Corporate Criminal Liability and Firm Value

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Abstract: This paper explores the impact of corporate criminal law doctrine on firm value. I study stock market reactions to an Indian Supreme Court decision holding that a corporation's mens rea (i.e., criminally culpable state of mind) is established when its controller has criminal intent. Companies controlled by individuals and families declined in value in response to this decision, likely because they had human controllers—dominant individuals or families—whose misconduct now left the firms vulnerable to prosecution. This value destruction is concentrated in business group companies, which are tightly controlled by founding families and whose reputation is linked to that of their controller. The effect is smaller for firms that have more foreign institutional ownership, and larger for consumer-facing firms. Firms with individual and family controllers relatively increased legal spending after the decision. Criminal liability's effect on firm value is thus influenced by the identity of controllers, and institutional investors seem to be better ex-ante monitors of misconduct than consumers.

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1. Introduction

Mens rea—the statutorily specified mental state a defendant must be shown to have had in order to be convicted—is a core element of criminal liability (Dressler et al. 2025: 148).[1] However, judicial systems around the world have struggled to articulate when, and if, a corporation can possess the mens rea necessary to be criminally liable. This paper asks how the development of legal doctrine defining corporate mens rea and expanding corporate criminal liability affects firm value. It suggests that an important determinant of the relationship between corporate mens rea and firm value is the identity of the firm's controlling shareholder, and the level of monitoring to which the controller is subject.

I exploit a landmark 2010 Indian Supreme Court decision establishing that corporate mens rea exists if a person or group of people controlling that firm are shown to have criminal intent themselves. I hypothesize that this decision increased the prospect of corporate criminal liability for firms controlled by individuals and families. These companies had a clearly identifiable set of human controllers whose criminal intent could be ascribed to the firm after the Supreme Court's decision. I find that these firms experienced negative and statistically as well as economically significant abnormal stock returns around the Supreme Court's decision. The increase in possible corporate criminal liability through the development of mens rea doctrine destroyed value at affected companies. Corporate criminal law doctrine can thus affect firm value even in judicial systems with imperfect criminal law enforcement. India's legal system is mired in corruption and delays (Khanna 2017), so the effect of corporate mens rea doctrine on firm value is noteworthy.

At the broadest level, corporate criminal liability's effect on firm value depends on the type of criminal misconduct a controlling shareholder was engaging in, and whom this behavior was

[1] The classic case used to teach mens rea in law school casebooks is Regina v. Cunningham, [1957] 2 Q.B. 396, where the court accepted the defendant's appeal because the jury had merely been instructed to determine whether he had acted "wickedly," rather than "maliciously," as required by the underlying criminal statute.

hurting. First, the controller could have engaged in lawbreaking that benefits minority shareholders while harming other stakeholders or society at large. For example, stealing employee wages, attracting business by fraudulently misrepresenting the firm's products, bribing public servants, and engaging in anticompetitive behavior by forming cartels all impose costs on the rest of society while (if not detected and punished) making the firm more valuable for shareholders by raising profits. Expanding corporate criminal liability to punish these types of lawbreaking would unambiguously decrease firm value, because—in addition to bearing the costs of potential criminal prosecution—minority shareholders can no longer rely on this misconduct to boost firm profitability.

However, a second type of lawbreaking involves controllers benefiting themselves at the expense of minority shareholders. Controllers could expropriate other shareholders through criminal conduct such as fraud or outright theft aimed at minority equityholders. Penalizing such lawbreaking through criminal liability has uncertain implications for firm value. This is because criminal liability has two types of effects on defendant corporations. The direct costs, which we can classify as *punishment* costs, include criminal penalties, legal defense costs, reputational damage to controllers, and managerial time and attention and distraction from the business. Punishment costs clearly reduce the value of the firm. However, there are also indirect costs, which we can classify as *deterrence* costs. These include the costs of adapting to a system with corporate criminal liability, such as expenditures on compliance to ensure that managers do not engage in misconduct. For criminal conduct that harms shareholders, such a deterrence effect of criminal liability can increase the firm's value in the eyes of shareholders, even though compliance is costly, because it reduces the possibility that the controller will expropriate outside equityholders.

To summarize, if controllers are aligned with shareholders by engaging in criminal behavior that harms other members of society but boosts profitability, increasing the firm's criminal liability will unambiguously decrease the firm's equity value. On the other hand, if controllers are engaged in

lawbreaking that involves expropriating shareholders, criminal liability's impact on firm value depends on the relative magnitudes of the punishment and deterrence effects. Punishment effects diminish firm value, while deterrence effects can increase shareholders' valuation of the firm. Therefore, corporate criminal liability generally decreases firm value, except when the lawbreaking harms shareholders *and* the deterrence effect outweighs the punishment costs. The paper's results find that courts imputing corporate mens rea from the intent of human controllers destroyed value at affected companies. This is most consistent with lawbreaking at the average firm with an individual or family controller either harming non-shareholder constituencies, or harming shareholders but with the punishment effect outweighing the extent to which controllers are deterred.

Further confirming the value-destroying implications of individual and family control in the wake of the Supreme Court's decision, I find that the negative stock returns are concentrated in companies that are both controlled by individuals or families and also belong to Indian business groups. Many Indian companies belong to business groups, whose constituent firms in different industries are linked through cross-ownership by common controllers. These common controllers are often founding families, whose influence on corporate governance at group companies extends beyond ownership to include mechanisms such as stacking company boards with family and friends and whose reputation is even more intermingled with their controlled companies than majority owners at non-group Indian firms (Bertrand et al. 2002, Khanna and Yafeh 2007). Almost forty percent of firms in this paper's sample belong to business groups. The results being stronger for these companies, where individual controllers are more synonymous with the company, reinforces the link between controller identity and firm value in evaluating the effects of imputed corporate mens rea.

Having established that the identity of the controller, and the extent to which she is entrenched, influence criminal liability's impact on firm value, I turn to the possible moderating influence of two types of actors who could theoretically monitor the controller. First, I examine the role of foreign institutional investors. Foreign institutional investors play an important monitoring role in portfolio companies in emerging economies, adhering to global best-practices in corporate governance and being relatively independent of management at portfolio companies (Aggarwal et al. 2011, Ferreira and Matos 2008). Monitoring by foreign institutional investors might be expected to be effective against lawbreaking harming minority shareholders, but not necessarily against lawbreaking harming other stakeholders. Therefore, firms with higher foreign institutional ownership may be less adversely affected by the expansion of criminal liability, because these equityholders were already monitoring management to prevent misconduct. Consistent with this notion, I find that greater foreign institutional ownership is associated with lower value destruction caused by the Supreme Court decision at companies controlled by individuals or families. This corrective effect of foreign institutional ownership is greatest for companies that are both controlled by individuals or families and also members of business groups, consistent with foreign institutional investors playing a monitoring role where the controller's ability to promote her self-interest is greatest.

Consumers can also theoretically monitor lawbreaking by controllers, because they often demand that corporations behave in prosocial ways. They could monitor controllers for lawbreaking that affects them and other stakeholders other than shareholders. However, unlike foreign institutional investors, who select firms that are less likely to be lawbreakers or monitor controllers to ex-ante reduce the probability of misconduct, the nature of consumer monitoring is more reactive. Research on consumers prosociality shows that they punish firms for highly visible incidents of antisocial behavior *after* such misconduct has been publicly revealed, by choosing not to

purchase goods and services from offending companies (Christensen et al. 2023, Hardeck et al. 2021). Unlike foreign institutional investors, consumers do not have ownership stakes or governance expertise to monitor controllers or reduce their likelihood of misconduct in advance of prosecution. Instead of being ex-ante monitors, consumers are more likely to increase firms' ex-post costs from being criminally liable.

The results for consumer interaction are the mirror image of those for foreign institutional ownership: firms controlled by individuals or families suffer a larger loss in value if they are in consumer-facing industries, and this decline is even larger if they also belong to a business group. This is consistent with consumers not being adequate ex-ante monitors of controller misconduct that harms them and other stakeholders, but is consistent with the ex-post costs of criminal liability being greater for firms with more consumer interaction, because consumers are likely to punish corporate lawbreaking after it is publicized.

I find that the post-decision value destruction at firms with human controllers is smaller for firms that are in corruption-prone industries, which are less vulnerable to enforcement actions because they are more likely to be politically connected. In subsample analysis, I also find suggestive evidence that the negative abnormal returns for individual-controlled companies were stronger for companies headquartered in states with tighter kinship networks, defined as the share of households belonging to joint families exceeding the median for all Indian states and territories. Markets may assess controller misconduct as more problematic for firms where controlling families are more likely to function as a cohesive and tightly-knit group whose mental state can be imputed to the firm.

All specifications include industry fixed effects and cluster standard errors at the industry level, allowing the event study regressions to account for industry-specific factors. Pretrend analyses and placebo event window regressions suggest that the results are not driven by preexisting differences between firms controlled by individuals or families versus others, and are concentrated

around the Supreme Court's decision. Robustness checks show that the results are driven by individual and family controllers but not by other types of controllers, and persist in an entropy-balanced sample.

An important limitation of the event study methodology is that I can only ascertain corporate mens rea doctrine's net effect on the value of the *firm*, and cannot measure its wider costs and benefits for society. The Indian Supreme Court's decision may well have benefitted stakeholders outside the firm by reducing corporate crime's negative externalities on society and disincentivizing formerly profitable corporate lawbreaking. The data thus does not allow me to rule out the possibility that while mens rea doctrine reduced firm value of companies whose sources of profit were illegal, it led to societal benefits that were potentially even greater in magnitude. The paper's methodology does, however, establish that corporate criminal law doctrine has a direct and economically significant effect on firm-level value.

Turning to longer-term effects of the decision, I find that firms controlled by individuals or families increased their spending on lawyers in the years immediately after the decision, by about ten percent relative to other companies. Pretrend analysis shows that these companies only increased their legal spending immediately after the decision. Although considerable data limitations preclude more direct evidence of the Supreme Court's ruling having a long-term impact, this finding is consistent with the decision increasing criminal exposure for firms with individual or family controllers.

Given the focus on controller identity and incentives in determining the effect of criminal liability in India, there may be limits to the external validity of the paper's findings in the U.S. context, where the typical firm is widely held and the legal system largely restrains controllers from expropriating minority shareholders even in firms with a majority shareholder (Berle and Means 1933, Gilson and Gordon 2003). The findings may also not be generalizable to all countries with

controlled firms; some of these systems, such as France, have robust state capacity and effective criminal enforcement institutions.

However, on a global scale, the United States and the richest common law countries are an exception: most countries place few (if any) restrictions on controllers with respect to expropriating minority shareholders (La Porta et al. 1998)—and even fewer bounds on lawbreaking that harms other stakeholders (Jaffe et al. 1995). Moreover, several countries, regardless of their common or civil law heritage, lack credible institutions to enforce criminal law and deter corporate lawbreaking. Emerging markets may thus resemble India rather than France in their ability to enforce the corporate criminal law on the books. Therefore, the controller-centric account I provide may be externally valid in describing the general relationship between corporate criminal liability and firm value for countries with similar ownership patterns as well as criminal enforcement institutions and patterns as India.

This paper contributes to the literature on the role and effect of corporate criminal liability. Previous work has highlighted the advantages of enterprise-level liability, such as incentivizing firms to detect and punish wrongdoers, a task they are better equipped to perform than the government (Arlen 2020). On the other hand, Macey (1991) points out that agents within corporations commit crimes to benefit themselves rather than their employer, so criminal liability should be imposed on individual executives rather than at the firm level. However, this debate has lacked substantial empirical evidence, since jurisdictions usually evolve concepts such as corporate criminal law and mens rea slowly over time (Gennaioli and Shleifer 2007). The Indian setting allows me to exploit the sudden expansion of corporate criminal liability—through the introduction of the concept of mens rea imputed from the state of mind of corporate agents—using a major court ruling.[2]

[2] Some previous work has attempted to gauge the effect of corporate criminal sanctions on firm value by studying market reactions around the announcement of allegations of corporate criminal misconduct (Karpoff and Lott 1993). However, this previous work cannot tell us about the average effect of corporate criminal liability on firm value, since

This paper's findings are most consistent with the effect (and merits) of criminal liability depending on the identity of a company's controller, and the extent to which she is entrenched in the firm's corporate governance. The empirical analysis suggests that corporate criminal law doctrine is highly salient for the subset of firms controlled by individuals and families, as compared to the average firm. Moreover, criminal liability's effect on firm value is affected by the ex-ante monitoring role of foreign institutional investors and consumers' ex-post distaste for criminal lawbreaking.

The paper adds to a burgeoning literature on the importance of the precise identity of corporate controllers. While the separation of ownership and control has been the focus of corporate law scholarship for decades (Berle and Means 1933), recent work has pinpointed the different roles played by controllers depending on whether they are founders (Aggarwal et al. 2022), families (Almeida and Wolfenzon 2006), private equity (Bernstein 2022), or governmental authorities (Kahan and Rock 2010). The findings from this paper's analysis, showing that imputed corporate mens rea has value implications for companies controlled by individuals and families but not other controllers, suggests that individual control can lead to higher expected criminal sanctions in a system of imputed corporate mens rea.

In Section 2, I describe how the ex-ante effect of corporate mens rea doctrine on firm value is uncertain, and argue that the conduct of controlling shareholders plays an important role in determining a firm's criminal exposure. The direction of any such effect depends on what type of lawbreaking the controller was engaged in, as well as the relative magnitudes of the punishment and deterrence effects from criminal liability. Section 2 concludes by considering how both foreign institutional investors and consumers can be considered to monitor controllers, but that their expected influence on a firm's criminal exposure is different.

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the market reactions could be driven by the details of the given complaint. Moreover, prosecutors and whistleblowers do not randomly select targets for criminal allegations, so unobserved factors could explain these previous findings.

Section 3 develops the institutional background for the advent of corporate criminal liability in India, leading up to the landmark 2010 Supreme Court decision, *Iridium India Telecom Ltd v. Motorola Incorporated*, which established the concept of corporate mens rea. Section 3 explains why we should expect the *Iridium* case to specifically affect Indian firms with individual and family controllers. Section 4 describes the data used in the paper and presents summary statistics. Section 5 contains the main event study results, showing that firms controlled by individuals and families suffered a statistically and economically significant decrease in firm value around the court decision, with a 0.72–0.86 lower cumulative abnormal return in the five days after *Iridium* was announced. I show this decline was even stronger for business group companies controlled by individuals and families, amounting to a negative cumulative abnormal return of more than a percentage point in the same time period. Section 5 shows that the post-*Iridium* value destruction was smaller for firms that have more foreign institutional ownership, and larger for consumer-facing firms, consistent with these entities influencing corporate criminal liability in different ways.

Section 6 finds that the value destruction is diminished for firms in corruption-prone industries, and limited subsample evidence that suggests it is higher in firms headquartered in states with tighter kinship networks. It also finds no significant stock price movement for treated firms in response to a subsequent 2015 Indian Supreme Court case holding that a corporation's criminal conduct could not be imputed to its agents. Section 7 examines possible longer-term effects of *Iridium*, showing that firms controlled by individuals or families relatively increased legal spending in the years after the decision. Section 8 concludes the paper.

2. Corporate Controllers, Mens Rea, and Firm Value

At common law, corporations were considered incapable of possessing criminal states of mind, and the absence of mens rea meant they only faced civil liability. Natural people were the only ones who could commit and be convicted of crimes (Fischel and Sykes 1996). However, starting in the

early twentieth century, U.S. Supreme Court decisions gradually opened the door to corporate criminal liability.[3] In recent decades, scandals at prominent companies such as Exxon Mobil and Siemens have led to criminal charges, with commentators divided about the wisdom of an explosion in corporate criminal liability (Beale 2009). Still unresolved in this debate is the conceptual foundation of corporate mens rea. While American law accepts the corporation to be a juristic person,[4] corporate criminal liability fundamentally rests on the misconduct of individual agents inside the corporation. Although those individuals may intuitively be said to possess guilty states of mind, it is difficult to pin down their non-human employer's mental state, and decide what corporate states of mind merit criminal sanctions.

U.S. law has mostly adopted a functionalist approach, acknowledging that corporations act through human agents. Courts use the "respondeat superior" doctrine to impute an agent's guilty state of mind to her employer corporation if the action stemming from that intent was within the scope of her employment and was the proximate cause of the alleged criminal act (Arlen 1994, Arlen and Kraakman 1997, Harris 2022).[5] A theory of corporate criminal liability that is closely related to this agency-based approach is the "alter ego" doctrine, which applies when the culpable individual and the corporation are virtually synonymous, and the individual—such as a domineering chief executive officer—has complete control of the organization. Illustrating alter ego's role as a special case of the general agency theory, Thomas (2021) argues that "the purest example of corporate criminal liability, from the perspective of respondeat superior, is a one-person sole proprietorship, for which the organization is just the alter ego of the predicate individual offender." The only

[3] See New York Central & Hudson River Railroad Co. v. United States, 212 U.S. 481 (1909).
[4] See Citizens United v. Federal Election Commission, 558 U.S. 310 (2010).
[5] There are other approaches to theorizing corporate criminal liability. Diamantis (2015) argues that courts should treat the firm more like as a unitary person, and infer corporate mens rea by deducing the best explanations given the firm's actions and attendant circumstances. Some scholars have proposed simply discarding the concept of corporate mens rea and instead expanding the range of strict liability offenses for corporations (Khanna 1999). However, these theories are less relevant for this paper's analysis, because *Iridium* adopted an agency-oriented concept of corporate criminal liability.

instance in which alter ego would apply, and respondeat superior would not, is if the culpable individual were synonymous with the corporation, but not officially an agent such as a director or officer. This scenario is not relevant to this paper's analysis, because large shareholders who are synonymous with an Indian corporation are almost always formally designated as the corporation's "promoter" (the Indian legal term for a controller) and are thus de jure agents falling within the respondeat superior doctrine. I thus view the alter ego theory as a specific case of the more general agency-based respondeat superior doctrine as motivation for the paper's empirical analysis.

Controlling shareholders have a distinctive role in determining the scope of corporate criminal liability under agency-based theories. Controlling shareholders, at least in the Indian context, are usually agents of the firm by being the official "promoter" as well as a director or officer, and their decisions regarding company business are likely to both be within the scope of their agency relationship as well as the proximate cause of a challenged corporate action. Controlling shareholders have decisive power over the corporation. By sheer virtue of their ownership stake, they can influence corporate decisions, staffing, and culture to a far greater extent than the board of directors (Allen et al. 2021: 344-45, Gilson and Gordon 2003). Controllers' influence on the firm is even greater in legal systems that (unlike the United States) do not provide significant protections to outside shareholders (La Porta et al. 1998). Functionally speaking, controller criminal lawbreaking in such systems would lead to corporate criminal liability under both the respondeat superior and alter ego doctrines.

How would the establishment of corporate mens rea doctrine affect firm value for companies with a controlling shareholder? As a threshold matter, it is not obvious that these companies would see a tangible change in market value, even if their controllers are likely to be engaged in criminal misconduct. This is because of the gap between "law in the books" and "law in action" (Pound 1910), and the possibility that a jurisprudential change in corporate criminal law will not translate

into more criminal enforcement against controlled companies. This gap between doctrine and practice is likely to be larger in judicial systems with corruption, judicial bias, and imperfect enforcement. The previous literature has described the Indian judiciary as being one of these systems (Aney et al. 2021). Therefore, one may think that the adoption of a corporate mens rea standard simply would not affect stock prices of controlled firms.

Even if the advent of mens rea doctrine were to impact firm value, the direction of such an effect would depend on the kind of lawbreaking controllers were engaging in, and the relative magnitudes of the different types of effects associated with expanded criminal liability. Controllers could be engaged in lawbreaking that is harmful to shareholders or to other stakeholders such as employees and inhabitants of areas surrounding the firm's factories (Coffee 2022). Consider first the possibility that the controller is engaged in lawbreaking that harms other stakeholders but benefits shareholders. If management is stealing wages or polluting a nearby river through criminal violations of environmental law, they are harming stakeholders such as employees and local communities, but possibly benefitting shareholders by making the firm more profitable. Expanding criminal liability to deter such lawbreaking would unambiguously reduce affected firms' equity values, by making the firm less profitable to shareholders.[6]

The value effects of curbing criminal behavior that harms shareholders are more unclear. The literature on tunneling—the transfer of resources from a company to its controller—notes that controllers can expropriate minority shareholders through criminal activities such as fraud and outright theft (Johnson et al. 2000). For instance, a minority shareholder in an Indian mining company filed a criminal complaint against the company alleging misappropriation and breach of

[6] The only complication to this narrative is that shareholders may have prosocial preferences and experience disutility from investing in firms that participate in criminal activities (Romano 1991). If this were the case, to the extent corporate criminal liability makes it less likely that firms in which shareholders invest will engage in criminal lawbreaking, the advent of corporate mens rea may increase shareholders' valuation of companies and lead to positive stock price reactions.

trust after subscribing to shares in a subsidiary through a preferential allotment. The parent company had represented the shares would be listed within a specified period, but it allegedly failed to list the shares (or refund the subscription proceeds) within that timeframe. This company was part of the Vedanta business group, which is controlled by an Indian family.[7] Criminal liability for such controller actions that expropriate outside shareholders have two possible effects on firm value. There is a punishment effect, which includes the direct (and often substantial) criminal penalties and legal defense costs associated with criminal prosecutions. Punishment also encompasses the reputational damage to the firm (Arlen and Kornhauser 2023, Skeel 2001), and waste of managerial time and attention and distraction from the pursuit of shareholder wealth maximization (Arlen and Kahan 2017). Punishment of any sort reduces the value of the firm.

However, there is also a deterrence effect from corporate criminal liability. Deterrence refers to adaptation to a system with corporate criminal liability, including compliance spending to ensure that managers do not engage in misconduct. The prospect of criminal sanctions may discipline controllers, making them abstain from misconduct that hurts minority shareholders. Many controllers at Indian companies greatly value the reputations of their firms (Khanna and Palepu 2004) and would presumably self-monitor to avoid the stigma of criminal charges. Even though compliance costs firm resources, deterrence could make the firm more valuable in shareholders' eyes if it dissuades controllers from lawbreaking that expropriates minority equityholders.

The relative magnitudes of the punishment and deterrence effects are not ex-ante obvious. Some previous work has documented positive stock price reactions to corporate governance reforms that discipline controllers (Black and Khanna 2007), indicating that a rational controller would experience a large deterrence effect if she expects the criminal law to be enforced. On the other hand, other

[7] See https://timesofindia.indiatimes.com/business/india-business/sc-notice-to-sesa-goa-7-officials-for-breach-of-trust/articleshow/4629236.cms.

work suggests that deterrence will be unlikely to outweigh the punishment effect, because corporate crime persists even in the presence of legal enforcement due to factors such as low self-control by corporate agents and an entrenched corporate culture condoning illegal acts (Simpson and Piquero 2002). Many Indian controlling shareholders fit such a characterization, with several controllers viewing lawbreaking as part of doing business and unconvinced of the importance of compliance (Deloitte 2019).

Table 1 summarizes the predicted changes in firm value from the expansion of corporate criminal liability, based on whom the controller's lawbreaking was harming, and which of the punishment and deterrence effects is greater. Liability for lawbreaking that harms other stakeholders but benefits shareholders should unambiguously reduce firm value. However, liability for lawbreaking that expropriates shareholders will increase (decrease) firm value if the deterrence (punishment) effect is greater.

Beyond controller incentives and legal enforcement, monitoring by two other entities can theoretically influence corporate criminal liability's effect on firm value. First, shareholders can monitor managers' actions and modify executives' compensation contracts to reduce the probability of criminal sanctions (Khanna 1995). However, not all shareholders are likely to play such a role: diversified retail investors, for instance, are unlikely to have either the means or incentive to monitor controllers for potential criminal misconduct (Fisch 2007). A group of shareholders that *can* play such a role is foreign institutional investors. Previous work has established that foreign institutional investors play an important monitoring role in corporate governance in emerging economies and reduce the probability of misconduct or expropriation by managers in systems with insufficient legal protections for outside shareholders. This monitoring role can be attributed to the fact that foreign institutional investors have deep, global investment experience and are more likely to possess the technology to influence portfolio companies to adopt governance "best practices." Moreover,

foreign institutional investors are also less likely to be vulnerable to country-specific political pressure or beholden to portfolio firm management because of other business connections (Aggarwal et al. 2011, Ferreira and Matos 2008, Kim et al. 2016).

Whether because they select better-run companies or they monitor controllers and dissuade them from lawbreaking, foreign institutional investors are thus likely to be effective monitors of lawbreaking that harms shareholders. Moreover, previous scholarship also shows that foreign institutional investors have prosocial preferences and pressure management to behave more ethically toward stakeholders such as workers and communities, both in general and in the Indian context specifically (Dyck et al. 2019, Marshall et al. 2022). Therefore, foreign institutional investors may *also* be able to monitor criminal lawbreaking that affects either shareholders or other stakeholders. Given that these investors own equity stakes in the firm and have a record of pressuring controllers, foreign institutional investor ownership is hence likely to be associated with lower value destruction after the introduction of criminal liability.

A second, and qualitatively very different possible monitor of controller lawbreaking is the consumer. Consumers might refuse to deal with corporations after learning of criminal acts because they might think the corporation will harm them in future transactions (Alexander and Arlen 2018, Karpoff and Lott 1993). One may thus think that controllers in consumer-facing industries will be less likely to engage in misconduct (specifically lawbreaking that harms consumers and other non-shareholder constituencies), and corporate criminal liability will have less of a destructive effect on companies dependent on consumer opinion. However, it is hard to see how consumers, who own no major stake in the firm and lack any insight or influence in its corporate governance, could foresee criminal misconduct or dissuade controllers from engaging in it. Consistent with this notion, the literature on consumers demanding that corporations behave in prosocial ways has restricted itself to demonstrating that they punish firms for highly visible incidents of antisocial behavior *after*

such behavior has been revealed (such as a public authority accusing the firm of tax avoidance) (Christensen et al. 2023, Hardeck et al. 2021).

Therefore, a greater reliance on consumer opinion is unlikely to diminish value destruction at firms with lawbreaking controllers after the expansion of corporate criminal liability. Instead, one can imagine that reliance on consumer opinion would have the opposite effect: companies with an expanded exposure to criminal liability may experience even greater loss in value if they are consumer-facing, because any potential revelation of criminal misconduct would carry even greater punishment costs, with consumers refusing to deal with the company in the future.

Foreign institutional investors and consumers can hence play markedly different roles in mediating corporate criminal liability's effect on firm value. Foreign institutional investors, with their equity ownership and ability to engage with controllers, are best understood as monitors who can reduce the ex-ante possibility of misconduct that harms shareholders or stakeholders. Conditional on having human controllers, companies should experience less value destruction from the expansion of criminal liability if they have higher foreign institutional investment. On the other hand, consumers are best understood not as ex-ante monitors of potential lawbreaking, but as ex-post enforcers of punishment costs, who withdraw their business from companies that have been revealed to allegedly engage in criminal behavior. Hence, the expansion of corporate criminal liability may lead to even greater value destruction for firms that not only have controlling human shareholders but are also in industries that are more consumer-facing.

3. Institutional Background

Historically, Indian law followed common law jurisprudence in restricting criminal liability to humans. During the twentieth century, British courts gradually moved toward expanding corporations' criminal liability and acknowledging that firms could possess guilty states of mind. In the 1971 *Tesco Supermarkets* case, the House of Lords held that corporate mens rea could be imputed

from the mental state of the company's "directing mind," i.e., a controlling person or group of persons located within the firm.[8] However, Indian courts remained dubious about the legitimacy of corporate criminal law. The Indian Supreme Court held that corporations could not be prosecuted under statutes imposing a mandatory sentence of imprisonment, since they lacked a physical body that could be incarcerated.[9]

It was not till 2005 that the Indian Supreme Court held that a corporation could be criminally prosecuted, in a case specifically involving statutes that imposed strict liability. The court held that prosecutors could bring charges against companies under a strict liability statute that prescribed both imprisonment and a fine as mandatory punishment. While companies could not be imprisoned, they could be liable to pay fines as part of criminal sanctions if convicted under these particular statutes.[10] While this 2005 decision clarified that corporate criminal liability could exist for certain strict liability statutes, it left the crucial jurisprudential question of mens rea unresolved (Umakanth and Naniwadekar 2011).

Between 2005 and 2010, the prevailing wisdom was that corporations could only face criminal liability for the limited number of statutes that imposed strict liability for offenses such as terrorism and food adulteration. However, for the vast majority of criminal statutes, mens rea was a required element that the prosecution had to prove, in keeping with the common law norm (Sayre 1932). Courts applying the 2005 decision refused to impute the mens rea of directors and officers to their corporations (Umakanth and Naniwadekar 2011). There was therefore no successful criminal prosecution of Indian corporations for statutes requiring mens rea between 2005, when corporate criminal liability was introduced in the strict liability context, and 2010. Given that mens rea is an essential element in establishing criminal liability for statutes that do not have strict liability, the lack

[8] See Tesco Supermarkets Ltd. v Nattrass [1971] UKHL 1.
[9] See Assistant Commissioner v. Velliappa Textiles Ltd., (2003) 11 SCC 405.
[10] See Standard Chartered Bank. v. Directorate of Enforcement., (2005) 4 SCC 530.

of clarity on this issue meant that corporations were unlikely to be successfully prosecuted under criminal statutes that required prosecutors to prove a culpable state of mind. As late as April 2010, the Bombay High Court held that a corporation could not possess mens rea under criminal law.[11]

In 2010, the Indian Supreme Court drastically changed the legal definition of corporate mens rea in the landmark case of *Iridium India Telecom Ltd v. Motorola Incorporated*.[12] In *Iridium*, the question squarely presented to the court was whether a corporation could be found guilty under a criminal cheating statute. The defendant corporation, Motorola, was accused of fraudulently inducing financial institutions and other investors to finance a wireless communications system despite knowing that it had made false representations regarding the system's capabilities. The case was brought by Iridium India Telecom Ltd., a corporation that had invested a large sum of money in Motorola's communications system. Conviction under the cheating law required the establishment of mens rea, as it was not a strict liability offense. The Bombay High Court had dismissed the criminal case against Motorola, reiterating the prevailing wisdom that a corporation could not possess mens rea.

The Supreme Court, in a judgment delivered on October 20, 2010, fundamentally transformed the Indian understanding of corporate mens rea. Extensively quoting the House of Lords' 1971 *Tesco* opinion, it explicitly adopted the agency theory of corporate mens rea. The court ruled that:

> "[A] corporation is virtually in the same position as any individual and may be convicted of common law as well as statutory offences including those requiring mens rea. The criminal liability of a corporation would arise when an offence is committed in relation to the business of the corporation by a person or body of persons in control of its affairs. In such circumstances, it

[11] See Arvind Navinchandra Mafatlal v. Palakavayalli Joseph Thomas., 2010 (112) Bom LR 188 ("Since accused . . . are juristic persons and not a natural person, by no stretch of imagination they can be said to have requisite mens rea. As such the proceedings against the accused . . . will also be not sustainable in law."), Umakanth and Naniwadekar (2011).
[12] See Iridium India Telecom Ltd. v. Motorola Incorporated, (2011) 1 SCC 74.

would be necessary to ascertain that the degree and control of the person or body of persons is so intense that a corporation may be said to think and act through the person or the body of persons."[13]

The court thus based a corporation's state of mind on imputation from the discernible mens rea of its human agents, so long as those agents could actually be said to control the affairs of the firm. This focus on the mental state of controlling agents is identical to the "directing minds" theory formulated in *Tesco*.[14] Even though the defendant in the *Iridium* case itself was a corporation, the court focused on *natural* persons throughout its decision in describing the directing minds theory. The court did not express any opinion about whether Motorola itself was criminally liable; it was simply deciding the larger jurisprudential question of whether corporate mens rea could exist.[15]

The court explicitly adopted the alter ego theory of corporate criminal liability, approvingly citing precedents from England and Canada stating that "the criminal intent of the 'alter ego' of the company /body corporate, i.e., the person or group of person[s] that guide the business of the company, would be imputed to the corporation," and that "[m]ens rea is attributed to corporations on the principle of 'alter ego' of the company." As explained in section 2, the adoption of the alter ego principle in *Iridium* amounted to a de facto acceptance of the broader agency theory of corporate criminal liability, since the "directing minds" that could plausibly be the firm's alter ego were its promoters, who would also de jure be the company's agents.

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[13] See id.

[14] The *Tesco*/*Iridium* focus on agents who control the entirety of the corporation's affairs is dissimilar to the approach taken by many U.S. courts, which have held corporations criminally liable even for the actions of agents who do not hold positions of substantial authority in the corporate hierarchy. These courts have held companies liable so long as the employees responsible for the challenged action were acting within the scope of their employment relationship and for the purpose of benefitting the corporation. See, for example, United States v. Hangar One, Inc., 563 F.2d 1155 (5th Cir. 1977).

[15] Perhaps because of the court's focus on *human* controllers in setting up the "directing minds" theory, the Motorola litigation dragged on for five more years until the parties settled in 2015 without any court ever holding the defendant liable. See https://timesofindia.indiatimes.com/tech-news/motorola-iridium-india-settle-dispute-file-consent-term-in-bombay-hc/articleshow/46382181.cms. An important part of the event study analysis in section 5 is to show that firms controlled by corporate promoters did not experience statistically or economically significant abnormal returns around *Iridium*.

The Supreme Court's transformation of corporate mens rea doctrine immediately caught the attention of legal practitioners and market participants. The Indian business press reported the outcome of the case on the same day it was announced.[16] Leading Indian law firms later released client memos explaining how corporations with controlling individual agents now faced a heightened risk of criminal prosecution, and media reports explained how *Iridium* suddenly placed corporations in a similar place as individuals with respect to criminal enforcement.[17] One of these law firms stated that it was "now abundantly clear that a corporat[ion] which acts through its directors and managers could also posses[s] the requisite mens rea to commit a crime," and that the *Iridium* decision "allows companies to be subject to offences such as cheating, embezzlement or misappropriation." Noting the abrupt and judicially crafted change in corporate criminal law jurisprudence, the law firm memo characterized *Iridium* as "an apt illustration of judicial activism."[18]

To ensure that the *Iridium* decision was indeed a surprise to the markets and also immediately seen as an unusually important legal development—necessary predicates for an event study—I accessed information about all 906 cases decided by the Supreme Court in the same year as *Iridium* through the official website for the Supreme Court Reporter.[19] From these reported opinions, I identified cases most likely to be similar to *Iridium* by searching for the keywords "corporate," "company," and "companies." None of these cases seem to have been seen as being equally important as *Iridium*—either at the time, or in subsequent years—as proxied by law firm notes, news stories, or blog posts.[20]

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[16] *See* https://economictimes.indiatimes.com/industry/telecom/sc-allows-motorolas-prosecution-in-alleged-cheating-case/articleshow/6779291.cms?from=mdr (dated October 20, 2010, the same date as the decision).
[17] See https://www.lakshmisri.com/insights/articles/doctrine-of-attribution-in-corporate-criminal-liability, https://www.nishithdesai.com/generateHTML/5532/4, https://economictimes.indiatimes.com/opinion/et-commentary/criminal-liability-catches-up-with-companies/articleshow/10964731.cms
[18] See https://www.nishithdesai.com/generateHTML/5532/4.
[19] See https://scr.sci.gov.in/scrsearch.
[20] Representative examples include National Small Industries Corp. Ltd v. Harmeet Singh Paintal (2010) [https://indiankanoon.org/doc/832836/], Maharashtra State Electricity Distribution Co. v. M/S. Datar Switchgear Ltd. (2010) [https://indiankanoon.org/doc/117856174/], V.P. Shrivastava v. Indian Explosives Ltd. (2010)

Therefore, contemporaneous commentary on *Iridium* made clear that the court's decision was a marked break from previous criminal enforcement practice, and that companies with controlling individual agents would face an elevated risk of criminal sanctions. Media and law firm coverage of the case was qualitatively different from legal news on other matters that might affect business to some extent, but that would not be expected to have much of an effect. Consistent with this analysis, *Iridium* has subsequently been cited in several cases as the authority for courts being able to treat individual agents' state of mind as prima facie evidence of corporate mens rea.[21] Law firm memos assert that corporate criminal prosecutions and white-collar criminal enforcement in India became "extremely aggressive" after *Iridium*, even though formal statistics for corporate criminal litigation are unavailable.[22] The doctrinal innovation in *Iridium* has hence had a significant impact on the probability of a court finding firms criminally liable.

The *Iridium* court's focus on human controllers inside the corporation (in the court's words, "person or body of persons in control of its affairs") strongly indicates that its new agency-based theory of corporate mens rea would most directly increase the probability of criminal sanctions for a specific group of firms: companies controlled by individual or family "promoters" (the Indian legal term for controlling shareholders). Many companies in India, whether run by individuals and families or others, have a majority owner, with outside investors often accounting for a small minority of shares (Khanna and Palepu 2004). However, these controllers need not be individuals or

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[https://indiankanoon.org/doc/753434/], State Of NCT Of Delhi v. Rajiv Khurana (2010) [https://indiankanoon.org/doc/1021674/], and Incable Net(Andhra) Limited v. Ap Aksh Broadband Ltd. (2010) [https://indiankanoon.org/doc/620862/]. Even cases that did receive some attention (such as P.J.Agro Tech Limited v. Water Base Limited (2010) [https://indiankanoon.org/doc/143701406/], regarding disability rights of corporate employees) did not attract nearly as much coverage as *Iridium*.

[21] See, for example, CBI v. K.K. Mishra (2011) [https://indiankanoon.org/doc/173670044/], Elof Hansson (I) Pvt. Ltd v. Prithivi Softech Ltd (2011) [https://indiankanoon.org/doc/270794/], Sri Aurobinda Seva Kendra v. State of West Bengal (2017) [https://indiankanoon.org/doc/180271994/], CBI v. M/S Vini Iron & Steel Udyog Ltd. (2017) [https://indiankanoon.org/doc/45461294/], Gagan Aero Space Ltd v. State of Telangana (2019) [https://indiankanoon.org/doc/198675773/].

[22] See https://globalinvestigationsreview.com/guide/the-practitioners-guide-global-investigations/2025/article/india-navigating-new-era-of-white-collar-enforcement.

families: many companies are controlled by other corporate entities or the government. The *Iridium* opinion's focus is on the mental state of individuals that can be said to control the company. If the chief executive officer and founder of a company were also its controlling shareholder, her state of mind could straightforwardly be imputed to the firm applying the Supreme Court's rationale.

Similarly, if the company is controlled by a family, the financial economics literature suggests that this cohesive group of insiders would have higher private benefits of control and more power over the firm than controllers that are governmental institutions, corporate entities, or banks (Villalonga et al. 2015). Courts are plausibly more likely to find a collective state of mind for a family, and to then ascribe that mens rea to the corporation that family controls. Therefore, the increase in expected criminal sanctions will be most acute for companies controlled by individuals and families, rather than by corporate entities or the government, which do not have the same imputable mental states as human controllers.

Consistent with this notion, subsequent cases interpreting and applying the *Iridium* decision have explicitly concluded that courts will not impute mens rea to corporations if the controller is not an individual. For instance, in the representative 2012 case of *Samsung India Electronics v. State of Assam*, a state high court reviewed the evolution of corporate criminal liability as it stood after the *Iridium* case. The court held that the "conviction of a natural person becomes necessary to penalize a company" when that person is "not standing in his personal capacity, but represents the embodiment of company." It also summarized Indian doctrine to hold that a "corporate body, not having a mind of its own, cannot commit an offence, involving mens rea, without the help of a human agency."[23] Courts thus repeatedly emphasize that a necessary predicate for corporate criminal liability is the mental state of a *human* agent or *natural* person, who is the "embodiment" of a company and thus fits the "directing minds" paradigm. Therefore, despite the facts of the underlying

[23] See Samsung India Electronics Pvt. Ltd v. State of Assam (2012) [https://indiankanoon.org/doc/8282675/].

litigation in *Iridium* themselves involving a corporate defendant (Motorola), the Supreme Court did not decide the liability of that defendant and instead propounded a theory of corporate mens rea centered on individual or family controllers. Subsequent case law applying *Iridium* has only used it to impute mens rea based on the mental state of *human*, not corporate, controllers.

There are at least three possible objections to the designation of firms controlled by individuals and families as treated. The first is that the *Iridium* decision may have affected the criminal liability of all firms where individual *directors* have guilty states of mind. Since directors are the de jure decisionmakers in corporations, a plausible formalistic reading of the *Iridium* decision could be that promoter ownership is not the key determinant of a company's stock price reaction to the court decision. However, there are both institutional and empirical reasons to doubt that the introduction of corporate mens rea standards would affect companies through directors rather than the promoter channel. The Indian corporate law and finance literature strongly supports the view that promoters and families control companies, and that directors not affiliated with the founding family are functionally irrelevant in firm governance (Jameson et al. 2014, Varottil 2010).

Empirically, if *Iridium* affected firms due to directors' mens rea, we would expect significant negative stock price reactions for companies other than those controlled by individual and family promoters. However, the empirical analysis in section 5 shows that the value destruction after *Iridium* is restricted to firms with individual and family promoters, and does not extend to companies controlled by other types of promoters such as corporations. Therefore, I use ownership by individual and family promoters as the treatment in this paper's identification strategy.

Second, virtually all Indian firms have some sort of controller, which is typically an individual or family. If there are very few firms not controlled by individuals or families, any event study results could just represent market wide reactions to the *Iridium* decision. Consistent with this notion, I find that of the 2,933 firms in the sample, just 35 have no promoter listed in the Prowess

database. However, there is considerable heterogeneity among the 2,898 firms with controllers. 539 firms, or about twenty percent of firms with promoters, have controllers that are not Indian individuals or families, such as corporations and federal or state governments. More importantly, Figure 1 graphs the distribution of ownership by Indian individual and family promoters. There is significant variance in the extent of ownership by these promoters. Under the standard assumption that a greater ownership stake implies greater control over the firm's operations (Shleifer and Vishny 1986), one can expect that within the subset of firms controlled by individuals and families, those whose promoters have greater ownership will face greater criminal liability under the doctrine announced in *Iridium*.

Third, there may be a concern that all an individual controller needs to do to avoid liability for her role in controlled company "A" after *Iridium* is to set up a separate corporation (say, "B") and sell her shares in A to B. Then, the controller of A is no longer the individual but is instead a "corporation" (B) and, under this reasoning, the individual's actions at A would not constitute corporate mens rea. This scenario is unlikely given the definition of promoter ownership under Indian law. Such a controller would be deemed to beneficially own the shares "owned" by firm B. The Securities and Exchange Board of India (SEBI) mandates that a promoter's disclosed ownership must include all entities "acting in concert" with the promoter, which would include companies such as B.[24] Therefore, a court presented with such a fact pattern would know that company B was aligned with the promoter and part of the "promoter group." Consistent with this notion, a review of litigated cases finds that courts in corporate criminal litigation look at the ownership of the individual promoter along with ownership by other allied firms controlled by her.[25]

[24] Regulation 2(1)(e) of SEBI Substantial Acquisition of Shares and Takeovers Regulations (1997); Regulation 31 of SEBI Listing Obligations and Disclosure Requirements (2011).
[25] See Ashish Gupta v. State Of U.P. (2024) [https://indiankanoon.org/doc/180969908/] (finding that a promoter could not escape criminal liability and piercing the corporate veil, in a case where entities controlled by the promoter owned 70% of the company where criminal activities were alleged to have occurred).

The novel corporate mens rea doctrine's impact on firms controlled by individuals and families is likely to have been even greater for companies that are members of business groups. In developing countries like India, founding families are especially likely to exert influence in business groups. Business groups consist of member firms in different industries linked through cross-ownership by common controllers. Families control business group member firms through tactics such as cross-holdings and pyramiding, which have been extensively studied in the corporate finance literature (Almeida and Wolfenzon 2006, Bebchuk et al. 2000). Bertrand et al. (2002) find that Prowess accurately codes firms as part of business groups where the founding family controls the company not just through direct ownership but also by other means, such as packing the board with family members and friends. Moreover, business group controllers are especially likely to be reputationally linked to their companies (Aggarwal 2026, Khanna and Palepu 2004, Khanna and Yafeh 2007). Therefore, for two companies with the same level of ownership by an individual or family promoter, the business group member firm is more likely to have its controller be classified as a "directing mind" and have its reputation linked to that of the controller, thus losing value because of *Iridium*.

Another reason the court decision may especially affect business group firms is that a single act of criminal misconduct by an individual or family controller can be attributed to several member companies of their business group. A review of the Indian business press reveals several instances where criminal charges were levied against multiple companies belonging to a group due to the same instance of lawbreaking by a common controller. For instance, the Delhi Police arrested the promoter of the Supertech group, which focuses on construction, in 2024, alleging that he had cheated 670 homebuyers of almost $2 million. The police filed a case for criminal conspiracy against the promoter and several of Supertech's group companies, alleging that the stolen amount could

have been diverted to many of these group firms.[26] *Iridium* may thus especially affect firms that are both controlled by individuals and families and part of business groups, because a common group controller's misconduct could reasonably be imputed to several group companies.

There are a number of facts about the *Iridium* litigation that limit the external validity of the paper's empirical analysis in the U.S. context. First, note that the complainant was a private-sector corporation, which would not be possible in an American criminal case. Second, the U.S. generally has widely-held public companies and its equity markets are not dominated by business groups. Finally, the U.S. legal system generally places tighter restrictions on controller conduct (Gilson and Gordon 2003). Despite these limitations, India's system is perhaps more typical of many legal systems around the world, which are characterized by controller dominance (La Porta et al. 1998) and business groups, pyramiding, and cross-ownership (Bebchuk et al. 2000). Therefore, even if the findings are not directly applicable to the U.S. system, or even countries like France that have controlled companies but also robust enforcement of criminal law, there is less reason to doubt their external validity with respect to the relationship between corporate criminal liability and firm value in the many systems that have both ownership structures and enforcement institutions similar to India's.

4. Data and Summary Statistics

I obtain the data for this paper's empirical analysis from standard sources used in the Indian corporate finance literature. Most of the data comes from Prowess, a dataset maintained by the Center for Monitoring Indian Economy and used in previous papers (Bertrand et al. 2002, Dharmapala and Khanna 2013). Specifically, I use stock market data from Prowess for firms trading

[26] See https://www.deccanherald.com/india/delhi/delhi-court-refuses-to-extend-supertech-chairmans-interim-bail-3019327. For a similar case where a single instance of alleged bank fraud by a common controller led to criminal charges against several group companies, see https://timesofindia.indiatimes.com/city/delhi/ed-attaches-rs-678-crore-avantha-group-assets/articleshow/112552986.cms.

on the Bombay Stock Exchange (BSE), as well as returns data from the BSE's flagship Sensex index for use as the market returns in the event study. The event study analysis is based on a standard market model, described in section 5, using a 100-day estimation window. There are 45 trading days between the end of this estimation window and the *Iridium* decision on October 20, 2010, following Child et al. (2021). I collect information about firm financials, specifically size (as proxied by the natural logarithm of total assets), cash and debt ratios, and return on assets (ROA). Following Hees et al. (2022), I define ROA as net income divided by total assets. The Prowess variable corresponding to net income is "profits after taxes." I winsorize firm financials at the 1% level, but the results are qualitatively similar using the non-winsorized values.

I also aggregate firm ownership data from Prowess. To create the main treatment variable for the paper, I use the Prowess variable for Indian individual and family promoter ownership. "Promoter" is the Indian legal terminology for a company's controlling shareholder. Prowess contains information for the percentage equity ownership by promoters who are either individuals or belong to a Hindu Undivided Family (HUF) (i.e., an Indian joint family).[27] This variable thus captures the percentage shareholding of controlling shareholders who are either individuals or a closely-knit family group operating together—i.e., the types of controllers whose mental states could be ascribed to the controlled company after *Iridium*. I also access information regarding the percentage ownership by other promoters, namely corporations, federal and state governments, and foreign entities. Finally, I use data about percentage ownership by foreign institutional investors. For ease of exposition in subsequent empirical analysis, I standardize all ownership variables to have zero mean and unit variance (Andrei et al. 2023).

[27] Khanna (2019) defines an HUF as "a multi-generational set of individuals tracing lineal descent from a common ancestor and their spouses who intend to live, eat and worship together." HUF controllers are therefore a close-knit familial group of insiders who are presumed to act as a cohesive group.

Following Bertrand et al. (2002), I use Prowess's classification of firms into business groups, and validate this classification by manually inspecting firm controller names. Finally, I collect data regarding firms' headquarter state and industry membership. As in Gormley et al. (2012), I use the company's registered address in Prowess to extract its headquarter state. I use the full company National Industrial Classification (NIC) code as provided in Prowess to proxy for its industry. The results remain qualitatively unchanged if I instead use the less granular two-digit NIC code, as in Goldberg et al. (2010). The NIC codes are prepared by the Indian government and are based on the International Standard Industrial Classification (ISIC) system developed by the United Nations.[28] NIC codes are used in virtually all corporate finance papers with Indian data, and are similar to the Standard Industrial Classification (SIC) codes from work with U.S. data. To classify firms as consumer-facing or not, I follow previous work using U.S. data and look at industry codes. Specifically, I classify building materials, retail, restaurants, hotels, business and personal services, utilities, home furnishings, apparel, communications, and airlines as consumer-facing (Baker et al. 2020, Lee et al. 2021, Rajan et al. 2023). 8.34 percent of sample firms belong to consumer-facing industries. Table 2 lists the definitions of all variables used in the event study analysis, and Panel A of Table 3 provides summary statistics.

5. Event Study Results

I use the standard market event study model to calculate expected stock returns during the event window:

$$R_{it}=\alpha_{it} + \beta_i R_{mt} + \varepsilon_{it}$$

Here, R_{it} and R_{mt} represent the return for stock *i* and the market (i.e., the Sensex index) at time *t*, respectively. ε_{it} is the standard error term.[29] I estimate this model using data for the 100 days

[28] See https://mospi.gov.in/classification/national-industrial-classification/forewords.
[29] I follow previous event study work using Indian data, which similarly uses a single-factor market model approach, rather than the three-factor Fama-French model (Dharmapala and Khanna 2019, Manchiraju and Rajgopal 2021,

preceding the event window as in Takaoka (2006). The results are qualitatively unchanged when I instead use a longer estimation window of 150 trading days. I require that each stock must have data available for at least 30 trading days during the estimation window. Following Child et al. (2021), I ensure there is a gap of 45 trading days between the end of the estimation window and the event date. The abnormal return for stock *i* at event date *t* is:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt}$$

The cumulative abnormal return (CAR) for stock *i* measures the total abnormal return during the event window. I estimate CARs for several event windows around October 20, 2010, the date the *Iridium* decision was announced. The event study estimates are qualitatively similar if I winsorize the CAR at the 1% level. The results are thus unlikely to be driven by outliers.

Equation (1) asks whether firms with individual and family controllers, the treatment group, perform significantly differently from other companies around the time of the Supreme Court decision. For firm *i* belonging to industry *j*, I estimate:

$$CAR_i = \delta \text{Indian Individual and Family Promoter Ownership}_i + X_i + \sigma_j + \varepsilon_i \quad (1)$$

$\text{Indian Individual and Family Promoter Ownership}_i$ is the percentage ownership by individual and family promoters, measured as of September 30, 2010, just twenty days before *Iridium* and the latest date for which Prowess provides ownership information before the Supreme Court's decision. X_i is a vector of the firm financial controls listed in section 4. These financial variables are available as of March 31, 2010, the end of the Indian fiscal year immediately preceding the *Iridium* decision. Event studies using Indian data typically include industry fixed effects and cluster standard errors at the industry level (Black and Khanna 2007). Therefore, I include σ_j, an industry fixed effect, and cluster all standard errors at the industry level.

Rajgopal and Tantri 2023). This is because of the lack of high-quality data on the size and value premia, which are easily available in the U.S. context but not widely available for Indian stocks.

Table 4 presents the main event study results, displaying the coefficient for *Indian Individual and Family Promoter Ownership*. Panel A presents the baseline results without firm financials, while Panel B includes the vector of financials described above. This coefficient is negative and statistically significant in all event windows, whether or not we control for firm financials. Table 4 shows that a one standard deviation higher level of individual and family ownership before *Iridium* is associated with a 0.72-0.86 percentage point lower CAR in the [0, 5] event window around the Supreme Court's decision. The main event study regression thus indicates that the introduction of a legal doctrine imputing corporate mens rea from the mental states of corporate agents led to value destruction at companies controlled by individuals and families.

The event study estimates for post-*Iridium* value destruction seem plausible: the magnitude of the CARs is comparable to the estimates of loss in firm value from increased legal liability documented in earlier work using Indian data (Manchiraju and Rajgopal 2021, Rajgopal and Tantri 2023). Using the (winsorized at 1%) values for market capitalizations of sample firms as of the day of the *Iridium* decision, the event study results imply that the mean (median) value destruction from the decision was 119–142 million Indian rupees (INR) (6–7 million INR). The discrepancy between the mean and median stems from the right-skew of market capitalization, with a few large firms dominating the distribution.

These estimates are reasonable, given that even common criminal offenses like cheating have led to reported penalties for corporations of 10 million INR (which would be more relevant to the estimates for the median firm),[30] and complex white-collar criminal convictions carry penalties for corporations to the tune of 250 million INR (which may be more relevant to the largest firms).[31] More importantly, as explained in section 2, penalties are hardly the only costs associated with

[30] See https://www.deccanherald.com/india/karnataka/bengaluru/five-convicted-fined-rs-23-cr-for-cheating-bank-2638471.
[31] See https://www.azbpartners.com/bank/white-collar-crime-2023-law-and-practice/.

criminal liability: corporations also incur other direct costs (legal defense costs, reputational costs, managerial time and attention expended) as well as indirect ones (the cost of compliance and other adjustments to corporate behavior undertaken in anticipation of more rigorous future enforcement). Previous work shows that some of these costs may dwarf the formal legal penalties for criminal misconduct. Karpoff and Lott (1993), for example, argue that reputational damage from the revelation of criminal activity constitutes the majority of losses suffered by corporate defendants, and find that criminal liability's effect on firm value as proxied by event studies should typically be greater than the expected magnitude of legal penalties.

One may wonder why the abnormal returns would linearly vary with individual or family promoter ownership: presumably, once this ownership is sufficient to qualify the human agent as the firm's "directing mind," the firm would face criminal liability for the agent's actions under *Iridium*. In other words, why would an 80% ownership stake by an individual or family promoter be associated with greater value destruction than a 50% ownership stake. The answer is twofold. First, the court did not merely hold that control of any sort by a human agent would translate into possible criminal liability for the corporation. Instead, it stated that "the degree and control of the person or body of persons is *so intense* that a corporation may be said to think and act through the person or the body of persons."[32] Therefore, while both the 50% and 80% owners may be said to "control" the corporation, the judicially determined intensity of their control may be different enough for the latter to be classified as a "directing mind" under *Iridium* and not the former. Second, to the extent the value destruction from *Iridium* was because of the reputational links between lawbreaking controllers and their firms, as explained in section 3, companies with supermajority (rather than bare majority) promoters may be more likely to be viewed as reputational adjuncts of their controllers, and thus adversely impacted by the Supreme Court's decision.

[32] See Iridium India Telecom Ltd. v. Motorola Incorporated, (2011) 1 SCC 74 (emphasis added).

The event study results persist in a series of robustness tests. Table OA1 in the Online Appendix re-runs Equation (1) in two placebo event windows that do not include the day of the Supreme Court decision and are a week away from *Iridium*: [7, 9] and [-9, -7]. Since the event windows are far removed from the date of the decision, we would not expect *Indian Individual and Family Promoter Ownership* to have a significant coefficient. Consistent with this expectation, this coefficient is not significant for either placebo event window, regardless of whether we control for firm financials.

An alternative interpretation of the *Iridium* decision could be that it affected *corporate* rather than individual controllers of firms, since the Supreme Court opinion mentioned how Motorola exercised control of the subsidiary company developing the (allegedly) fraudulent wireless communications system. However, the opinion only spoke of the state of mind of controllers who are *individual* directors and officers when laying out the new rule for imputing corporate mens rea, and did not decide Motorola's liability. Therefore, the most natural reading of *Iridium* is that it implicates companies with human controllers. However, to verify that the value destruction after *Iridium* was specific to individual and family controller ownership, I modify Equation (1) by regressing abnormal returns against government, corporate, and foreign promoter ownership. The base category in this model is thus firms controlled by individuals and families.[33]

Table 5 presents the results regarding other types of promoter ownership. In Panel A, where I do not include any firm financials, none of the coefficients associated with any of these three types of promoter ownership is significant. In panel B, where I include firm financials, the coefficients associated with corporate and foreign promoter ownership continue to be insignificant. The coefficient for government promoter ownership is *positive* and significant, but only for some windows and then too mostly marginally ($p<0.1$). To the extent we can interpret this (weak) finding

[33] The base category in this regression technically also includes the handful of firms that have no promoter. Excluding these firms has no effect on the results.

regarding government ownership, *Iridium* would have had a smaller effect on the criminal liability of state-owned enterprises, because government-controlled businesses rarely face criminal liability in the Indian system. While government agencies bring corruption and other criminal charges against individual government employees, public sector corporations are virtually never criminally charged (in part because, depending on the context, they may enjoy sovereign immunity). However, the main takeaway from Table 5 is that the value destruction in *Iridium*'s wake seems to be concentrated in firms controlled by individuals and families, whose mental state can lead to an imputation of corporate mens rea, rather than firms controlled by other promoters such as corporations, governments, and foreign entities.

There could be some concern that government-controlled and foreign companies are not appropriate controls for the treated companies that are controlled by Indian individuals and families. Government-run firms may, for instance, prioritize public welfare or other political considerations over profitability. Foreign firms may similarly have different corporate governance controls and business objectives, reflecting their home country's institutional characteristics. Therefore, in Online Appendix Table OA2, I remove government-controlled and foreign firms and compare abnormal returns for individual and family-controlled firms and other companies. The results are qualitatively similar to those in Table 4.

Table OA3 in the Online Appendix accounts for the possibility that firms controlled by individuals and families are fundamentally different by re-running Equation (1) on an entropy-balanced sample. I balance the first moments of each of the financial controls used in Equation (1) for firms with above- and below-median individuals and family ownership, following the methodology developed by Hainmueller (2012). *Indian Individual and Family Promoter Ownership* still has a negative and statistically as well as economically significant coefficient for all the event windows around the court decision.

I estimate a modified dynamic version of Equation (1) to check that the negative abnormal returns for treated firms were not the product of a pre-existing trend from before the Supreme Court decision. The dependent variable is the abnormal return for days around the court decision. In Figure 2, I plot the coefficient for the interaction between *Indian Individual and Family Promoter Ownership* and dummies for the trading days around the *Iridium* decision. Following Gopalan et al. (2021), I show the 90% confidence interval and set the day preceding the court decision as the base category. Figure 2 shows there is no discernible pretrend in abnormal returns for the treated firms: none of the coefficients corresponding to dates before *Iridium* are statistically significant at traditional levels.

As explained in section 3, *Iridium* is especially likely to have had an effect on value for firms that are both controlled by individuals and families, and are also members of business groups. This is because business group member companies are usually reputationally linked to their founding families, and also because these families exert control over group firms by means other than ownership, such as by stacking corporate boards with family members and close associates. I estimate the following equation, controlling for business group membership and its interaction with *Indian Individual and Family Promoter Ownership*:

$$\text{CAR}_i = \delta \text{Indian Individual and Family Promoter Ownership}_i + \mu \text{Business Group Member}_i + \alpha \text{Indian Individual and Family Promoter Ownership}_i \times \text{Business Group Member}_i + X_i + \sigma_j + \varepsilon_i \quad (2)$$

Table 6 presents the results from estimating Equation (2). Consistent with the intuition that the Supreme Court's adoption of the imputed corporate mens rea especially affected business group member firms that are controlled by individuals and families, the interaction term between business group membership and *Indian Individual and Family Promoter Ownership* has a negative and significant coefficient for every event window. The variables representing the main effects of business group

membership and *Indian Individual and Family Promoter Ownership* do not have a significant coefficient in any event window. The economic significance of the value destruction is higher than the main event study result in Table 4. The marginal effect on the CAR associated with both being controlled by an individual or family and simultaneously belonging to a business group, after controlling for the main effect of each of these conditions individually, is –1.18 percentage points in the [0, 5] event window.[34] Therefore, the effect of corporate mens rea on firm value seems significantly larger when we focus on the subset of firms where individuals and families are especially likely to control the company through ownership as well as reputation. The concentration of post-*Iridium* value destruction in business group members underlines the decision's specific effect on firms dominated by individual or family controllers, and suggests that the event study results are not simply picking up secular market-wide reactions to the Supreme Court opinion.

The results in Tables 4–6 indicate that the expansion of corporate criminal liability for firms controlled by a particular set of controllers—individuals or families—reduced their equity values in a manner that was both economically and statistically significant. Tying this to the framework explained in section 2 and summarized in Table 1 earlier, the post-*Iridium* value destruction is most consistent with the lawbreaking by human or family controllers being, on average, harmful to stakeholders other than shareholders. Alternatively, the lawbreaking could be harmful to shareholders, but the punishment effects experienced by the corporate defendant may, on average, outweigh the deterrence effect on controllers. The results are least consistent with the possibility that controller lawbreaking is, on average, harmful to shareholders and that the deterrence effect for controllers exceeds the punishment effects for the firm.

Next, I analyze the possible monitoring role played by foreign institutional investors and consumers. As explained in section 2, we should expect the post-*Iridium* value destruction to be

[34] The total CAR experienced by these firms for [0,5] is approximately -1.584 (= -0.447 + 0.046 – 1.183)

smaller for firms with more foreign institutional ownership, and greater for consumer-facing firms. To evaluate this possibility, I first re-run Equation (1), modifying it by interacting individual or family promoter ownership with either foreign institutional ownership or an indicator for the firm belonging to a consumer-facing industry. I then also modify Equation (2), estimating a triple difference model interacting individual or family promoter ownership, business group membership, and either foreign institutional ownership or the consumer-facing dummy. Because, as discussed in section 3, the intensity of controller lawbreaking is expected to be greater when the controller's power to promote her self-interest is greater—such as when the firm belongs to a business group—the impact of potential monitoring by institutional investors or consumers would also be greater for controlled firms that are business group members.

Table 7 presents the results of this analysis for foreign institutional investors, while Table 8 does so for consumer interaction. Table 7 shows that the post-*Iridium* value destruction for firms with individual or family controllers is smaller if they have greater foreign institutional effect. Panel A shows that the interaction between individual or family promoter ownership and foreign institutional ownership is positive for all event windows, and statistically significant for the [0,2], [–2,2], and [0,5] event windows. A one standard deviation greater degree of ownership by foreign institutional owners corresponds to a 0.08 percentage point higher CAR, conditional on firms having one standard deviation greater individual or family controller ownership, in the [0,5] window, after controlling for the main effects of both these kinds of ownership.

The positive association between greater foreign institutional ownership and firm value around *Iridium* is even clearer in Panel B. The coefficient for the triple interaction term between human promoter ownership, business group membership, and foreign institutional ownership is positive in all event windows and statistically significant in all but one event windows. For the event window [0,5], the coefficient for the triple interaction term shows that, for business group firms, one

standard deviation increases in individual or family promoter ownership as well as foreign institutional ownership translate to a 0.122 percentage point larger CAR, controlling for the main effects and other interaction terms. In terms of magnitude, this is about seven percent of the effect represented by the negative coefficient for the interaction between human promoter ownership and business group membership, indicating that foreign institutional ownership offsets some of the post-*Iridium* value destruction. Online Appendix Table OA4 presents subsample analysis where I run Equation (1) separately for firms with above- and below-median levels of foreign institutional ownership. The coefficient for individual or family promoter ownership is negative and statistically significant only for the set of firms with below-median foreign institutional ownership.

Table 8 shows that, in stark contrast, a higher level of consumer interaction is associated with *greater* value destruction after the introduction of corporate criminal liability. In Panel A, the interaction term between human promoter ownership and the consumer-facing industry dummy has a negative and statistically significant coefficient in the [0], [0,1], and [0,5] event windows. For the [0,5] event window, a firm with one standard deviation greater individual or family controller ownership suffers a 0.87 percentage point drop in CAR if it is also in a consumer-facing industry. As with the earlier results in Table 7, the effect of consumer interaction on firm value becomes sharper when we estimate a triple interaction between human promoter ownership, business group membership, and consumer interaction in Panel B of Table 8. The coefficient for this triple interaction is negative for all event windows, and statistically significant for all except [–2,2]. This coefficient corresponds to a 1.83 percentage point lower CAR for the [0,5] event window, after controlling for main effects and other interaction terms. Subsample analysis in Online Appendix

Table OA5 shows that the decline in value for firms with human promoters is of far larger magnitude for consumer-facing firms than others.[35]

The broad takeaway from the results in Tables 7 and 8 is that foreign institutional investors seem to play an ex-ante monitoring role in dissuading controller lawbreaking, lessening the post-*Iridium* value destruction, while consumers cannot play an ex-ante monitoring role but instead *increase* corporate criminal liability's ex-post destruction of firm value by withdrawing their business from offending firms and enlarging the punishment costs. The magnification of the value destruction by virtue of the firm being in a consumer-facing industry is appreciably greater in magnitude than foreign institutional ownership's role in reducing the value-destroying impact of *Iridium*. A striking finding is that these monitoring and punishment roles of foreign institutional investors and consumers, respectively, are heightened when the controlled company is also a member of a business group. This is consistent with the value effects of institutional monitoring or consumer punishment being at their apex when the controller is best positioned to promote her self-interest through criminal misconduct.

6. Further Analysis

An important feature of the Indian court system, and firm-state relations, is the centrality of corruption and biased enforcement of legal rules (Aggarwal 2024, Aney et al. 2021, Khanna 2017). The effect of corruption on the relationship between corporate criminal liability and firm value is uncertain. On the one hand, politically connected firms in corruption-prone sectors may face little to no enforcement even after the introduction of corporate mens rea. If so, we would not expect much

[35] Two caveats are in order. First, the results in Table 8 do not hold if I follow Dharmapala and Khanna (2018) and define consumer interaction based on firms' advertising expenditures: the interaction between advertising and human promoter ownership does not have a significant coefficient. However, as explained in section 3, it is more common in the literature to define consumer interaction based on industry classification, as I do in the main analysis. Second, in the subsample analysis in Table OA5, the coefficient for individual or family promoter is not significant for [–1,1] and [–2,2] for consumer-facing firms (while being significant for all other windows). This is probably because of the lower power of the regression analysis, because consumer-facing firms only comprise about eight percent of sample firms.

value destruction around *Iridium* for these firms, due to their lower likelihood of facing criminal sanctions. On the other hand, the higher corruption propensity of these firms could cause them to lose more value after *Iridium*: prosecutors and judges could collect bribes from companies in corruption-prone industries where there is more interaction with the government, to not bring or adversely adjudicate criminal cases against the firm.

I investigate the effect of corruption by running a modified version of Equation (1), interacting individual or family promoter ownership with a dummy for whether a firm belongs to a corruption-prone industry. Following the previous literature, I set this dummy, *Corruption-Prone Industry*, equal to 1 if the firm belongs to the aviation, cement, construction, mining, oil and gas, real estate, telecommunications, or utilities industries (Aggarwal 2024, Dharmapala and Khanna 2019, Gandhi and Walton 2012). 8.23% of sample firms are in corruption-prone industries. The results, presented in Table 9, are more consistent with firms in corruption-prone industries being relatively shielded from the effects of *Iridium*. The coefficient for the interaction between human promoter ownership and corruption propensity is positive for all event windows. It is statistically significant for windows [0], [–1,1], and [–2,2], and has a greater magnitude than the negative coefficient for the main effect of individual or family promoter ownership. However, the coefficient for the interaction term is smaller in magnitude than the main negative effect of promoter ownership, and statistically insignificant, for other event windows. Therefore, while I find some evidence that firms in industries with more political rents suffer lower value destruction after the expansion of corporate liability, the results are not definitive.

In Online Appendix Table OA6, I estimate a triple difference model interacting individual or family promoter ownership, industry corruption propensity, and business group membership. While the interaction between human promoter ownership and corruption propensity retains its positive and significant coefficient, and the interaction between human promoter ownership and business

group membership continues to have a negative and significant coefficient, the triple interaction does not have a significant coefficient.

Next, I investigate whether the value effects of *Iridium* vary based on firms' headquarter state. Cultural aspects of the headquarter region of public companies affect core corporate policies such as executive recruitment and operating performance, especially in companies controlled by individuals and founding families (Amore et al. 2014, Yonker 2016). The "directing minds" theory of corporate criminal liability from *Iridium*, for instance, may have special importance for companies headquartered in regions where familial insiders are more likely to represent a cohesive block who can collectively be said to possess a guilty state of mind. To ascertain the role of home state culture, I modify Equation (1) by interacting promoter ownership with the share of households living in joint family arrangements in the firm's headquarter state (normalized to have zero mean and unit variance). Joint family structures, which are multigenerational families living under the same roof and often working in the same business, embody a cultural norm of collective familial decision-making (Chadda and Deb 2013). The information for household structure comes from the 2011 Census of India. The results are presented in Online Appendix Table OA7. The coefficient for the interaction between individual or family promoter ownership and the incidence of joint families is not significant for any event window.

However, in Online Appendix Table OA8, I present subsample analysis running Equation (1) separately depending on whether the percentage of households living as joint families in the firm's headquarter state is greater or lower than the median value for all Indian states and territories. Table OA8 indicates that the post-*Iridium* value destruction is correlated with home state culture: the coefficient for individual or family promoter ownership is only significant for firms headquartered in

states with above-median prevalence of joint family households.[36] Although the subsample analysis suggests that tighter kinship networks may correlate with the value of affected firms after the Supreme Court decision, the insignificance of the interaction term in Online Appendix Table OA7 cautions against any strong reliance on this theory.

Finally, I study stock price reactions at the treated companies in response to a 2015 Supreme Court decision, *Sunil Bharti Mittal v. Central Bureau of Investigation*,[37] which held that a company's criminal liability cannot be a cause for imputing mens rea to its controlling shareholder. In other words, the Supreme Court refused to impute mens rea in the fact pattern that is precisely the reverse of *Iridium*, i.e., when the corporate liability of a company had been established but that of its controller had not. In principle, firms controlled by individuals and families could experience negative stock reactions to the *Sunil Bharti* case, since controllers may have become incentivized to abstain from criminal lawbreaking at their firms if the Supreme Court had decided to greenlight promoters' vicarious criminal liability. On the other hand, it is unlikely that outside investors care about the personal criminal liability of controllers once criminal sanctions against the firm in which they are equityholders has been established. Moreover, markets may not believe that controllers would actually have changed their behavior and become less likely to engage in criminal conduct if *Sunil Bharti* had been decided the other way and imposed vicarious criminal liability. This could be because of the widespread belief that Indian controllers view lawbreaking as a normal part of business activities and reject the importance of compliance (Deloitte 2019).

[36] One concern with this subsample analysis is that about 40% of firms are headquartered in Delhi or Maharashtra, which both have above-median shares of joint households, even if their actual business operations (and, thus, corporate culture) lie elsewhere (Aggarwal 2024). This explains why the number of observations in Panel A of Table OA8 is significantly greater than the number of observations in Panel B. However, the results persist when I drop all firms headquartered in Delhi or Maharashtra, which roughly equalizes the number of observations in the two panels in Table OA8.

[37] (2015) 4 SCC 609.

Online Appendix Table OA9 presents the results from estimating an event study model similar to Equation (1) around the announcement of the *Sunil Bharti* decision on January 9, 2015. I use the most contemporaneously available ownership and financial data. Information about *Indian Individual and Family Promoter Ownership* comes from the Prowess data from December 31, 2014, just nine days before the decision. Financial controls are from the fiscal year immediately before the Supreme Court case, ending March 31, 2014. The coefficient for *Indian Individual and Family Promoter Ownership* is not statistically significant in any of the models in Table OA9, regardless of event window or inclusion of firm financials. Therefore, the Supreme Court's 2015 disallowance of vicarious criminal liability for promoters does not seem to have affected firm value for firms controlled by individuals and families.

7. Longer-Term Effects of *Iridium*: Changes in Legal Spending

While event study results can provide us insight into *Iridium*'s anticipated short-term impact on firm value, they cannot definitively tell us how it changed corporate criminal law on the ground. Ideally, we would have access to comprehensive statistics about litigation activity, in order to assess whether more criminal cases were prosecuted against corporations. Unfortunately, such data does not exist in the Indian context, even though, as noted in section 3, practitioners stated that corporate criminal prosecutions increased significantly right after *Iridium* was decided, and several subsequent decisions cited the case to impose corporate criminal liability. However, we do have available data that can potentially tell us how the behavior of firms with individual or family controllers changed relative to other companies after corporate criminal liability became more plausible. Indian public firms, unlike those in the U.S., must disclose total annual spending on lawyers and legal advisors in their annual reports. Previous work using exogenous shocks to specific firms' legal liability shows that these reported expenditures vary with the actual level of litigation faced by Indian companies (Aggarwal 2026). If firms with individual or family controllers experienced more criminal liability

after *Iridium*, they would presumably report higher legal expenditures on average in the years immediately after the Supreme Court case, in order to defend themselves from criminal litigation.

I collect the data on legal expenditures from Prowess for the 2008–2013 fiscal years. *Iridium* was decided on October 20, 2010, which was during the 2011 fiscal year (which, in India, extended from April 1, 2010 to March 31, 2011). Therefore, the sample period for this analysis includes three years in the pre-*Iridium* period (2008–10) and three years post-*Iridium* (2011–13). Panel B of Table 3 presents summary statistics for this analysis. The results are qualitatively unchanged if I restrict it to two years before and after *Iridium*, or if I drop the fiscal year 2011 (since *Iridium* was decided midway through this year). The mean value of annual legal spending for Indian firms, conditional on this variable being reported, is 20.47 million INR.

One issue worth noting is that I only have information about legal spending data for 55.47% of firm-year observations. This is a common issue with various Prowess variables noted by the previous literature. Previous work typically restricts itself to observations for which Prowess has information about the outcome of interest (Rajgopal and Tantri 2023). Another common approach to this issue—used for both Prowess data in general (Dharmapala and Khanna 2018) and for legal spending data in particular (Aggarwal 2026)—is to set missing values equal to zero. Therefore, I run the analysis in this section both for the subset of observations that have information for legal spending, as well as alternatively by setting missing values of legal spending equal to zero. I winsorize legal expenditure data at the 1% level.

Figure 3 plots the distribution of legal spending, either for the set of firms with available data (Panel A), or after setting missing values equal to zero (Panel B). In either case, the most important aspect of this figure is its highly right-skewed nature. Moreover, in the case of Panel B, a large number of observations have zero values. In such a case, using the ordinary least squares approach is not advisable, and no transformation of the data is likely to satisfy the normality-of-errors

assumption. I therefore estimate a Poisson fixed effects model, following recent work using dependent variables with similar distributions and strictly non-negative values (Aggarwal 2024, Cohn et al. 2022, Dharmapala et al. 2022)[38]:

$$\text{Legal Spending}_{it} = \exp(\delta \text{Indian Individual and Family Promoter Ownership}_i + \mu \text{Post}_t + \alpha \text{Indian Individual and Family Promoter Ownership}_i \; x \; \text{Post}_t + X_{it} + \sigma_i + \theta_t)\varepsilon_{it} \quad (3)$$

The dependent variable on the left-hand side equals firm *i*'s legal spending in fiscal year *t*, with or without setting missing values equal to zero depending on the model. I use the value for individual or family promoter ownership from immediately before the *Iridium* decision (i.e., on September 30, 2010, as in the event study in section 5). Using the time-varying value of promoter ownership would be inappropriate because it could present a "bad controls" problem (Angrist and Pischke 2009): the extent of promoter control could itself be affected by *Iridium*'s expansion of corporate criminal liability. *Post* is a dummy that equals 1 for fiscal years 2011–13, and σ_i and θ_t are firm and year fixed effects, respectively. The inclusion of firm and year fixed effects causes the main effects of $\text{Indian Individual and Family Promoter Ownership}_i$ and Post_t to drop out of the equation. I cluster standard errors at the firm level.

Table 10 presents the results from estimating Equation (3). I present coefficients in terms of incidence rate ratios. Irrespective of whether I control for firm financials, or set missing values of legal spending equal to zero, the variable of interest, the interaction between individual or family promoter ownership and *Post*, has a positive and statistically as well as economically significant coefficient in all models. The results suggest that a one standard deviation greater level of pre-*Iridium* individual or family promoter ownership corresponds to an 8.1–10 percent increase in legal

[38] I use the ppmlhdfe command in Stata, as recommended by Cohn et al. (2022).

spending during the post-*Iridium* period, in the diff-in-diff sense. This translates to an average yearly increase in legal spending of approximately 2 million INR.

One concern with the results in Table 10 could be that firms controlled by individuals or families could inherently be different, in terms of being larger or belonging to certain industries. Some of these concerns are addressed by the model's firm fixed effect, which absorbs firm-specific idiosyncratic factors. Moreover, firms with above-median ownership by individual or family promoters are not significantly more or less likely to belong to corruption-prone or politically dependent industries. Furthermore, in Online Appendix Table OA10, I re-run the Poisson fixed effects model on an entropy-balanced sample, balancing the first moments of mean pre-*Iridium* financial controls for firms with below- and above-median individual or family promoter ownership before the decision. The results continue to show a relative increase in legal spending for firms with larger individual or family promoter ownership, albeit with a slightly lower magnitude.

To verify that the relative increase in legal spending is related to *Iridium*, I estimate a dynamic version of Equation (3), interacting individual or family promoter ownership with dummies for fiscal years around 2011 (when *Iridium* was decided). Figure 4 displays the 90% coefficients for these interaction terms. The figure uses the regression model where I do not set missing values equal to zero, but the analysis is similar for the model where I do so. As in Table 10, I present coefficients in terms of incidence rate ratios. For no year before 2011 (which is designated as year "T" in the figure) is any coefficient statistically significant, and there is no discernible pretrend. Therefore, there seems to have been a (relative) increase in legal spending by firms controlled by individuals or families in the immediate aftermath of *Iridium*, but not before the Supreme Court decision, consistent with this rise in legal expenditures being related to expanded corporate criminal liability.

It is important to caveat that other factors unrelated to *Iridium* could have caused firms controlled by individuals or families to experience a relative increase in spending on lawyers after the

decision. Indian firms are only obligated to report the total annual spending on legal fees, and I do not have access to more granular information on whether firms were spending more specifically on criminal defense litigation. However, despite the considerable data limitations in the Indian context—such as the lack of comprehensive litigation statistics—the results regarding the treatment group's relative increase in legal spending immediately after the Supreme Court decision are consistent with the expected effect of expanding their criminal exposure, and assertions by practitioners that corporate criminal liability was more vigorously enforced after *Iridium*.

8. Conclusion

This paper investigates the impact of corporate criminal law doctrine on firm value. I evaluate stock price reactions to a landmark Indian Supreme Court case holding that corporate mens rea could be established via imputation from the mental states of individuals who control that firm. I find that the set of companies controlled by individuals and families experienced negative and statistically as well as economically significant abnormal returns around the time of the court decision. The decline in value is greater for firms that are both controlled by individuals or families and also members of business groups, because controllers exert even more influence over business group companies, and are reputationally linked to them.

The value destruction for firms with human controllers is smaller if they have more foreign institutional investment, and greater if they are consumer-facing. This is consistent with foreign institutional investors monitoring controllers to ex-ante dissuade them from lawbreaking, and consumers—being unable to monitor or reform controllers in advance—punishing controllers ex-post after misconduct is revealed. Both the monitoring role for foreign institutional investors and punishment role for consumers are accentuated for firms that have individual or family controllers and are also members of business groups, and whose controlling shareholders are best positioned to promote their self-interests.

I find evidence that the value destruction for affected firms is attenuated for corruption-prone industries, where companies could potentially rely on political connections to face less enforcement. In subsample analysis, I find weak evidence that the decline in value is concentrated in firms that both have human controllers and are headquartered in states with more collectivist family structures. Finally, tracing longer-term effects, I find that firms with individual or family controllers relatively increased their spending on lawyers by an economically and statistically significant amount in the years immediately following the expansion of corporate criminal liability. While significant data limitations in the Indian context limit our ability to establish a correspondence between the decision and this rise in legal spending, this finding is consistent with corporate criminal law doctrine having a sizable effect on the behavior of affected firms.

The empirical analysis has implications for our understanding of corporate criminal liability. First, it suggests that doctrinal changes in corporate criminal law have concrete effects on firm value, even in systems with imperfect criminal enforcement, judicial delay, and biased enforcement. Second, the negative abnormal returns for affected firms are consistent with controller lawbreaking being, on average, harmful to stakeholders other than shareholders, such as workers, consumers, and communities. Alternatively, it is consistent with the lawbreaking harming minority shareholders but the punishment costs from corporate liability for the firm exceeding the deterrence effect for controllers. Third, the results also suggest that foreign institutional investors can play a monitoring role in reducing the ex-ante probability of controller misconduct, while consumers increase the ex-post punishment costs associated with corporate criminal liability. Finally, the concentration of the stock price reaction in firms controlled by individuals and families rather than other controllers shows that the identity of the controlling shareholder matters when evaluating the effect of corporate criminal law doctrine.

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Table 1

How Could Corporate Criminal Liability Affect Firm Value?

This table summarizes the effect corporate criminal liability could theoretically have on firm equity value based on the type of lawbreaking the controller was engaged in (leftmost column) and the relative magnitudes of the punishment and deterrence effects from criminal liability (topmost row). The predictions are based on the discussion in section 2.

	Punishment Effect > Deterrence Effect	**Deterrence Effect> Punishment Effect**
Harm to Stakeholders, Benefitting Shareholders	Firm Value Decreases	Firm Value Decreases
Harm to Shareholders	Firm Value Decreases	Firm Value Increases

Table 2

Variable Definitions

Variable	Definition	Source
Business Group Member Firm	An indicator equal to 1 if the firm belongs to an Indian "business group"	Prowess, manual checks
Cash Ratio	The ratio of cash and short-term bank balances to total assets, winsorized at the 1% level	Prowess
Consumer Facing	An indicator equal to 1 if the firm belongs to the building materials, retail, restaurants, hotels, business and personal services, utilities, home furnishings, apparel, communications, or airlines industries	Prowess
Corporate Promoter Ownership	The percentage of the firm's equity owned by promoters that are corporations, standardized to have zero mean and unit variance	Prowess
Corruption-Prone Industry	An indicator equal to 1 if the firm belongs to the aviation, cement, construction, mining, oil and gas, real estate, telecommunications, or utilities industries	Prowess, hand-coding
Cumulative Abnormal Return	The total abnormal return (in percentage points) experienced by a given stock in the specified event window around the announcement of the *Iridium* decision, based on a market model with a 100-day estimation window such that there are 45 trading days between the end of the estimation window and the date of the *Iridium* decision (October 20, 2010)	Prowess, event study computation
Debt Ratio	The ratio of total debt to total assets, winsorized at the 1% level	Prowess
Foreign Institutional Ownership	The percentage of the firm's equity owned by foreign institutional investors, standardized to have zero mean and unit variance	Prowess
Foreign Promoter Ownership	The percentage of the firm's equity owned by foreign promoters, standardized to have zero mean and unit variance	Prowess
Government Promoter Ownership	The percentage of the firm's equity owned by promoters that are state and central governments, standardized to have zero mean and unit variance	Prowess
HQ State Joint Family Share	The percentage of households in the firm's headquarter state living as joint families, standardized to have zero mean and unit variance	2011 Census of India
Indian Individual and Family Promoter Ownership	The percentage of the firm's equity owned by promoters who are Indian individuals or Hindu Undivided Families, standardized to have zero mean and unit variance	Prowess

Legal Expenditures	The amount paid by companies to lawyers and legal advisors in a fiscal year, in millions of Indian rupees, winsorized at the 1% level	Prowess
Ln(Assets)	The natural logarithm of the value of the firm's total assets in that fiscal year in millions of Indian rupees, winsorized at the 1% level	Prowess
ROA	The ratio of the firm's profits after taxes for that fiscal year to total assets, winsorized at the 1% level	Prowess

Table 3

Summary Statistics

Panel A displays the summary statistics for the firm ownership, company financials, and cumulative abnormal return data used in the [0, 5] event window in the event study from Section 5. Note that the number of observations is lower than in the baseline for Table 4, because I require firm financials and other variables like headquarter state family structure to be available. Panel B provides summary statistics for the firm-year level analysis of firm legal spending. Here, I do not set missing values of legal spending equal to zero. All variables are described in Table 2. As explained in Table 1, ownership variables are standardized to have zero mean and unit variance.

Panel A. Event Study Analysis.

	N	Mean	Median	SD
Business Group Member Firm	2697	.36	0	.48
Cash Ratio	2670	.06	.03	.1
Consumer Facing	2697	.08	0	.28
Corporate Promoter Ownership	2697	.06	-.38	1
Corruption-Prone Industry	2697	.08	0	.27
Cumulative Abnormal Return	2697	-.84	-.81	10.72
Debt Ratio	2370	.37	.3	.68
Foreign Institutional Ownership	2697	0	-.44	1
Foreign Promoter Ownership	2697	0	-.29	.95
Government Promoter Ownership	2697	.05	-.13	1.18
HQ State Joint Family Share	2697	.18	.18	.04
Indian Individual and Family Promoter Ownership	2697	.04	-.28	1.01
Ln(Assets)	2697	7.34	7.24	2.14
ROA	2695	.03	.03	.11

Panel B. Firm-Year Level Legal Spending Analysis.

	N	Mean	Median	SD
Cash Ratio	23583	.06	.02	.11
Debt Ratio	20300	.48	.31	.87
Indian Individual and Family Promoter Ownership	24590	0	-.29	1
Legal Spending	13639	20.46	2	56.05
Ln(Assets)	24551	6.54	6.45	2.49
ROA	24360	.01	.02	.15

Table 4

Event Study Results

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. Panel B additionally controls for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. Baseline Results.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Indian Individual and Family	-0.155**	-0.248**	-0.406***	-0.318**	-0.457**	-0.719***
Promoter Ownership	(-2.089)	(-2.345)	(-2.691)	(-2.455)	(-2.497)	(-2.846)
Observations	2,772	2,772	2,772	2,772	2,772	2,770
R-squared	0.108	0.106	0.108	0.108	0.099	0.120
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Results Controlling for Financials.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.186**	-0.344***	-0.464***	-0.397**	-0.512**	-0.855***
Promoter Ownership	(-2.184)	(-2.843)	(-3.142)	(-2.461)	(-2.518)	(-3.588)
Ln(Assets)	-0.0382	-0.0502	0.0412	-0.0253	0.0267	0.153
	(-0.929)	(-0.603)	(0.387)	(-0.263)	(0.227)	(1.277)
Cash Ratio	-0.558	-1.787	-1.947	-1.593	-2.401	-1.668
	(-0.537)	(-1.618)	(-1.425)	(-1.007)	(-0.995)	(-0.630)
Debt Ratio	-0.0913	-0.188	-0.327	-0.444**	-0.802***	-0.448
	(-0.517)	(-1.084)	(-1.522)	(-2.070)	(-2.676)	(-1.227)
ROA	1.024	3.039**	1.611	0.215	-3.128	-0.397
	(0.935)	(2.281)	(0.960)	(0.134)	(-1.445)	(-0.132)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.121	0.129	0.135	0.128	0.121	0.151
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 5

Do Other Controllers Matter?

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. Panel B additionally controls for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. Baseline Results.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Government	0.0239	0.150	0.262	0.141	0.187	0.275
Promoter Ownership	(0.406)	(1.015)	(1.326)	(1.007)	(0.990)	(1.194)
Corporate Promoter Ownership	-0.0166	0.0188	0.0632	0.0628	0.0775	-0.0108
	(-0.250)	(0.199)	(0.487)	(0.511)	(0.496)	(-0.0496)
Foreign Promoter Ownership	0.0211	0.0105	0.0670	0.0104	0.0973	0.0271
	(0.291)	(0.106)	(0.541)	(0.0830)	(0.605)	(0.149)
Observations	2,772	2,772	2,772	2,772	2,772	2,770
R-squared	0.107	0.105	0.106	0.107	0.097	0.117
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Results Controlling for Financials.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Government	0.0468	0.243*	0.340*	0.223**	0.250*	0.300
Promoter Ownership	(0.740)	(1.836)	(1.966)	(2.112)	(1.678)	(1.437)
Corporate Promoter Ownership	0.0250	0.163	0.167	0.218	0.186	0.204
	(0.322)	(1.574)	(1.119)	(1.502)	(1.085)	(0.989)
Foreign Promoter Ownership	0.0687	-0.0412	0.0409	0.0165	0.150	0.0929
	(0.804)	(-0.360)	(0.233)	(0.105)	(0.617)	(0.366)
Ln(Assets)	-0.0285	-0.0618	0.0249	-0.0326	0.0267	0.183
	(-0.712)	(-0.901)	(0.286)	(-0.372)	(0.246)	(1.564)
Cash Ratio	-0.629	-2.150*	-2.434*	-1.934	-2.766	-2.136
	(-0.592)	(-1.914)	(-1.763)	(-1.217)	(-1.121)	(-0.794)
Debt Ratio	-0.0912	-0.193	-0.336	-0.449**	-0.807***	-0.450
	(-0.507)	(-1.086)	(-1.510)	(-2.105)	(-2.678)	(-1.199)
ROA	0.858	2.907**	1.409	0.0239	-3.452	-1.034
	(0.783)	(2.195)	(0.837)	(0.0148)	(-1.592)	(-0.349)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.119	0.128	0.134	0.126	0.120	0.146
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 6

The Role of Business Group Membership and Controller Reputation

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Indian Individual and Family	-0.0582	-0.110	-0.130	-0.169	-0.186	-0.447
Promoter Ownership	(-0.573)	(-0.690)	(-0.644)	(-0.850)	(-0.707)	(-1.404)
Business Group Membership	0.143	0.258	0.0723	0.0186	-0.312	0.0461
	(0.796)	(0.846)	(0.184)	(0.0512)	(-0.619)	(0.0774)
Indian Individual and Family	-0.332**	-0.609**	-0.961***	-0.663**	-1.055**	-1.183**
Promoter Ownership *x*	(-2.284)	(-2.545)	(-3.274)	(-2.104)	(-2.323)	(-2.578)
Business Group Membership						
Ln(Assets)	-0.0485	-0.0689	0.0331	-0.0289	0.0426	0.146
	(-1.154)	(-0.728)	(0.275)	(-0.285)	(0.338)	(1.134)
Cash Ratio	-0.627	-1.914*	-2.157	-1.739	-2.644	-1.927
	(-0.599)	(-1.716)	(-1.570)	(-1.094)	(-1.085)	(-0.731)
Debt Ratio	-0.101	-0.206	-0.346	-0.456**	-0.811***	-0.470
	(-0.558)	(-1.191)	(-1.595)	(-2.158)	(-2.683)	(-1.275)
ROA	0.995	2.987**	1.516	0.148	-3.247	-0.515
	(0.897)	(2.215)	(0.897)	(0.0919)	(-1.484)	(-0.171)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.123	0.132	0.139	0.129	0.124	0.153
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 7

The Role of Foreign Institutional Investors

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. Interacting Treatment with Foreign Institutional Investor Ownership.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.193**	-0.353***	-0.550***	-0.406**	-0.581***	-1.017***
Promoter Ownership	(-2.073)	(-2.675)	(-3.573)	(-2.353)	(-2.741)	(-4.052)
Foreign Institutional Ownership	0.00126	0.0157	0.0212	0.00186	0.0251	0.0212
	(0.127)	(0.921)	(0.968)	(0.0879)	(0.777)	(0.648)
Indian Individual and Family	0.00356	0.00741	0.0438**	0.00469	0.0366*	0.0786***
Promoter Ownership *x* Foreign Institutional Ownership	(0.388)	(0.545)	(2.298)	(0.281)	(1.670)	(2.623)
Ln(Assets)	-0.0376	-0.0752	0.0374	-0.0249	0.00878	0.180
	(-0.777)	(-0.764)	(0.306)	(-0.215)	(0.0626)	(1.189)
Cash Ratio	-0.564	-1.835*	-2.038	-1.602	-2.497	-1.789
	(-0.542)	(-1.660)	(-1.486)	(-1.008)	(-1.024)	(-0.685)
Debt Ratio	-0.0919	-0.191	-0.334	-0.444**	-0.809***	-0.459
	(-0.519)	(-1.098)	(-1.560)	(-2.066)	(-2.695)	(-1.261)
ROA	1.024	3.013**	1.601	0.214	-3.151	-0.380
	(0.932)	(2.247)	(0.945)	(0.133)	(-1.446)	(-0.127)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.121	0.129	0.137	0.128	0.122	0.152
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Interacting Treatment, Business Group Membership, and Foreign Institutional Investor Ownership.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.0415	-0.0682	-0.140	-0.133	-0.175	-0.544
Promoter Ownership	(-0.379)	(-0.401)	(-0.665)	(-0.645)	(-0.640)	(-1.617)
Business Group Membership	0.153	0.197	-0.0623	-0.108	-0.506	-0.397
	(0.757)	(0.607)	(-0.155)	(-0.273)	(-0.937)	(-0.631)
Foreign Institutional Ownership	0.00485	0.00947	0.0116	-0.0145	0.00650	-0.0311
	(0.356)	(0.456)	(0.426)	(-0.552)	(0.164)	(-0.843)
Indian Individual and Family	-0.00662	-0.0221	0.0146	-0.0270	-0.00286	0.0504
Promoter Ownership *x* Foreign	(-0.442)	(-1.009)	(0.466)	(-0.966)	(-0.0830)	(1.040)
Institutional Ownership						
Indian Individual and Family	-0.434**	-0.845***	-1.343***	-0.914**	-1.487***	-1.663***
Promoter Ownership *x*	(-2.465)	(-2.909)	(-3.935)	(-2.389)	(-2.758)	(-3.139)
Business Group Membership						
Foreign Institutional Ownership	0.00240	0.0317	0.0469	0.0532*	0.0706*	0.130**
x Business Group Membership	(0.143)	(1.247)	(1.338)	(1.768)	(1.761)	(2.575)
Indian Individual and Family	0.0293	0.0795***	0.0973**	0.0910**	0.126**	0.122**
Promoter Ownership *x* Business	(1.386)	(2.663)	(2.439)	(2.439)	(2.509)	(2.063)
Group Membership *x*						
Foreign Institutional Ownership						
Ln(Assets)	-0.0511	-0.0971	0.0289	-0.0290	0.0244	0.191
	(-1.098)	(-0.951)	(0.224)	(-0.255)	(0.169)	(1.215)
Cash Ratio	-0.626	-1.920*	-2.228	-1.692	-2.693	-2.010
	(-0.596)	(-1.703)	(-1.609)	(-1.061)	(-1.093)	(-0.784)
Debt Ratio	-0.101	-0.206	-0.352	-0.454**	-0.816***	-0.483
	(-0.557)	(-1.201)	(-1.639)	(-2.152)	(-2.707)	(-1.305)
ROA	1.001	2.966**	1.497	0.146	-3.281	-0.550
	(0.899)	(2.191)	(0.874)	(0.0903)	(-1.484)	(-0.181)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.123	0.134	0.143	0.131	0.126	0.157
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 8

The Role of Consumer Interaction

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. Interacting Treatment with Consumer Interaction.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family Promoter Ownership	-0.151*	-0.312**	-0.460***	-0.385**	-0.531**	-0.817***
	(-1.799)	(-2.570)	(-3.006)	(-2.347)	(-2.527)	(-3.341)
Indian Individual and Family Promoter Ownership *x* Consumer Facing	-0.801***	-0.736*	-0.0873	-0.262	0.448	-0.865*
	(-3.044)	(-1.779)	(-0.345)	(-0.378)	(0.706)	(-1.918)
Ln(Assets)	-0.0430	-0.0546	0.0407	-0.0269	0.0293	0.148
	(-1.023)	(-0.641)	(0.381)	(-0.275)	(0.251)	(1.225)
Cash Ratio	-0.579	-1.806	-1.949	-1.600	-2.389	-1.691
	(-0.558)	(-1.631)	(-1.426)	(-1.012)	(-0.992)	(-0.637)
Debt Ratio	-0.0873	-0.184	-0.327	-0.442**	-0.804***	-0.444
	(-0.493)	(-1.062)	(-1.518)	(-2.065)	(-2.677)	(-1.219)
ROA	1.102	3.110**	1.620	0.240	-3.171	-0.312
	(1.012)	(2.322)	(0.963)	(0.150)	(-1.457)	(-0.105)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.123	0.130	0.135	0.128	0.122	0.151
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Interacting Treatment, Business Group Membership, and Consumer Interaction.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family Promoter Ownership	-0.0288	-0.101	-0.162	-0.189	-0.216	-0.435
	(-0.276)	(-0.612)	(-0.765)	(-0.933)	(-0.795)	(-1.294)
Business Group Membership	0.178	0.269	0.0470	0.0313	-0.337	0.0261
	(0.946)	(0.868)	(0.117)	(0.0870)	(-0.642)	(0.0417)
Indian Individual and Family Promoter Ownership *x* Business Group Membership	-0.299**	-0.532**	-0.859***	-0.561*	-1.026**	-1.107**
	(-2.022)	(-2.166)	(-2.882)	(-1.727)	(-2.175)	(-2.329)
Indian Individual and Family Promoter Ownership *x* Consumer Facing	-0.596***	-0.308	0.419	0.266	0.520	-0.466
	(-3.162)	(-0.645)	(1.235)	(0.336)	(0.599)	(-1.012)
Consumer Facing *x* Business Group Membership	-1.007***	-0.951	-0.445	-1.165	0.250	-0.370
	(-3.434)	(-1.145)	(-0.523)	(-0.709)	(0.250)	(-0.431)
Indian Individual and Family Promoter Ownership *x* Business Group Membership *x* Consumer Facing	-1.287***	-2.100***	-2.188***	-2.554***	-0.333	-1.831*
	(-3.144)	(-4.868)	(-3.214)	(-4.736)	(-0.284)	(-1.964)
Ln(Assets)	-0.0518	-0.0724	0.0321	-0.0293	0.0441	0.140
	(-1.201)	(-0.750)	(0.265)	(-0.288)	(0.351)	(1.070)
Cash Ratio	-0.606	-1.871*	-2.099	-1.668	-2.627	-1.902
	(-0.580)	(-1.669)	(-1.552)	(-1.049)	(-1.083)	(-0.723)
Debt Ratio	-0.0970	-0.203	-0.347	-0.455**	-0.814***	-0.467
	(-0.535)	(-1.175)	(-1.592)	(-2.155)	(-2.680)	(-1.268)
ROA	1.078	3.042**	1.491	0.154	-3.302	-0.458
	(0.981)	(2.261)	(0.875)	(0.0965)	(-1.498)	(-0.152)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.126	0.134	0.140	0.130	0.124	0.154
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 9

The Role of Industry-Level Corruption

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Indian Individual and Family	-0.222***	-0.365***	-0.494***	-0.479***	-0.601***	-0.926***
Promoter Ownership	(-2.599)	(-2.826)	(-3.152)	(-3.033)	(-2.855)	(-3.698)
Indian Individual and Family	0.424*	0.249	0.350	0.968**	1.049***	0.832
Promoter Ownership *x*	(1.769)	(1.038)	(1.096)	(2.231)	(2.692)	(1.330)
Corruption-Prone Industry						
Ln(Assets)	-0.0378	-0.0500	0.0415	-0.0244	0.0277	0.154
	(-0.924)	(-0.603)	(0.392)	(-0.256)	(0.237)	(1.293)
Cash Ratio	-0.614	-1.820	-1.992	-1.720	-2.539	-1.778
	(-0.592)	(-1.643)	(-1.460)	(-1.086)	(-1.048)	(-0.670)
Debt Ratio	-0.0898	-0.187	-0.326	-0.440**	-0.798***	-0.445
	(-0.508)	(-1.077)	(-1.515)	(-2.042)	(-2.659)	(-1.218)
ROA	1.038	3.047**	1.623	0.247	-3.093	-0.369
	(0.948)	(2.283)	(0.966)	(0.154)	(-1.429)	(-0.123)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.122	0.129	0.136	0.129	0.122	0.151
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 10

Legal Expenditures by Affected Firms After *Iridium*

This table presents the results of a Poisson fixed effects regression model where the dependent variable is the amount companies spent on legal fees, in millions of Indian rupees. Coefficients are presented as incidence rate ratios. All models use data from fiscal years 2008 to 2013, and t-statistics are presented in parentheses. All specifications include firm and year fixed effects, and columns (2) and (4) further control for the firm financial variables listed in section 4. All variables are described in Table 2. All standard errors are robust and clustered at the firm level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	Observations with Legal Spending Data Only		*Setting Missing Legal Spending Data Equal to Zero*	
Indian Individual and Family Promoter Ownership *x* Post	1.100***	1.081***	1.094***	1.083**
	(3.422)	(2.644)	(2.940)	(2.412)
Ln(Assets)		1.466***		1.348***
		(6.102)		(4.399)
Cash Ratio		0.932		0.971
		(-0.260)		(-0.0933)
Debt Ratio		0.968		0.947
		(-0.376)		(-0.734)
ROA		1.002		0.964
		(0.0156)		(-0.209)
Observations	13,439	11,234	17,407	13,906
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Figure 1

Percentage Ownership by Indian Individual and Family Promoters

This figure presents the distribution of ownership by Indian individual and family promoters. The x-axis shows the percentage of outstanding shares owned by these promoters, while the y-axis shows the corresponding percentage of firms in the Prowess sample.

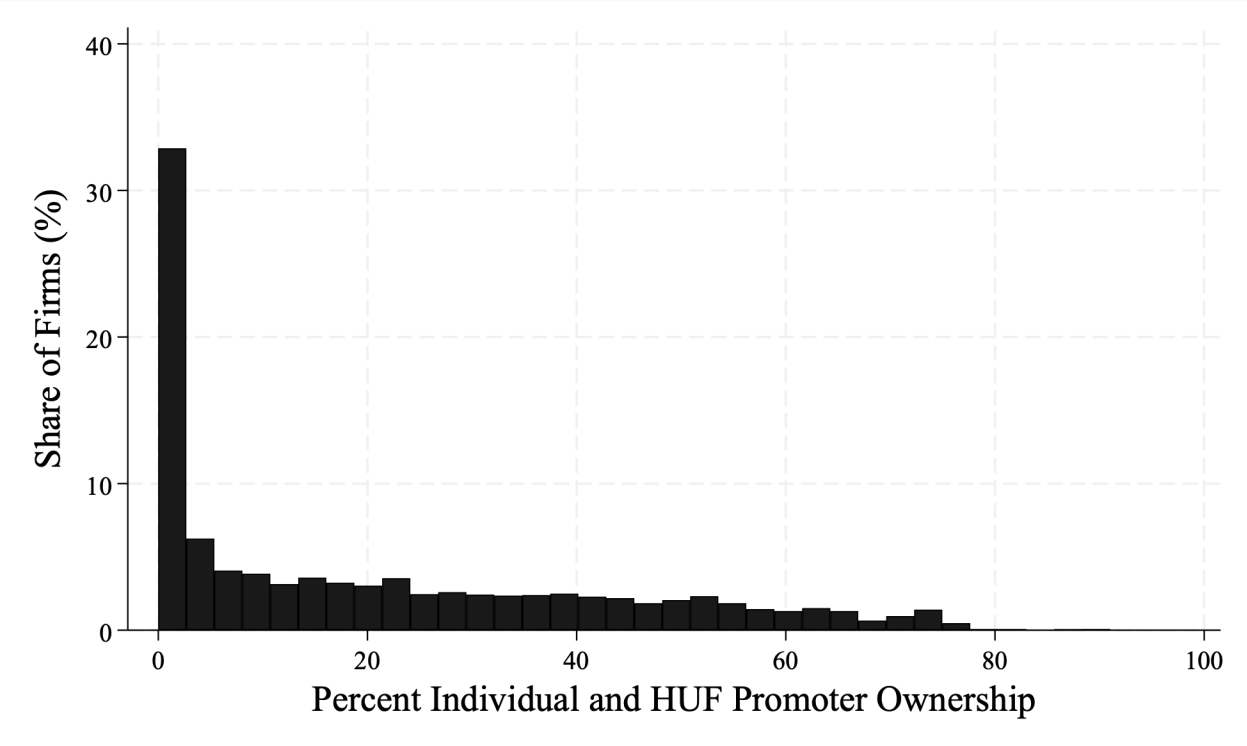


Figure 2

Pretrend Analysis for *Iridium*

This figure graphs the 90% confidence interval for the coefficient for the interaction between Indian Individual and Family Promoter Ownership and dummies for days around the *Iridium* decision on October 20, 2010. The dependent variable equals the daily abnormal returns in a modified dynamic version of Equation (1). The values on the x-axis represent the date relative to when the decision was announced. All standard errors are robust and clustered at the industry level.

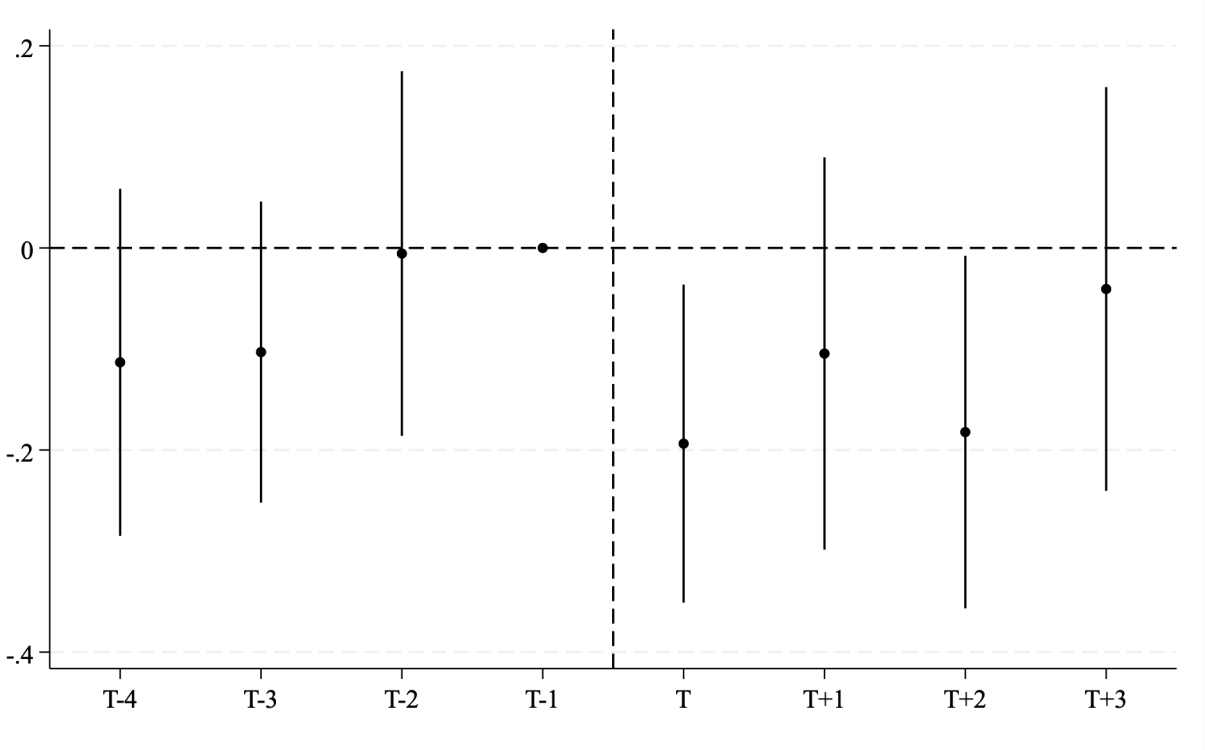
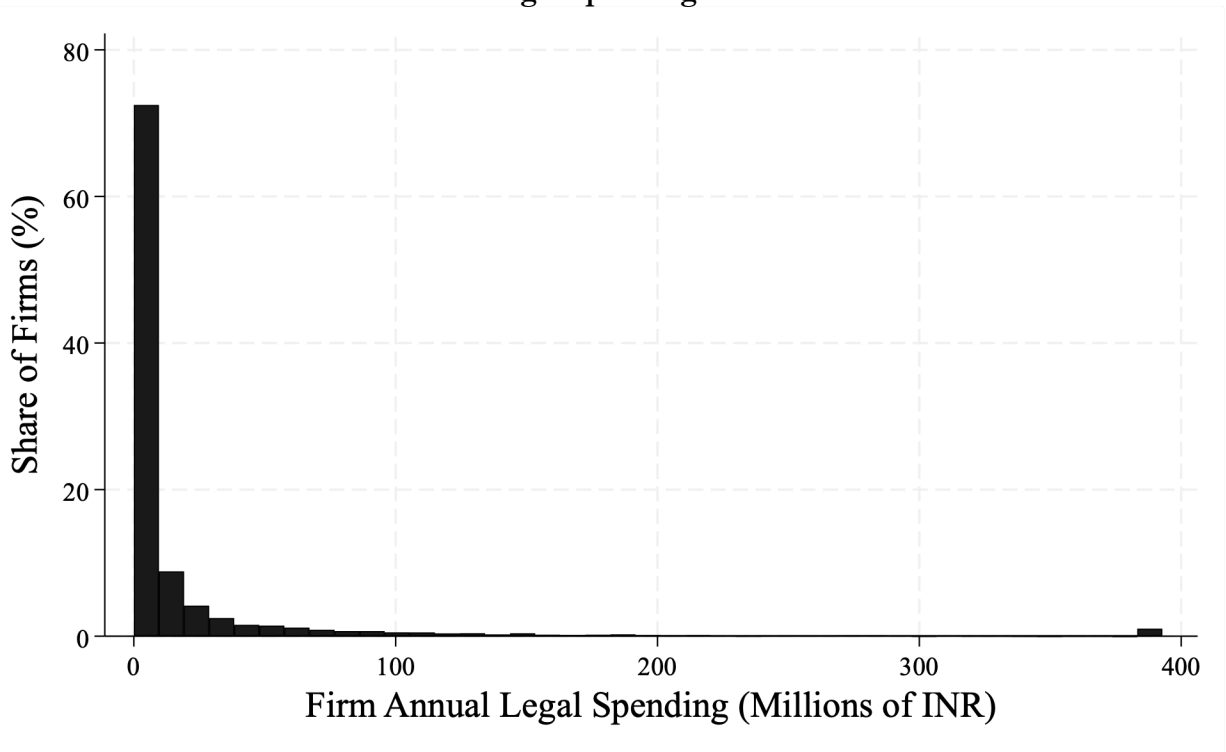


Figure 3

Firm Annual Legal Spending

This figure presents the distribution of annual legal spending by Indian public firms in the Prowess sample. Panel A presents the distribution only for observations with available legal spending data, while Panel B sets missing legal spending equal to zero.

Panel A. Observations with Available Legal Spending Data.



Panel B. Setting Missing Legal Spending Data Equal to Zero.

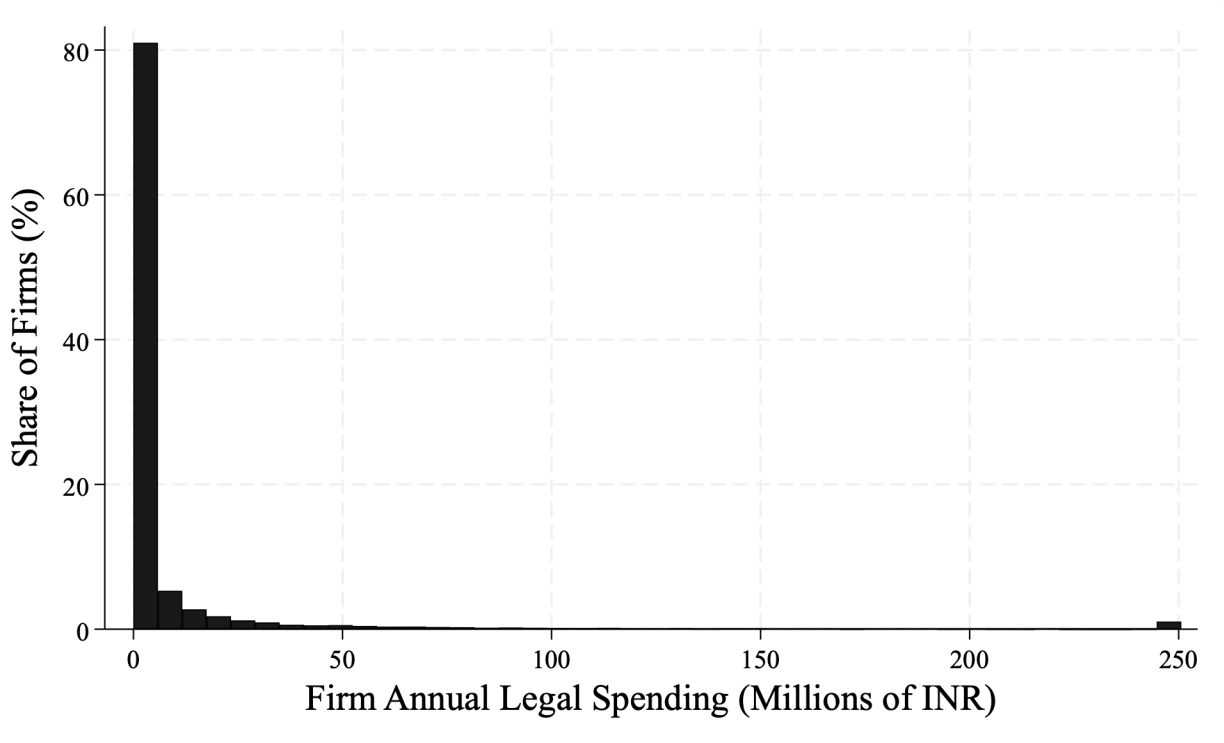
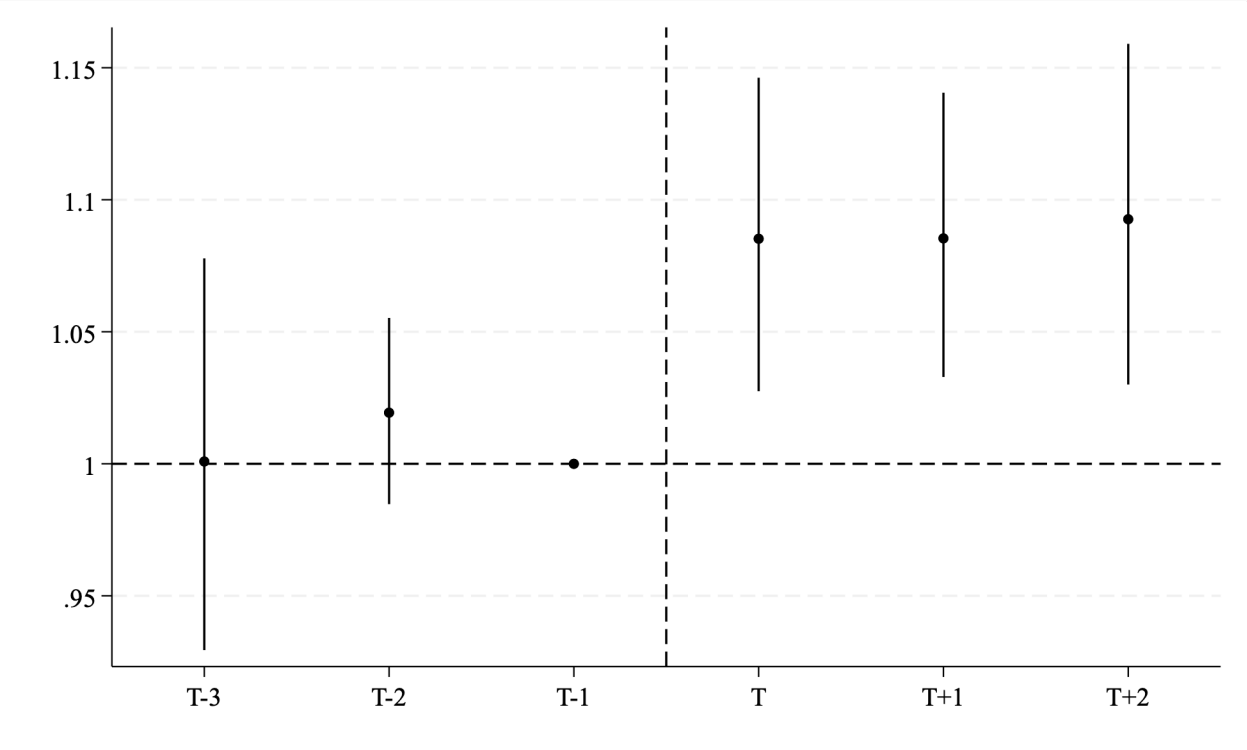


Figure 4

Pretrend Analysis for Legal Spending Around *Iridium*

This figure graphs the 90% confidence interval for the coefficient for the interaction between Indian Individual and Family Promoter Ownership (immediately before *Iridium*) and dummies for fiscal years around the *Iridium* decision (T equals zero for 2011). The dependent variable equals the yearly spending on lawyers and legal advisors in a modified dynamic version of Equation (3). Coefficients are presented as incidence rate ratios. The values on the x-axis represent the year relative to when the decision was announced. All standard errors are robust and clustered at the company level.



Online Appendix

Corporate Criminal Liability and Firm Value

Dhruv Aggarwal

Table OA1

Placebo Event Study Windows

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. Columns (2) and (4) additionally control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	Event Window [7, 9]		Event Window [-9, -7]	
Indian Individual and Family	-0.1246	-0.2373	0.0156	0.0020
Promoter Ownership	(-0.8779)	(-1.3664)	(0.1267)	(0.0122)
Ln(Assets)		-0.1685		-0.1694**
		(-1.5848)		(-2.1390)
Cash Ratio		4.4906***		1.4771
		(2.7312)		(0.8139)
Debt Ratio		-0.2155		-0.0904
		(-0.6640)		(-0.2472)
ROA		-2.9018		-4.6674**
		(-1.1154)		(-2.2571)
Observations	2,770	2,188	2,772	2,189
R-squared	0.1259	0.1575	0.0934	0.1247
Industry Fixed Effects	Yes	Yes	Yes	Yes

Table OA2

Excluding Government-Run and Foreign Companies

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. I exclude all firms with government or foreign promoter ownership. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. Columns (2) and (4) additionally control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.153	-0.272**	-0.390***	-0.331*	-0.428*	-0.799***
Promoter Ownership	(-1.644)	(-2.134)	(-2.614)	(-1.906)	(-1.968)	(-3.140)
Ln(Assets)	-0.0457	-0.126*	-0.0575	-0.0733	-0.0537	0.0859
	(-1.033)	(-1.714)	(-0.628)	(-0.775)	(-0.435)	(0.635)
Cash Ratio	-0.856	-1.526	-1.376	-1.220	-1.465	-1.076
	(-0.661)	(-1.082)	(-0.891)	(-0.654)	(-0.491)	(-0.384)
Debt Ratio	-0.137	-0.215	-0.244	-0.385	-0.541	-0.00240
	(-0.616)	(-1.061)	(-0.854)	(-1.315)	(-1.350)	(-0.00556)
ROA	0.438	2.363	0.895	-0.525	-3.264	0.641
	(0.342)	(1.451)	(0.426)	(-0.272)	(-1.254)	(0.179)
Observations	1,726	1,726	1,726	1,726	1,726	1,725
R-squared	0.126	0.136	0.144	0.132	0.127	0.150
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA3

Entropy-Balanced Sample Analysis

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. This model is run on an entropy-balanced sample, balancing the first moment of ln(assets), cash ratio, debt ratio, and ROA for firms with above- and below-median individual or family promoter ownership before the decision. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Indian Individual and Family	-0.222**	-0.382***	-0.487***	-0.438**	-0.556**	-0.817***
Promoter Ownership	(-2.493)	(-2.969)	(-3.140)	(-2.545)	(-2.470)	(-3.192)
Ln(Assets)	-0.103**	-0.172**	-0.0431	-0.0868	-0.0325	0.183
	(-2.004)	(-2.092)	(-0.449)	(-0.835)	(-0.235)	(1.265)
Cash Ratio	-0.693	-2.434*	-2.613*	-2.415	-3.856	-2.168
	(-0.620)	(-1.904)	(-1.716)	(-1.518)	(-1.593)	(-0.768)
Debt Ratio	-0.0940	-0.156	-0.258	-0.566**	-0.785**	-0.419
	(-0.371)	(-0.646)	(-0.907)	(-2.219)	(-2.076)	(-0.898)
ROA	1.148	3.229**	0.691	-0.789	-4.608**	-3.236
	(1.102)	(2.235)	(0.433)	(-0.469)	(-2.029)	(-0.961)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.138	0.154	0.160	0.141	0.131	0.174
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA4

Subsample Analysis

Foreign Institutional Ownership and Post-*Iridium* Abnormal Returns

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. Firms with Above-Median Foreign Institutional Investor Ownership.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	0.0681	0.00183	0.181	-0.0212	0.0596	-0.0226
Promoter Ownership	(0.548)	(0.0125)	(0.865)	(-0.107)	(0.207)	(-0.0672)
Ln(Assets)	0.134**	0.265**	0.364*	0.299**	0.258	0.319
	(2.160)	(2.408)	(1.907)	(2.337)	(1.258)	(1.451)
Cash Ratio	0.302	-1.443	-0.656	-2.147	-3.457	-0.240
	(0.289)	(-1.185)	(-0.430)	(-1.177)	(-1.408)	(-0.0761)
Debt Ratio	0.298	-0.0973	-0.00332	-0.531	-0.569	0.574
	(0.445)	(-0.111)	(-0.00323)	(-0.590)	(-0.818)	(0.617)
ROA	0.185	-1.266	-0.657	-2.986	-3.535	1.225
	(0.123)	(-0.564)	(-0.273)	(-1.240)	(-1.453)	(0.299)
Observations	921	921	921	921	921	921
R-squared	0.227	0.227	0.223	0.213	0.158	0.222
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Firms with Below-Median Foreign Institutional Investor Ownership.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.254**	-0.400**	-0.634***	-0.532**	-0.722**	-1.237***
Promoter Ownership	(-2.128)	(-2.243)	(-2.980)	(-2.217)	(-2.473)	(-3.860)
Ln(Assets)	-0.157*	-0.327**	-0.285	-0.162	-0.146	-0.0178
	(-1.733)	(-2.393)	(-1.569)	(-0.759)	(-0.489)	(-0.0678)
Cash Ratio	-1.530	-3.208*	-3.298	-2.307	-3.150	-3.545
	(-0.863)	(-1.723)	(-1.528)	(-0.964)	(-0.774)	(-0.940)
Debt Ratio	-0.151	-0.179	-0.421*	-0.462**	-0.970**	-0.722*
	(-0.823)	(-1.062)	(-1.798)	(-1.984)	(-2.582)	(-1.674)
ROA	0.984	4.846***	2.391	1.343	-3.371	-1.197
	(0.638)	(2.680)	(0.913)	(0.549)	(-0.959)	(-0.285)
Observations	1,158	1,158	1,158	1,158	1,158	1,157
R-squared	0.128	0.157	0.144	0.147	0.139	0.154
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA5

Subsample Analysis

Consumer Interaction and Post-*Iridium* Abnormal Returns

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. Consumer-Facing Firms.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-1.179***	-1.412**	-0.769**	-1.058	-0.243	-2.169***
Promoter Ownership	(-3.831)	(-2.618)	(-2.786)	(-1.125)	(-0.396)	(-3.727)
Ln(Assets)	-0.306***	-0.339	-0.171	-0.374	-0.128	-0.569*
	(-4.164)	(-1.513)	(-1.752)	(-0.917)	(-0.823)	(-1.948)
Cash Ratio	-0.699	-3.274	-4.902	-7.289***	-12.56**	-7.147
	(-0.410)	(-1.703)	(-0.936)	(-3.982)	(-2.331)	(-0.670)
Debt Ratio	-0.756	-1.947***	-4.441***	-1.590**	-3.718***	-5.650***
	(-0.774)	(-3.337)	(-4.166)	(-2.300)	(-3.332)	(-4.529)
ROA	1.450	7.322***	-0.584	4.820***	-5.413**	-9.073***
	(0.909)	(7.139)	(-0.405)	(3.679)	(-2.557)	(-3.906)
Observations	167	167	167	167	167	167
R-squared	0.115	0.102	0.095	0.102	0.090	0.158
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Other Firms.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.144*	-0.300**	-0.454***	-0.373**	-0.527**	-0.803***
Promoter Ownership	(-1.717)	(-2.472)	(-2.948)	(-2.289)	(-2.511)	(-3.264)
Ln(Assets)	-0.0226	-0.0340	0.0656	-0.000668	0.0521	0.220**
	(-0.545)	(-0.396)	(0.599)	(-0.00696)	(0.428)	(2.036)
Cash Ratio	-0.524	-1.690	-1.655	-1.010	-1.313	-0.937
	(-0.462)	(-1.421)	(-1.175)	(-0.598)	(-0.516)	(-0.354)
Debt Ratio	-0.0693	-0.200	-0.270	-0.459**	-0.754**	-0.278
	(-0.377)	(-1.078)	(-1.188)	(-2.011)	(-2.372)	(-0.763)
ROA	1.189	2.547*	2.002	-0.261	-2.670	1.475
	(0.997)	(1.678)	(1.068)	(-0.142)	(-1.092)	(0.508)
Observations	2,022	2,022	2,022	2,022	2,022	2,021
R-squared	0.124	0.134	0.141	0.131	0.126	0.154
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA6

Triple Difference Model for Individual/Family Ownership, Business Group Membership, and Industry Corruption Propensity

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.0991	-0.125	-0.154	-0.267	-0.284	-0.544
Promoter Ownership	(-0.947)	(-0.733)	(-0.728)	(-1.321)	(-1.048)	(-1.626)
Business Group Membership	0.0998	0.200	0.0839	-0.0316	-0.259	-0.186
	(0.521)	(0.615)	(0.200)	(-0.0811)	(-0.480)	(-0.294)
Indian Individual and Family	0.550**	0.238	0.326	1.287***	1.259**	1.330
Promoter Ownership *x*	(2.134)	(0.708)	(0.474)	(2.755)	(2.093)	(1.462)
Corruption-Prone Industry						
Indian Individual and Family	-0.344**	-0.665***	-0.991***	-0.651*	-1.024**	-1.228**
Promoter Ownership *x*	(-2.203)	(-2.621)	(-3.089)	(-1.842)	(-2.024)	(-2.425)
Business Group Membership						
Corruption-Prone Industry	0.532	0.641	-0.110	0.699	-0.433	2.684*
x Business Group Membership	(1.335)	(1.012)	(-0.109)	(1.074)	(-0.419)	(1.742)
Indian Individual and Family	-0.0333	0.408	0.196	-0.402	-0.527	0.0193
Promoter Ownership *x* Business	(-0.0827)	(0.732)	(0.246)	(-0.928)	(-0.687)	(0.0194)
Group Membership *x*						
Corruption-Prone Industry						
Ln(Assets)	-0.0496	-0.0704	0.0334	-0.0300	0.0442	0.140
	(-1.177)	(-0.744)	(0.279)	(-0.299)	(0.355)	(1.099)
Cash Ratio	-0.676	-1.934*	-2.215	-1.865	-2.814	-1.986
	(-0.648)	(-1.729)	(-1.611)	(-1.172)	(-1.151)	(-0.752)
Debt Ratio	-0.0982	-0.205	-0.346	-0.449**	-0.807***	-0.460
	(-0.541)	(-1.182)	(-1.587)	(-2.107)	(-2.655)	(-1.246)
ROA	1.049	3.023**	1.513	0.248	-3.219	-0.296
	(0.933)	(2.221)	(0.883)	(0.152)	(-1.455)	(-0.0976)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.124	0.133	0.140	0.131	0.125	0.155
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA7

The Role of Kinship Networks

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Indian Individual and Family	-0.184**	-0.342***	-0.462***	-0.395**	-0.517**	-0.859***
Promoter Ownership	(-2.175)	(-2.859)	(-3.141)	(-2.472)	(-2.548)	(-3.632)
HQ State Joint Family Share	-0.0206	0.0213	-0.0661	-0.0808	-0.248	-0.178
	(-0.272)	(0.182)	(-0.488)	(-0.537)	(-1.171)	(-0.736)
Indian Individual and Family	-0.0288	-0.0190	-0.0403	-0.0351	0.0816	0.0568
Promoter Ownership *x*	(-0.389)	(-0.152)	(-0.288)	(-0.268)	(0.506)	(0.238)
HQ State Joint Family Share						
Ln(Assets)	-0.0387	-0.0496	0.0396	-0.0273	0.0198	0.148
	(-0.947)	(-0.595)	(0.371)	(-0.286)	(0.170)	(1.224)
Cash Ratio	-0.539	-1.774	-1.920	-1.570	-2.461	-1.710
	(-0.520)	(-1.588)	(-1.402)	(-0.989)	(-1.020)	(-0.650)
Debt Ratio	-0.0917	-0.190	-0.325	-0.441**	-0.783***	-0.435
	(-0.517)	(-1.104)	(-1.530)	(-2.060)	(-2.635)	(-1.202)
ROA	1.030	3.017**	1.647	0.263	-2.918	-0.247
	(0.936)	(2.263)	(0.985)	(0.162)	(-1.352)	(-0.0839)
Observations	2,189	2,189	2,189	2,189	2,189	2,188
R-squared	0.121	0.129	0.136	0.128	0.122	0.151
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA8

Subsample Analysis

The Role of Kinship Networks

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Iridium* opinion on October 20, 2010. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. All models control for the firm financial variables listed in section 4. All variables are described in Table 2. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. States with Above-Median Joint Family Prevalence.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.272**	-0.455***	-0.558***	-0.477**	-0.481*	-0.916***
Promoter Ownership	(-2.546)	(-2.796)	(-3.085)	(-2.255)	(-1.930)	(-2.967)
Ln(Assets)	-0.0624	-0.0654	0.0353	0.0211	0.115	0.268**
	(-1.231)	(-0.735)	(0.358)	(0.194)	(0.861)	(2.426)
Cash Ratio	-1.397	-2.897*	-3.544*	-2.393	-3.588	-4.639
	(-1.015)	(-1.863)	(-1.841)	(-1.209)	(-1.367)	(-1.449)
Debt Ratio	-0.166	-0.311	-0.351	-0.605**	-0.787**	-0.348
	(-0.793)	(-1.423)	(-1.364)	(-2.155)	(-2.073)	(-0.968)
ROA	0.643	1.545	0.340	-1.399	-3.509	-1.191
	(0.375)	(0.699)	(0.130)	(-0.547)	(-0.965)	(-0.322)
Observations	1,457	1,457	1,457	1,457	1,457	1,456
R-squared	0.128	0.141	0.152	0.130	0.133	0.175
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. States with Below-Median Joint Family Prevalence.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	0.156	0.144	0.000314	-0.111	-0.610	-0.205
Promoter Ownership	(0.898)	(0.584)	(0.00105)	(-0.367)	(-1.419)	(-0.402)
Ln(Assets)	-0.0195	0.00871	0.109	-0.218	-0.303	0.0539
	(-0.216)	(0.0657)	(0.514)	(-1.318)	(-1.265)	(0.185)
Cash Ratio	-1.383	-2.988	-1.537	-4.520	-5.620	1.161
	(-0.537)	(-0.907)	(-0.350)	(-1.127)	(-0.834)	(0.208)
Debt Ratio	0.112	0.217	-0.279	0.219	-0.388	-0.310
	(0.361)	(0.676)	(-0.446)	(0.596)	(-0.561)	(-0.266)
ROA	1.143	4.958**	2.994	3.943*	-0.141	1.298
	(0.765)	(2.566)	(0.980)	(1.695)	(-0.0450)	(0.236)
Observations	625	625	625	625	625	625
R-squared	0.217	0.238	0.231	0.237	0.202	0.272
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA9

Vicarious Criminal Liability of Controllers and Firm Value

This table presents the results of an ordinary least squares model where the dependent variable is the cumulative abnormal return in various event windows around the *Sunil Bharti Mittal* opinion on January 9, 2015. T-statistics are presented in parentheses. All specifications include industry fixed effects, and standard errors are robust and clustered at the industry level. Panel B additionally controls for the firm financial variables listed in section 4. All variables are described in Table 2, except the ownership and financial information is from the dates mentioned in the text in section 6. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A. Baseline Results.

	(1) [0]	(2) [0,1]	(3) [0, 2]	(4) [-1, 1]	(5) [-2, 2]	(6) [0, 5]
Indian Individual and Family	-0.0528	-0.0395	-0.106	0.0602	0.0137	-0.310
Promoter Ownership	(-0.658)	(-0.357)	(-0.682)	(0.416)	(0.0618)	(-1.148)
Observations	2,669	2,664	2,659	2,664	2,659	2,629
R-squared	0.114	0.104	0.102	0.109	0.112	0.125
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Results Controlling for Financials.

	(1) [0]	(2) [0,1]	(3) [0,2]	(4) [-1,1]	(5) [-2,2]	(6) [0,5]
Indian Individual and Family	-0.128	-0.109	-0.162	0.0314	0.0537	-0.412
Promoter Ownership	(-1.442)	(-0.857)	(-0.997)	(0.188)	(0.239)	(-1.506)
Ln(Assets)	-0.173***	-0.156***	-0.127*	-0.0785	0.000246	-0.278***
	(-4.673)	(-3.370)	(-1.890)	(-1.202)	(0.00273)	(-2.742)
Cash Ratio	0.325	1.272	1.793	0.940	3.363	1.248
	(0.298)	(0.756)	(0.738)	(0.408)	(0.971)	(0.308)
Debt Ratio	-0.204	-0.679	0.0972	-0.135	0.675	1.731
	(-0.568)	(-1.137)	(0.132)	(-0.184)	(0.780)	(1.440)
ROA	0.457	-1.383	-2.120	-2.671	-4.224	-4.864
	(0.277)	(-0.564)	(-0.654)	(-0.933)	(-1.228)	(-1.159)
Observations	2,499	2,494	2,490	2,494	2,490	2,463
R-squared	0.122	0.108	0.102	0.116	0.118	0.130
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table OA10

Legal Expenditures by Affected Firms After *Iridium*: Entropy-Balanced Sample

This table presents the results of a Poisson fixed effects regression model where the dependent variable is the amount companies spent on legal fees, in millions of Indian rupees. Coefficients are presented as incidence rate ratios. All models use data from fiscal years 2008 to 2013, and t-statistics are presented in parentheses. This model is run on an entropy-balanced sample, balancing the first moment of pre-*Iridium* averages of ln(assets), cash ratio, debt ratio, and ROA for firms with above- and below-median individual or family promoter ownership before the decision. All specifications include firm and year fixed effects, and columns (2) and (4) further control for the firm financial variables listed in section 4. All variables are described in Table 2. All standard errors are robust and clustered at the firm level. The ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	Observations with Legal Spending Data Only		*Setting Missing Legal Spending Data Equal to Zero*	
Indian Individual and Family	1.087***	1.065**	1.076**	1.063*
Promoter Ownership *x*	(2.922)	(2.149)	(2.373)	(1.877)
Post				
Ln(Assets)		1.607***		1.462***
		(7.841)		(6.093)
Cash Ratio		0.932		0.942
		(-0.269)		(-0.184)
Debt Ratio		1.036		0.986
		(0.489)		(-0.220)
ROA		1.078		1.058
		(0.529)		(0.357)
Observations	12,152	11,043	15,359	13,691
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes