge a corporate entity or its employees, including collateral consequences such as disproportionate harm to innocent shareholders and employees (Holder, 1999). After the issuance of the Holder Memo, DOJ consistently prosecuted corporate violators, charging more than 100 corporate offenders in 2000, rarely utilizing deferred prosecution agreements ("DPA"), non-prosecution agreements ("NPA"), or other alternatives to criminal prosecution (Modlish, 2017).

In response to growing concerns about endemic accounting and financial malfeasance, Congress enacted the Sarbanes-Oxley Act of 2002 which aims to prevent corrupt corporate culture by implementing enhanced criminal penalties and reforming corporate governance through internal controls (Romano, 2005). In 2002, former President George W. Bush also issued Exec. Order No. 13271, creating DOJ Corporate Fraud Task Force to coordinate investigation and prosecution of companies. In pursuit of the government's structural reform goals for organizational violations, the DOJ implemented the then novel strategy of deferred or non-prosecution agreements. The DOJ increasingly avoided trial by entering into these pre-trial diversion agreements, permitting organizations to accomplish an internal rehabilitative program, and agreeing not to prosecute or defer prosecution if they complied. These deferred or non-prosecution agreement agreements are signed at the charging stage, after filing a criminal complaint but without an indictment—much earlier than the plea-bargaining agreements obtained after an indictment.

The DOJ's approach to corporate criminal prosecution changed dramatically after the "disastrous" prosecution of Arthur Andersen LLP, one of the "big five" accounting firms, in 2002 (Modlish, 2017, p. 751). Following the collapse of the Enron corporation, the DOJ indicted the firm due to its role in the Enron scandal and evidence of its accounting fraud. The accounting firm collapsed due to the loss of its clients and damage to its reputation. Criticism arising from the consequences of the prosecution of Arthur Andersen led the DOJ to issue new guidance regarding the criminal prosecution of corporations (Griffin, 2007). In January 2003, Deputy Attorney General Larry Thompson issued a memorandum that introduced the possibility of immunity, amnesty, and pretrial diversion, including NPAs and DPAs for cooperative corporations, when their cooperation was necessary to the public interest (Thompson, 2003). DOJ prosecutors were directed to consider several factors in their decision, including the existence of an "adequate compliance program" (Thompson, 2003, p. 6). The Thompson Memo further directs prosecutors to consider the possibly substantial consequences to blameless officers, directors, employees, and shareholders, consumers, and creditors (Thompson, 2003). The "overdeterrent effect of an indictment" incentivized DOJ to resolve prosecutions pre-indictment at the charging stage (Garrett, 2007, p. 880).

The McNulty Memo that superseded the Thompson Memo discourages prosecutors, except in extreme cases, from conditioning

agreement on nonpayment of employee legal fees and also discourages prosecutors from obtaining privilege waivers, requiring central DOJ approval of such waivers (McNulty, 2006). The DOJ revised its corporate criminal prosecution guidelines with the issuance of the Filip Memo in 2008 that fully endorsed DPAs and NPAs as central to DOJ prosecution strategy (Filip, 2008). Under the Filip Memo, DOJ prosecutors were directed to consider collateral consequences to innocent third parties when deciding whether to offer NPAs to corporate violators. The Yates Memo issued by Deputy Attorney General Sally Yates on September 9, 2015 described a new DOJ policy that increasingly targets individuals involved in corporate crimes and provides guidelines for how this goal of individual accountability would be met (Yates, 2015). The Yates Memo identified six key prosecutorial principles focused on identifying responsible individuals and ensuring a prosecutorial emphasis on individual liability throughout corporate criminal investigations.

From January 2003 to January 2007, the DOJ obtained NPAs or DPAs with thirty-five companies, many of which were Fortune 500 companies. These agreements resulted in \$4.9 billion in fines and restitution as well as “sweeping compliance reforms” (Garrett, 2007, p. 890). From 2011 through 2013, more than two-thirds of the DOJ’s corporate criminal cases were resolved through DPAs or NPAs instead of full prosecution (Uhlmann, 2013). The Bush administration was much tougher on corporate crime than the Obama administration, with the use of DPAs becoming more prevalent during the Obama administration (Modlish, 2017). Proponents of prosecutorial alternatives explain that the DOJ’s strategy is the result of a cost-benefit analysis—the Department can obtain financial sanctions, cooperation, and structural reform through compliance programs such as DPAs and NPAs, without expending the resources necessary for a full trial (Uhlmann, 2013). Instead of full prosecution that leads to collateral consequences, excess resource expenditure, and the risk of losing at trial, prosecutors can achieve settlement terms through alternative prosecution agreements.

Modlish (2017) points out several flaws in the use of DPA and NPAs. *First*, the DOJ pursues noncriminal prosecutorial alternatives more often with large, influential companies than it does with smaller, private corporations. Favorable treatment of large corporations implies partiality in treatment and fosters lack of public trust in the legal system. *Second*, the DOJ traditionally limited pretrial diversion to less serious crimes and to individuals with little or no criminal history. After 2003, the DOJ increasingly used DPAs and NPAs, forms of pretrial diversion, with corporations that had serious criminal histories. *Third*, the lack of judicial monitoring of DPAs and NPAs leads to a lack of accountability, neutrality, and effectiveness of the agreements (Uhlmann, 2013; Modlish, 2017). With DPAs, there is some limited oversight which is “mechanical at best”—deferred prosecution requires that a court approve a waiver of the relevant statute of limitations (Modlish, 2017, p. 759). With NPAs, there is no judicial oversight at all because charges are never filed. *Lastly*, DPAs and NPAs do not provide the same deterrent effect on corporate misconduct as criminal prosecutions. DPAs and NPAs make it possible for corporations to calculate the monetary risk of criminal business practices and decide whether to pay the risk due to the potential financial gains of the criminal practices.

Detractors of the structural reform approach argue that the DOJ should prosecute organizations to obtain deterrent fines (Garrett, 2007). Based on deterrence theory, they argue that prosecutors should impose an optimal punishment based on the harm and the probability of detection of malfeasance (Garrett, 2007; Hylton, 1998; Polinsky and Shavell, 1998). Garrett (2007) argues that there is lack of empirical evidence demonstrating the effectiveness of corporate structural reforms such as compliance programs. On the other hand, if punitive fines were imposed, organizations could then rationally decide what socially efficient compliance measures to pay for.

**2.2.2.2. Resources.** The U.S. federal government must make difficult choices every day about how to allocate its financial and manpower resources between “different problems, concerns, dreams, and goals” (Biber, 2008, p. 17). Administrative agencies such as the Department of Justice and its prosecutors as well as government agencies, including the courts and its judges and personnel are also constrained by limited financial and manpower personnel, availability of workspace such as courtrooms, staff shortage, budget, and personnel (Biber, 2008). Due to limited resources, the prosecutor may also prioritize serious cases and dispose of minor cases through alternative methods. Prosecutors exercise caution before allocating limited resources toward expensive corporate trials that have more widespread consequences to the employees, shareholders, and the public.

External resource restraints such as availability of courtrooms and internal resource restraints such as staff shortage can cause prosecutors to offer more favorable plea bargains (Frederick and Stemen, 2012). Other resource constraints include budget and personnel. For example, prosecutions involving the Foreign Corrupt Practices Act (“FCPA”) have been relatively stable over time—penalties levied on corporations increased over time contrary to the trend in corporate enforcement overall (Low et al., 2019). The FCPA anti-bribery provisions make it a federal crime to corruptly offer or provide anything of value to officials of foreign governments or related foreign entities with the intent to obtain or retain business (15 U.S.C. § 78dd-1; 15 U.S.C. § 78dd-2; 15 U.S.C. § 78dd-3). The stability in FCPA corporate prosecutions and penalties may be attributed to institutional factors and continuity in policy and practice. DOJ has exclusive authority to enforce the criminal provisions of the FCPA (U.S.A.M. § 9-47-110). Its Criminal Fraud Section also has a dedicated FCPA Unit (U.S. DOJ, 2017) that expanded by more than 50% in 2016 by adding 10 more prosecutors to its ranks, while the FBI created three new squads of special agents devoted to FCPA investigations and prosecutions (U.S. DOJ, 2016, p. 1).

**2.2.2.3. Courtroom communities and other political and criminal justice actors.** Another vein of scholarly work explains prosecutorial behavior in the context of courtroom communities (Flemming et al., 1992; Ulmer, 1997). These studies analyze how prosecutors (both chief prosecutors and their subordinates) are embedded in the larger criminal justice system, and how their relationships with other actors fundamentally alter their behavior (Gordon and Huber, 2009). They found that different courtroom communities follow stable routines and have informal norms for disposing of criminal charges, and prosecutors are responsible, in part, for the nature of these routines (Heumann, 1978). In courtroom workgroups with frequent and repeated interactions, various actors develop familiarity and working relationships. Judges, prosecutors, and defense attorneys are more likely to arrive at common agreements about the proper resolution of a case.

In addition, the prosecutor is also affected by his relationships with his supervisors and colleagues. Because they receive training from colleagues and supervisors, prosecutors care about what their colleagues think about them. Twenty percent of prosecutors surveyed in one office reported that their decisions were occasionally influenced by how their colleagues would perceive their performance while forty-five percent were occasionally influenced by how their supervisor would perceive their decisions (Frederick and Stemen, 2012). Thus, the culture of an office and senior office members' prosecution philosophies affect the prosecutor's own decisions.

When examining prosecutorial decisions regarding corporate offenders, the socio-political context within which they operate cannot be disregarded. Although prosecutors exercise a huge amount of discretion at various stages of the criminal justice process, they are susceptible to pressures external to the case. Federal prosecutors operate as politically accountable public actors to whom courts remain highly deferential. Judicial review is also very deferential at the charging stage, giving prosecutors especially wide discretion. Studies of prosecutorial decision making across disciplines recognize their role as political actors traversing a complex strategic environment where they are constantly subject to evaluation and management (Gordon and Huber, 2009). Simpson (1987), for example, examined longitudinal data from 1927 to 1981 to determine antitrust behavior and variations in macroeconomic conditions and Republican-Democratic administrations. She found that antitrust behavior is more likely to occur during Republican administrations, indicating the less punitive prosecutorial climate and attitudes toward corporate violators. Scholars of political economy explain that prosecutors have goals and act instrumentally in pursuit of those goals. For instance, some models of prosecutorial behavior assume that the prosecutor at times faces conflicting goals of achieving justice in a given case and pursuing career and professional goals (Baker and Mezzetti, 2001; Grossman and Katz, 1983). At the same time, interactions with others in their environment shape their own choices, either through hierarchical relationships in their organizations where they act either as principals (e.g., to staff attorneys) or subordinates (e.g., to voters, presidents, attorneys general, and/or local party bosses) or through horizontal relationships with other actors in the criminal justice system (e.g., law enforcement agencies, defense attorneys, and judges). They are also susceptible to intense political pressure and political influences. At the federal level, United States Attorneys are political appointees who often possess strong partisan loyalties (Gordon and Huber, 2009). Federal criminal prosecutions are handled predominantly by the 93 U.S. attorneys' offices of the DOJ, each of which correspond to a federal judicial district. U.S. attorneys are presidential appointees confirmed by the Senate, serving at the pleasure of the president.

### 2.3. Present study

There is a dearth of inferential analysis of how federal prosecutors decide and act on cases where corporations or organizations are the primary violators. Although qualitative and descriptive studies explain prosecutorial decisions based on policy changes of the DOJ, further work needs to determine the inferential relationships between the political and social context within which prosecutors operate and actual outcomes in corporate prosecutions. This study analyzes data from the Corporate Prosecution Registry of the University of Virginia School of Law and Duke University School of Law. The Corporate Prosecution Registry provides information on federal organizational prosecutions in the United States, including detailed information about every federal organizational prosecution since 2001, as well as deferred and non-prosecution agreements with organizations since 1990.

We examine a subset of corporate violators, namely those who allegedly committed five types of fraud, namely: (1) accounting fraud, namely, federal crimes relating to false statements or entries, such as under 18 U.S.C. § 1001 (a); (2) mail fraud and wire fraud prosecutions under 18 U.S.C. § 1341 and 1343, as well as other fraud crimes, such as conspiracy to defraud the federal government under 18 U.S.C. § 371; (3) health care fraud under 18 U.S.C. § 1347; (4) securities fraud under 18 U.S.C. § 1348; and (5) tax fraud under 26 U.S.C. § 7201 and 7201 regarding attempted federal tax evasion and fraud and false statements to tax authorities.

We were interested in examining fraud cases because these types of violations constitute a significant portion of the dataset and had more complete data. The U.S. Sentencing Commission ("Commission") states that fraud violations accounted for 30% of all offense violations (U.S. Sentencing Commission, 2022, p. 18). The Commission observed a change in offense types in fiscal year 1994, when antitrust was overtaken by fraud as the most common offense type. From fiscal year 1994 through fiscal year 2010, fraud continued to be the most common offense type (U.S. Sentencing Commission, 2022, p. 19). Also, the DOJ has a specific Criminal Fraud Section with a dedicated FCPA Unit that expanded by more than 50% in 2016 by adding 10 more prosecutors to its ranks. Since we were interested in testing various aspects of the bounded rationality model, specifically whether: (1) internal and external factors had significant influence on prosecutorial decision making; and (2) whether agency expertise affected outcomes, we focused on fraud prosecutions.

### 2.4. Hypotheses

Based on the bounded rationality framework, federal prosecutors will be heavily influenced by DOJ policies that incentivize them to enter into agreements (e.g., NPA, DPA, and plea agreement) that emphasize structural reform rather than punitive punishment. Thus, we hypothesize as follows:

**H1.** Corporations with whom the DOJ entered into disposition agreements (e.g., NPAs, DPAs, and plea agreements) are more likely to have lower total corporate penalties than corporations without disposition agreements.

Studies indicate that agency expertise in specific types of prosecution will result in stable outcomes over time. For example, the DOJ Criminal Fraud Section with a dedicated FCPA Unit levied increasing fines in prosecutions involving the FCPA (Low et al., 2019). Bounded rationality explains that allocating more resources results in better prosecutorial outcomes. Due to frequent and repeated interactions between DOJ section attorneys, judges, and defense attorneys, they are more likely to arrive at common agreements about

the proper resolution of a case (Gordon and Huber, 2009). In addition, the existence of DOJ policies that caution prosecutors to consider the possible harm to innocent stakeholders lead us to hypothesize that DOJ section prosecutors are heavily influenced to impose lower corporate penalties on corporate offenders. Thus, we hypothesize that:

**H2.** Corporate prosecutions where the DOJ sections are involved are more likely to result in lower corporate penalties than those where the DOJ sections are not involved.

Bounded rationality posits that prosecutors' implicit biases, or the subconscious disfavoring of a group of people, self-interests, and personal philosophies affect their choices (Greenwald and Krieger, 2006). Prosecutors may perceive punitive penalties imposed on financial institutions, public companies, and Fortune 500 companies as having more far-reaching ramifications than those that are not. Implicit bias in conjunction with DOJ policies that caution federal prosecutors to consider the effects of punitive penalties on blameless officers, directors, employees, and shareholders, consumers, and creditors (Thompson, 2003) lead us to hypothesize as follows:

**H3.** Corporations classified as financial institutions are more likely to have lower total corporate penalties than corporations that are not financial institutions.

**H4.** Corporations classified as public companies are more likely to have lower total corporate penalties than corporations that are not public companies.

**H5.** Corporations classified as Fortune 500 companies are more likely to have lower total corporate penalties than corporations that are not Fortune 500 companies.

Recognizing the fact that federal prosecutors are politically accountable public actors, we further hypothesize that:

**H6.** Companies prosecuted under Democrat Administration are more likely to have higher corporate penalties than those prosecuted under Republican administration.

Implicit bias may lead prosecutors to favor companies registered with countries that have Free Trade Agreements ("FTA") with the U.S. Also, a Free trade Agreement ("FTA") reduces or eliminates barriers to trade and investment between participating countries, facilitating stronger trade and commercial ties. For the United States, FTAs reduce barriers to U.S. exports and protect U.S. interests competing abroad. Currently, the United States has FTAs with 20 countries, namely Australia, Bahrain, Canada, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Israel, Jordan, Korea, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, and Singapore. Political interests caused by these FTAs may heavily influence decisions of federal prosecutors as politically accountable actors. We hypothesize that:

**H7.** Companies registered under countries with which the U.S. has free trade agreements are more likely to have lower total corporate fines than those with whom the U.S. does not have free trade agreements.

### 3. Data and methods

We obtained our data from the Corporate Prosecution Registry of the University of Virginia School of Law and Duke University School of Law. This registry provides information on federal organizational prosecutions in the United States, including detailed information about every federal organizational prosecution since 2001, as well as deferred and non-prosecution agreements with organizations since 1990. The datasets provided information regarding corporate variables, plea or prosecution agreements, disposition type, and probability of detection. A complete list containing a total of 3520 cases from the period 1992 to 2019 with more than dozens of primary crime codes was generated.

Our analysis examined a subset of corporate violators, specifically those who allegedly committed as their primary violation five types of fraud, specifically accounting fraud, mail fraud and wire fraud prosecutions as well as other fraud crimes, such as conspiracy to defraud the federal government, health care, securities fraud, and tax fraud. A list of 845 cases with accounting fraud, fraud, health care fraud, securities fraud, and tax fraud were selected. Following the removal of data points exhibiting outliers and the meticulous handling of missing values, our analytical dataset comprised a total of 775 cases ready for examination. This critical data preprocessing step was undertaken to ensure the quality and integrity of our analysis. By eliminating outliers, which are atypical data points that can distort results, and addressing missing values, which can introduce uncertainty, we refined the dataset to consist solely of completed cases. These 775 cases, devoid of anomalies and data gaps, formed the foundation for our subsequent investigation, assuring that the insights derived from our analysis were based on a robust and reliable set of data. Data cleaning procedures like this are integral in scientific and research practices, as they help enhance the accuracy and credibility of findings.

#### 3.1. Dependent variable

##### 3.1.1. Total payment

Corporate fraud violation studies use total payment as a measurement of its penalties. Total payment refers to the sum of all monetary penalties (i.e. fines, restitution, forfeiture, disgorgements, community service, etc.) imposed on corporate fraud defendants. Our data showed that total payment was measured in U.S. dollars, ranging from a minimum payment of \$0 to a maximum payment of \$710,000,000. The mean payment is \$17,736,392.24 with a standard deviation of 66292166.07.

### 3.2. Independent variables

#### 3.2.1. Disposition agreement

Our data showed that the variable Disposition Type contains seven types of decisions, ranging from “1” = Non-prosecution agreement, “2” = Deferred prosecution agreement, “3” = Plea agreement, “4” = Declination in which the case was dismissed by the prosecutor, “5” = Dismissal before or during trial, “6” = Acquittal, and “7” = Conviction. This variable was recoded into a dichotomous variable *Disposition Agreement* (“1” = yes with agreement and “0” = no agreement). For the variable *Disposition Agreement*, we recoded as 1 (yes with agreement) companies that entered into “Non-prosecution agreement”, “Deferred prosecution agreement”, and “Plea agreement” with the prosecutor. We recoded as 0 (no agreement), outcomes that resulted in “Declination in which the case was dismissed by the prosecutor”, “Dismissal before or during trial”, “Acquittal”, and “Conviction”.

#### 3.2.2. DOJ involvement

The DOJ policies and section involvement play an important role in the magnitude of corporate penalties. The variable was coded as “1” if a DOJ Section/Task Force was not involved in the prosecution and “2” if a DOJ Section/Task Force was involved in the prosecution. This variable was recoded into a dichotomous variable *DOJ Involvement* (“1” = yes with DOJ involved and “0” = no DOJ Involvement).

#### 3.2.3. Financial institution

A “financial institution” includes any person doing business in one or more of the following capacities: (1) bank (except bank credit card systems); (2) broker or dealer in securities; (3) money services business; (4) telegraph company; (5) casino; (6) card club; (7) a person subject to supervision by any state or federal bank supervisory authority (31 CFR 1010.100(t)). The variable was coded as “1” if the entity is not a financial institution and “2” if the entity is a financial institution. This variable was recoded into a dichotomous variable *Financial Institution* (“1” = yes, if a financial institution and “0” = no, if not a financial institution).

#### 3.2.4. U.S. Public company

A public company is a corporation whose shares have been offered for sale to the public through an initial public offering through stock exchanges or over the counter (OTC) markets. Ownership of a public company is distributed among general public shareholders. The U.S. Securities and Exchange Commission (“SEC”) states that any company in the U.S. with 2000 or more shareholders (or 500 or more shareholders that are not accredited investors) must register with the SEC as a public company and adhere to its reporting standards and regulations.

The data was reported as “1” = entity was not a U.S. public company and “2” = entity was a U.S. public company. This variable was recoded into a dichotomous variable *U.S. Public Company* (“1” = yes, a U.S. public company and “0” = not a U.S. public company).

#### 3.2.5. Fortune 500 company

The Fortune 500 is an annual list compiled and published by Fortune magazine that ranks 500 of the largest United States corporations by total revenue for their respective fiscal years. Fortune 500 companies have large revenues, consequently heavily impacting the economy.

We compared the corporations in our data to the Fortune 500 company rank in the year when the criminal case was pending and recorded the rank of all the corporations in the cases. Later, this variable was recoded into a dichotomous variable *Fortune 500* (“1” = yes, a Fortune 500 company and “0” = not a Fortune 500 company).

#### 3.2.6. President party

Based on the year filed agreement or decision of the corporate violation, we determined the incumbent President during the years of decision/agreement and also the political party of the incumbent President during the year of decision/agreement. These two variables were later recoded into a dichotomous variable *President Party* (“1” = Republican Party and “0” = Democratic Party).

#### 3.2.7. Free trade agreement

Based on the country in which the entity was incorporated, we examined whether the country has a free trade agreement with the United States or incorporated in the United States. This variable was recoded into a dichotomous variable *Free Trade Agreement* (“1” = yes with a free trade agreement with the U.S. and “0” = no agreement).

## 4. Results

Before conducting the regression analysis, we normalized the dependent variable. Normalization involves transforming the values of the dependent variable to have a mean of zero and a standard deviation of one. This step was taken to ensure that the variable’s scale and distribution would not disproportionately influence the regression results, allowing for a more accurate assessment of the relationships between variables. Normalizing the dependent variable helps mitigate potential issues arising from variations in units or scales, enhancing the reliability and interpretability of the regression analysis outcomes.

The dependent variable total payment was then regressed on the predictor variables (disposition agreement, DOJ involvement, financial institution, U.S. public company, Fortune 500 company, president party, and free trade agreement) using multiple regression. Preliminary data screening indicates that the assumptions of normality, linearity, homoscedasticity, and independence of residuals

were not violated. Multicollinearity was not a problem (tolerance values were above 0.10 and VIF were less than 10).<sup>1</sup> We deleted a few outliers from the analysis, resulting in a total list of 775 cases that were included in the analysis.

#### 4.1. Descriptive and bivariate correlations

Descriptive statistics for this study are reported in Table 1. The mean of the *Total Payment* is \$17,736,392.24, suggesting that through using total payment as a measurement, corporate fraud violators received penalties that are closer to the lower end.

Among all the cases, 96.8% of the corporations entered into disposition agreements. Only 3.2 % of the cases had no disposition agreements. In addition, 79.1% of the corporate prosecutions did not have DOJ sections involved in the prosecution. 83.9% of the corporate violators are not financial institutions, and 92.1% of them are not a U.S. public company. Also, 97.8% of the corporate violators are not Fortune 500 companies, and 84.1% of them have a free trade agreement with the United States or are incorporated in the United States. In 55.7% of the cases, either the decisions were made, or the disposition agreements were filed in a year when the incumbent President is a Republican.

Bivariate correlations are reported in Table 2, showing significant correlations among the variables. Numerous predictors (financial institution, U.S. public company, and free trade agreement) were significantly correlated with total payment.

Although two independent variables (disposition agreement and Fortune 500) have almost zero variation, we include them in the analysis due to their relevance in our test of the bounded rationality model of prosecutorial decision making in corporate prosecutions. Disposition agreement tests whether agency policies that caution extreme penalties with adverse effects on innocent stakeholder and employees affect prosecutors' penalty recommendations. The assumption is that prosecutors that enter into disposition agreements with corporate fraud violators will impose lower penalties due to the influence of external factors such as agency policies and supervisory preferences on leniency. Fortune 500 is another proxy for the effect of external influences on the prosecutor. The assumption is that Fortune 500 companies have significant impact on the economy. The Fortune 500 is an annual list compiled and published by Fortune magazine that ranks the top 500 publicly traded companies in the United States by their total revenue. The list serves as a measure of the largest and most successful companies in the country. These companies represent various industries and sectors, and their rankings are based on their annual revenue figures.

We are aware of the limitations of including independent variables with low variation in our analysis. Specifically, including variables with limited variation in our model may result in limited explanatory power, making it difficult to draw meaningful conclusions or make accurate predictions. Also, if these low variation variables are significant in our final model, the R-squared value can be artificially inflated, leading to an overestimation of the model's goodness of fit. Another limitation is that models built with independent variables with low variation might not be applicable to other datasets or populations, as they may not capture the underlying relationships present in the broader context. However, because our research focuses on the influence of internal and external factors on prosecutorial decision making in corporate fraud violations, we included the Disposition Agreement and Fortune 500 variables in the model. In the model included in our results section, both variables are not significant so the low variation does not affect the results. We ran another model without these two variables and the other three independent variables were still statistically significant. The r-square without these two low variation independent variables is 0.204 and adjusted r-square is 0.198.

#### 4.2. Regression analysis

Table 3 shows results of the regression analysis, indicating that three predictors (DOJ involvement, U.S. public company, and free trade agreement) had statistically significant effects on total payment. Regression analysis confirmed three of our hypotheses. Specifically, we found that: (1) corporate prosecutions where the DOJ sections are involved are more likely to result in lower corporate penalties than those where the DOJ sections are not involved ( $B = -0.275$ ,  $\rho < 0.01$ ); (2) companies registered under countries with which the U.S. has free trade agreements are more likely to have lower total corporate fines than foreign registered companies with which the U.S. does not have free trade agreements ( $B = -0.842$ ,  $\rho < 0.001$ ). Contrary to our hypothesis, however, we found that corporations classified as U.S. public companies are more likely to have higher total corporate penalties than corporations that are not public companies ( $B = 1.402$ ,  $\rho < 0.001$ ). Overall, the independent variables explained 24.2% of the variance in this model ( $R^2 = 0.242$ ), suggesting that the DOJ policies, resources, and external influences may be appropriate frameworks for analysis of prosecutorial decision making in corporate penalties. The adjusted R-square is 0.235.<sup>2</sup>

One explanation for the contrary findings for U.S. public companies is that economic interests weigh more heavily in the decisions of prosecutors to impose penalties on corporate violators than stakeholder interests. Contrary to prior research indicating that financial

<sup>1</sup> A variance inflation factor (VIF) is a measure of the amount of multicollinearity in regression analysis. VIF measures the strength of the correlation between the independent variables in regression analysis. Multicollinearity exists when there is a linear relationship, or correlation, between one or more of the independent variables or inputs. As a rule of thumb, a VIF of three or below is not a cause for concern. In our model, all of the independent variables have a VIF below 3 and do not cause a concern of multicollinearity.

<sup>2</sup> As suggested by one of the reviewers, we report the adjusted R-square in our results. The R-squared has a tendency to increase as more independent variables are added to the model, even if those variables do not significantly contribute to explaining the dependent variable. This is a phenomenon known as overfitting, where the model becomes too complex and may not generalize well to new data. The adjusted R-squared addresses this issue by penalizing the inclusion of irrelevant independent variables in the model. It takes into account both the number of independent variables and the sample size.

**Table 1**  
Descriptive statistics (N = 775).

	Frequency (%)	Mean	SD	Min	Max
DV					
Total Payment		17736392.24	66292166.07	0	71000000
IVs					
Disposition Agreement					
No agreement	25 (3.2)				
Agreement	750 (96.8)				
DOJ Involvement					
DOJ not involved	613 (79.1)				
DOJ involved	162 (20.9)				
Financial Institution					
Not a FI	650 (83.9)				
Financial Institution	125 (16.1)				
U.S. Public Co					
Not U.S. PubCom	714 (92.1)				
U.S. PubCom	61 (7.9)				
Fortune 500					
Not Fortune 500	758 (97.8)				
Fortune 500	17 (2.2)				
President Party					
Democrat	344 (44.4)				
Republican	431 (55.6)				
Free Trade Agreement					
No FTA	121 (15.6)				
FTA & U.S.	654 (84.4)				

**Table 2**  
Bivariate correlations (N = 775).

Variables	1	2	3	4	5	6	7	8
1. Total Payment	–							
2. Disposition Agreement	–0.013	–						
3. DOJ Involvement	0.128**	0.058	–					
4. Financial Institution	0.239**	0.060	0.620**	–				
5. U.S. Public Co	0.451**	0.026	0.085*	0.106**	–			
6. Fortune 500	0.088*	0.027	0.075*	–0.042	0.316**	–		
7. President Party	–0.051	–0.046	–0.301**	–0.321**	0.059	–0.008	–	
8. Free Trade Agreement	–0.293**	–0.038	–0.618**	–0.788**	–0.112**	0.064	0.324**	–

\*\* $\rho < 0.01$ , \* $\rho < 0.05$ .

**Table 3**  
Multivariate analysis.

Variables (N = 775)	B	SE	$\beta$
Disposition Agreement	0.582	0.512	0.037
DOJ Involvement	–0.275	0.105	–0.114**
Financial Institution	0.086	0.145	0.032
U.S. Public Co	1.402	0.126	0.384***
Fortune 500	–0.057	0.230	–0.009
President Party	0.016	0.070	0.008
Free Trade Agreement	–0.842	0.149	–0.309***
F	33.736***		
R <sup>2</sup>	0.242		
Adjusted R <sup>2</sup>	0.235		

DV: Total Payment.

\*\*\* $\rho < 0.001$ , \*\* $\rho < 0.01$ , \* $\rho < 0.05$ .

institutions are more likely to pay lower corporate penalties than those that are not (Rakoff, 2014), financial institutions in our analysis are not significantly more likely to pay lower corporate penalties. Also, corporations registered with countries with which the U.S. has FTAs paid significantly lower corporate penalties than corporations that were registered with countries that did not. The U.S.’s economic interests are promoted by FTAs that promote trade and investment with partner countries. On the contrary, ownership of a U.S. public company is distributed among general public shareholders. Any company in the U.S. with 2000 or more shareholders (or 500 or more shareholders that are not accredited investors) must register with the SEC as a public company and adhere to its reporting standards and regulations. The ultimate impact of the increased corporate penalties is passed on to public shareholders.

## 5. Discussion and conclusion

The bounded rationality model of decision making presents a viable alternative within which to study corporate prosecutorial decisions when imposing penalties on corporate fraud violators. Contrary to the assumptions of rational economic models that assume optimal choices by decisionmakers who maximize their net benefits, bounded rationality explains that people's choices aim to satiate, rather than optimize, based on a limited amount of information and their cognitive capacity (O'Brien, 2009; Stobb et al., 2022). For example, O'Brien (2009, p. 999) explains that prosecutors are "particularly susceptible to biases that undermine their ability to honor obligations that require some objectivity on their part. Our study examined the factors that affected total penalties imposed by federal prosecutors on corporate fraud violators. We found that external factors affected outcomes in corporate prosecutions—whether DOJ sections were involved in prosecution (resources), whether the corporation is a public company, or is registered with a country with which the U.S. has an FTA.

*First*, we found evidence that external factors (e.g., office policies and culture and resources) influence how the prosecutor imposes penalties on a corporate fraud violator. DOJ policies that urge federal prosecutors to enter into disposition agreements instead of going into full trial also encourage them to consider the economic ramifications of trial on innocent employees, officers, and shareholders. Our study confirms the relevance of external resource constraints in bounded rationality models of prosecutorial decision making since DOJ section involvement was significant in our study (Frederick and Stemen, 2012). This indicates that external resource constraints such as staff shortage, office priorities and culture may weigh significantly on priorities for enforcement and prosecution.

Contrary to research indicating that partisan politics such as the political party of the incumbent President influence prosecutorial decisions (Gordon and Huber, 2009), our results indicate that the political party of the incumbent President at the time of judgment/decision in the case has no significant effect on corporate penalties. Our results confirm other studies that point to the relevance of agency resources and expertise to prosecutorial outcomes. For example, Ozymy et al. (2020) similarly found that outcomes in 2588 criminal enforcement prosecutions between 1983 and 2019 of the U.S. Environmental Protection Agency did not show that Democratic presidents were substantially more punitive or that Republican presidents were more lenient. Instead, outcomes over time "better reflect the growing sophistication and institutionalization of the enforcement process, declining budgetary realities, and the agency's organizational commitment to deter serious environmental crimes" (Ozymy et al., 2020, p. 49).

*Second*, internal factors such as implicit biases significantly affect prosecutorial outcomes in corporate fraud violations. Bounded rationality posits that prosecutors' implicit biases, or the subconscious disfavoring of a group of people, self-interests, and personal philosophies affect their choices (Greenwald and Krieger, 2006; Harding, 2019). Prosecutors may perceive punitive penalties imposed on large companies as having more far-reaching ramifications than those that are not. Former DOJ Attorney General Eric Holder explained that the negative impact on the U.S. and world economy of prosecutions on large corporations has an "inhibiting impact" on their ability to bring "more appropriate" resolutions (Baez, 2014, p. 8). Thus, the stature and position of large corporations (including those incorporated in countries with which the U.S. has Free Trade Agreements) "in relation to the health and prosperity of the American and international economies" means that federal government officials are "cautious about upsetting the economic health" of these corporations (Baez, 2014, p. 23). Implicit bias in conjunction with DOJ policies that caution federal prosecutors to consider the effects of punitive penalties on blameless officers, directors, employees, and shareholders, consumers, and creditors (Thompson, 2003).

Economic interests weigh more heavily in the decisions of prosecutors to impose penalties on corporate violators than stakeholder interests (Garrett, 2020). Current DOJ policies that admonish prosecutors to consider collateral consequences of corporate convictions cause prosecutors to hesitate when imposing large penalties. If the financial penalty imposed as part of a disposition agreement is too high or excessive so that the corporation permanently closes down, the impact reverberates through the economy and is felt by employees, customers, and the supply chain (Ryder, 2018).

The recent banking crisis starting March 2023 provides an example of government perceptions of the reverberating effects of a bank closure on the economy. Policy analysts cautioned that the crisis would likely to push the U.S. economy into a mild recession in the latter part of 2023 (Mena and Goodkind, 2023). With the collapse of the Silicon Valley Bank and Signature Bank in March 2023, the U.S. Treasury Department, Federal Reserve, and the Federal Deposit Insurance Corporation ("FDIC") announced they would make sure all depositors with accounts at both banks would have access to their funds by the next day – beyond just the \$250,000 guaranteed by the FDIC (Ordonez, 2023). Detractors accused the federal government of effectively bailing out wealthy customers of these two failed banks while transferring the burden of replenishing federal reserves on middle income bank customers. However, a research study of economists at Stanford University, the University of Southern California, Columbia University and Northwestern University showed the continuing potential of a bank collapse for widespread damage to the entire banking system (Tankersley, 2023). They found that bank runs or massive deposit withdrawals could result in significant drops in credit available to store owners, home borrowers and more. They also found that the banks at risk of failure in the U.S. are disproportionately located in low-income communities, areas with high shares of Black and Hispanic populations, and places where few residents hold a college degree (Tankersley, 2023).

While these concerns are valid and substantiated, corporate fraud prosecutions of financial institutions should take advantage of the possibility of nonmonetary sanctions imposable in NPAs, DPAs, and plea agreements. Corporate monitoring of ethical and sound business practices should be imposed when investigation reveals that mismanagement led to the law violations. The policies surrounding NPAs and DPAs should also be revised to enable more accountability and transparency. Studies show that the lack of judicial monitoring of DPAs and NPAs leads to a lack of accountability, neutrality, and effectiveness of the agreements. To ensure transparency, these disposition agreements should be recorded in a government repository and subject to judicial oversight. The very argument that supports the need for penalties that prevent instability in financial institutions also supports more transparency and oversight in the monitoring of effective compliance with disposition agreements.

Our study also expounds on prior studies that compare criminal settlements with corporate defendants through the use of the different agreements—NPAs, DPAs, and plea agreements (Alexander and Cohen, 2015). We use inferential statistics to determine the internal and external factors bearing upon the prosecutor that influence the magnitude of payments levied on these defendants. While some studies suggest the increased use of non-monetary sanctions for public companies through NPAs and DPAs, we have not examined those sanctions in the current study. Thus, future studies should empirically analyze these non-monetary sanctions. One finding of our study is that DOJ Section involvement leads to lower criminal penalties. DOJ policies may heavily influence Division/Section staff attorneys to enter into more favorable and lesser monetary settlements with corporate defendants. Further studies on courtroom workgroups and relations among the different actors—defense lawyers and judges—may shed light on this outcome.

This study has several limitations. *First*, the model explained 24.2% of the variance in the dependent variable. Despite the low R-square, the results are not invalid and cannot be discounted (Ozili, 2023, p. 134). Xu et al. (2022, p. 10) explain that, if the regression model passes the significance test despite a small coefficient of determination, it can still quantitatively explain the impact extent of independent variables on dependent variables.” This is because the goal of most social science research modelling is not to predict human behavior but to assess whether specific predictors or explanatory variables have a significant effect on the dependent variable (Ozili, 2023, p. 134). In some social sciences such as physiological and psychological researches, a low R<sup>2</sup> value of <0.1 is common (Halliday, 2019; Prabha et al., 2022). A low R-square of at least 0.1 (or 10 percent) is acceptable on the condition that some or most of the predictors or explanatory variables are statistically significant (Xu et al., 2022).

*Second*, our study is a test of bounded rationality, specifically focusing on prosecutorial decision making and whether internal influences (cognitive bias, ordinary bias, self-interest, prosecutor’s philosophy and policy preferences) and external influences (office policies and culture, resources, and actors in the criminal justice system) affect corporate penalties. Due to the limitations of the dataset, case factors (such as strength of evidence, seriousness of offense, and the defendant’s criminal history) were not included in the analysis as is typically done in sentencing studies which use different datasets. Future studies should test the model of bounded rationality on the triage of case factors, internal influences, and external influences that research indicate are relevant to prosecutorial decision making. *Finally*, our study is limited to corporate fraud defendants in the U.S. Future studies should examine prosecutorial decision making in corporate litigation in other countries.

## Cases

*New York Central & Hudson River Railroad Co. v. United States*, 212 U.S. 481 (1909).

## Laws cited

31 CFR 1010.100(t)  
 15 U.S.C. § 78dd-1.  
 15 U.S.C. § 78dd-2.  
 15 U.S.C. § 78dd-3.  
 Exec. Order No. 13271, 3 C.F.R. 245 (2002).  
 U.S.A.M. § 9-47-110.  
 U.S.A.M. § 9-47.120.

## References

- Alexander, C.R., Cohen, M.A., 2015. The evolution of corporate criminal settlements: an empirical perspective on non-prosecution, deferred prosecution, and plea agreements. *Am. Crim. Law Rev.* 52, 537–594.
- Baez, L., 2014. Prosecutorial discretion advised: analyzing the proper role of economic consequences as factor in federal prosecutorial decisions not to seek criminal charges. *Dartmouth L. J.* 12, 1–23.
- Baker, S., Mezzetti, C., 2001. Prosecutorial resources, plea bargaining, and the decision to go to trial. *J. Law Econ. Organ.* 17, 149–167.
- Beichner, D., Spohn, C., 2005. Prosecutorial charging decisions in sexual assault cases: examining the impact of a specialized prosecution unit. *Crim. Justice Pol. Rev.* 16, 461–498.
- Bertalanffy, L., 1969. *General System Theory. Foundations, Development, Applications.* Braziller, Inc., New York.
- Biber, E., 2008. The importance of resource allocation in administrative law. *Adm. Law Rev.* 60, 1–63. JSTOR. <http://www.jstor.org/stable/41239214>. (Accessed 23 October 2023).
- Bowers, J., 2010. Legal guilt, normative innocence, and the equitable decision not to prosecute. *Columbia Law Rev.* 110, 1655–1726.
- Burke, A., 2006. Improving Prosecutorial Decision Making: Some Lessons of Cognitive Science, vol. 47. *William Mary Law Rev.*, pp. 1587–1633
- Corkery, M., Protes, B., 2017. Citigroup Agrees to \$97.4 Million Settlement in Money Laundering Inquiry. *NY Times*. <https://www.nytimes.com/2017/05/22/business/dealbook/citigroup-settlement-banamex-usa-inquiry.html>. (Accessed 23 March 2023).
- Diamantis, M., 2008. Clockwork Corporations: A Character Theory of Corporate Punishment, vol. 103. *Iowa Law Rev.*, pp. 507–569
- Filip, M., 2008. Memorandum from Deputy Att’y Gen. To Heads of Department Components and United States Attorneys, Principles of Federal Prosecution of Business Organizations.
- Flemming, R., Nardulli, P., Eisenstein, J., 1992. *The Craft of Justice: Politics and Work in Criminal Court Communities.* University of Pennsylvania Press, Philadelphia.
- Frederick, B., Stemen, D., 2012. The Anatomy of Discretion: an Analysis of Prosecutorial Decisionmaking. National Institute of Justice. <https://www.ojp.gov/pdffiles1/nij/grants/240334.pdf>. (Accessed 24 March 2023).
- Garrett, B., 2007. Structural reform prosecution. *Va. Law Rev.* 93, 853–957.
- Garrett, B., 2014. *Too Big to Jail: How Prosecutors Compromise with Corporations.* Harvard University Press, Cambridge.
- Garrett, B., 2016. The rise of bank prosecutions. *Yale L.J. F.* 126, 33–56.
- Garrett, B., 2020. Declining corporate prosecutions. *Am. Crim. Law Rev.* 57, 109–155.
- Garrett, D., Ashley, J., 2023. Corporate Prosecution Registry. Duke University and Univ. of Virginia Darden School of Business. <http://lib.law.virginia.edu/Garrett/corporate-prosecution-registry/index.html>.

- George, S., 2005. Prosecutorial discretion: what's politics got to do with it? *Georgetown J. Leg. Ethics* 18, 739–758.
- Goering, C., 2011. Occupy Wall Street: if Banks Are Too Big to Fail, Are People Too Small to Matter? *Guardian*. <https://www.theguardian.com/commentisfree/cifamerica/2011/oct/17/occupy-wall-street-goering>. (Accessed 23 March 2023).
- Gordon, S., Huber, G., 2009. The political economy of prosecution. *Annu. Rev. Law Soc. Sci.* 5, 135–156.
- Greenwald, A., Krieger, L., 2006. Implicit bias: scientific foundations. *Calif. Law Rev.* 94, 945–967.
- Griffin, L., 2007. Compelled Cooperation and the New Corporate Criminal Procedure, vol. 82. *New York Univ Law Rev.*, pp. 311–382.
- Grossman, G., Katz, M., 1983. Plea bargaining and social welfare. *Am. Econ. Rev.* 73, 749–757.
- Gurman, S., Viswanatha, A., 2018. June 5. Trump Administration puts on hold search for justice department no. 3. *Wall Str. J.* <https://www.wsj.com/articles/trump-administration-sidelines-effort-to-appoint-justice-department-no-3-1528208396>. (Accessed 23 March 2023).
- Halliday, A., 2019. Bridging music and organizational psychology: everyday music uses and preferences and the prediction of organizational behaviour. *Pers Individ Differ* 139, 263–276.
- Harding, S., 2019. On prosecutorial decision making: factors and philosophies. *Law Psychol. Rev.* 43, 193–212.
- Heumann, M., 1978. *Plea Bargaining: the Experiences of Prosecutors, Judges, and Defense Attorneys*. The University of Chicago Press, Chicago.
- Hirschel, D., Hutchinson, I., 2001. The relative effects of offense, offender, and victim variables on the decision to prosecute domestic violence cases. *Violence Against Women* 7, 46–59.
- Holder Jr., E., 1999. Memorandum from Deputy Att'y Gen. To All Component Heads and U.S. Attorneys.
- Hylton, K.N., 1998. Punitive damages and the economic theory of penalties. *Georgetown Law J.* 87, 421–472.
- Johnson, C., 2018. Key Vacancies at Justice Department 'not a Recipe for Good Government'. *NPR*. Jan. 2. <https://www.npr.org/2018/01/03/575123392/key-vacancies-at-justice-department-not-a-recipe-for-good-government>. (Accessed 23 March 2023).
- Jones, B., 1999. Bounded rationality. *Annu. Rev. Polit. Sci.* 2, 297–321.
- Jones, B., 2003. Bounded rationality and political science: lessons from public administration and public policy. *J. Publ. Adm. Res. Theor.* 13, 395–412.
- Low, L., Prelogar, B., London, J., 2019. 22. Insight: FCPA Penalties on Track for Potential Record in 2019. *Bloomberg Law*. <https://news.bloomberglaw.com/white-collar-and-criminal-law/insight-fcpa-penalties-on-track-for-potential-record-in-2019>. (Accessed 23 March 2023).
- McNulty, P., 2006. General Memorandum from Deputy Attorney to Heads of Dep't Components. U.S. attorneys 4. [https://www.justice.gov/archive/dag/speeches/2006/dag\\_speech\\_061212.htm](https://www.justice.gov/archive/dag/speeches/2006/dag_speech_061212.htm). (Accessed 24 March 2023).
- Mena, B., Goodkind, N., 2023. The Banking Crisis Will Tilt U.S. Into Recession, Say Fed Economists. *CNN Business*. <https://www.cnn.com/2023/04/12/economy/fed-march-minutes-banking-crisis/index.html>.
- Modlish, C., 2017. The Yates memo: DOJ public relations move or meaningful reform that will end impunity for corporate criminals? *Boston Coll. Law Rev.* 58, 743–774.
- Nagel, I., Swenson, W., 1993. The Federal Sentencing Guidelines for Corporations: Their Development, Theoretical Underpinnings, and Some Thoughts about Their Future, vol. 71. *Wash Univ Law Q*, pp. 205–259.
- Nelson, J., 2017. Paper dragon thieves. *Georgetown Law J.* 105, 871–941. <https://doi.org/10.2139/ssrn.2739013>.
- Nezhurbida, S., 2013. Systems approach to comparative criminological studies: conceptual issues. *Juris* 20, 267–282.
- Nolasco, C., 2016. Prosecutorial discretion in charging decisions against individual and corporate offenders. *Crim. Law Bull.* 52 (3), 838–847.
- Nolasco, C., 2019. Corporate crime and punishment: Reflections on character theory and pretrial diversion agreements. *Crim. Law Bull.* 55 (3), 471–482.
- Nollkaemper, A., Van der Wilt, H. (Eds.), 2009. *System Criminality in International Law*. Cambridge University Press, Cambridge.
- O'Brien, B., 2009. Recipe for bias: an empirical look at the interplay between institutional incentives and bounded rationality in prosecutorial decision making. *Mo. Law Rev.* 74, 999–1050.
- Ordenez, V., 2023. A Bailout or Not? Did the Federal Government Bailout Silicon Valley Bank and Signature Bank? *ABC News*. <https://abcnews.go.com/Business/bailout-federal-government-bailout-silicon-valley-bank-signature/story?id=97846142>.
- Ozili, P., 2023. The acceptable r-square in empirical modelling for social science research. In: Saliya, C. (Ed.), *Social Research Methodology and Publishing Results: A Guide to Non-native English Speakers*, IGI Global, pp. 134–143.
- Ozmy, J., Menard, B., Jarrell, M., 2020. Persistence or partisanship: exploring the relationship between presidential administrations and criminal enforcement by the U.S. Environmental Protection Agency. 1983–2019. *Pub. Admin. Rev.* 81, 49–63.
- Polinsky, M., Shavell, S., 1998. Punitive damages: an economic analysis. *Harv. L. Rev.* 111, 869–962.
- Prabha, A., Yadav, J., Rani, A., Singh, V., 2022. Intelligent estimation of blood glucose level using wristband PPG signal and physiological parameters. *Biomed. Signal Process Control*. <https://doi.org/10.1016/j.bspc.2022.103876>.
- Protes, B., Gebeloff, R., Ivory, D., 2018. 3. Trump Administration Spares Corporate Wrongdoers Billions in Penalties. *NY Times*. <https://www.nytimes.com/2018/11/03/us/trump-sec-doj-corporate-penalties.html>. (Accessed 23 March 2023).
- Rakoff, J., 2014. The Financial Crisis: Why Have No High-Level Executives Been Prosecuted? *NY Rev.* <https://www.nybooks.com/articles/2014/01/09/financial-crisis-why-no-executive-prosecutions/>. (Accessed 23 March 2023).
- Rauma, D., 1984. Going for the gold: prosecutorial decision making in cases of wife assault. *Soc. Sci. Res.* 13, 321–351.
- Romano, R., 2005. The Sarbanes-Oxley Act and the making of quack corporate governance. *Yale Law J.* 114, 1521–1611.
- Rosenstein, R., 2018. Deputy Attorney General Rod Rosenstein Delivers Remarks to the New York City Bar White Collar Crime Institute. <https://www.justice.gov/opa/speech/deputy-attorney-general-rod-rosenstein-delivers-remarks-new-york-city-bar-white-collar>. (Accessed 23 March 2023).
- Rothe, D., Collins, V., 2011. An exploration of system criminality and arms trafficking. *Int. Crim. Justice Rev.* 21, 22–38.
- Rothe, D., Kauzlarich, D., 2022. *Crimes of the Powerful: White-collar Crime and beyond*. Routledge, England.
- Rothfeld, M., 2014. Firms get penalized, but many workers don't. *Wall St. J.* <https://www.wsj.com/articles/no-headline-available-1389905856>. (Accessed 23 March 2023).
- Ryder, N., 2018. Too scared to prosecute and too scared to jail? A critical and comparative analysis of enforcement of financial crime legislation against corporations in the USA and the UK. *J. Crim. Law* 82, 245–263.
- Shiyuan, H., 2017. Cognitive biases that lead to wrongful convictions: illustrated by twenty-three erroneous Chinese cases. *Cal. W. L. Rev.* 54, 103–136.
- Shubber, K., 2019. US Justice Department Appoints Robert Zink as Fraud Section Chief. *Financial Times*. <https://www.ft.com/content/76ccaa5e-b2cf-11e9-bec9-fdcab53d6959>. (Accessed 23 March 2023).
- Simon, H., 1947. *Administrative Behavior*. Macmillan Publishers, New York.
- Simpson, S., 1987. Cycles of illegality: antitrust violations in corporate America. *Soc. Forces* 65, 943–963.
- Singer, B., 2018. 28. Chief, criminal division, fraud section, U.S. dep't of justice. letter to Alexander J. Willscher, Sullivan & Cromwell LLP. <https://www.justice.gov/criminal-fraud/file/1039791/download>. (Accessed 23 March 2023).
- Stempel, J., Sangameswaran, S., 2018. HSBC to Pay \$100 Million to Settle U.S. Probe into Currency Rigging. *Reuters*. <https://www.reuters.com/article/us-hsbc-settlement/hsbc-to-pay-100-mln-to-settle-u-s-probe-into-currency-rigging-idUSKBN1F739N>. (Accessed 23 March 2023).
- Tankersley, J., 2023. How Silicon Valley Bank's Failure Could Have Spread Far and Wide. *New York Times*. <https://www.nytimes.com/2023/04/13/us/politics/silicon-valley-bank-widespread-failure.html>. (Accessed 10 October 2023).
- Thompson, L., 2003. Memorandum from Deputy Attorney Gen. To the Heads of Dep't Components. U.S. attorneys. [http://federalevidence.com/pdf/Corp\\_Prosec/Thompson\\_Memo\\_1-20-03.pdf](http://federalevidence.com/pdf/Corp_Prosec/Thompson_Memo_1-20-03.pdf). (Accessed 23 March 2023).
- Uhlmann, D., 2013. Deferred prosecution and non-prosecution agreements and the erosion of corporate criminal liability. *Md. Law Rev.* 72, 1295–1344.
- Ulmer, J., 1997. *Social Worlds of Sentencing: Court Communities under Sentencing Guidelines*. State University of New York Press, New York.
- U.S. Department of Justice, 2014. Letter to Karen Patton Seymour, Esq. Sullivan & Cromwell LLP Regarding United States V. BNP Paribas S.A. <http://www.justice.gov/sites/default/files/opa/legacy/2014/06/30/plea-agreement.pdf>. (Accessed 23 March 2023).

- U.S. Department of Justice, 2016. The Fraud Section's Foreign Corrupt Practices Act Enforcement Plan and Guidance. <https://www.justice.gov/archives/opa/blog-entry/file/838386/download>.
- U.S. Department of Justice, 2017. Fraud Section Year in Review 2017. <https://www.justice.gov/criminal-fraud/file/1026996/download>. (Accessed 23 March 2023).
- U.S. Sentencing Commission, 2022. The Organizational Sentencing Guidelines: Thirty Years of Innovation and Influence. <https://www.uscc.gov/research/research-reports/organizational-sentencing-guidelines-thirty-years-innovation-and-influence>. (Accessed 24 July 2023).
- Warin, F., Day, M., Brown, C., Ferguson, C., Farrar, M., 2019. Gibson Dunn Offers Year-End Update on Corporate Non-prosecution and Deferred Prosecution Agreements. *CLS Blue Sky Blog*. <http://clsbluesky.law.columbia.edu/2019/01/21/gibson-dunn-offers-year-end-update-on-corporate-non-prosecution-and-deferred-prosecution-agreements>. (Accessed 23 March 2023).
- Weinstein, I., 2003. Don't believe everything you think: cognitive bias in legal decision making. *Clin. Law Rev.* 9, 783–834.
- Worrall, J.L., Ross, J.W., McCord, E.S., 2006. Modeling prosecutors' charging decisions in domestic violence cases. *Crime Delinquen.* 52, 472–503.
- Xu, X., Du, H., Lian, Z., 2022. Discussion on regression analysis with small determination coefficient in human-environment researches. *Indoor Air* 32 (10), e13117.
- Yakren, S., 2015. Removing the malice from federal "malicious prosecution": what cognitive science can teach lawyers about reform. *Harv. Civ. Rights - Civ. Lib. Law Rev.* 50, 359–401.
- Yates, S., 2015. Sept. 10. Memorandum from Deputy Att'y gen., to All Component Heads and united states Attorneys, Individual Accountability for Corporate Wrongdoing. <https://www.justice.gov/opa/speech/deputy-attorney-general-sally-quillian-yates-delivers-remarks-new-york-university-school>.