

Lawyer CEOs

M. Todd Henderson
University of Chicago Law School
toddh@uchicago.edu

Irena Hutton 
Florida State University College of Business
ihutton@business.fsu.edu (corresponding author)

Danling Jiang 
Stony Brook University College of Business
danling.jiang@stonybrook.edu

Matthew Pierson
University of Pennsylvania The Wharton School Wharton Research Data Services
mpiers@wharton.upenn.edu

Abstract

We study when CEOs with legal expertise are valuable for firms. In general, lawyer CEOs are negatively associated with frequency and severity in employment civil rights, contract, labor, personal injury, and securities litigation. This effect is partly induced by the CEO's management of litigation risk and reduction in other risky policies. Lawyer CEOs are further associated with an increase in gatekeepers providing additional legal oversight and a decrease in innovative activities with high litigation risk. Lawyer CEOs are more valuable during periods of enhanced compliance requirements and regulatory pressure and in industries with high litigation risk or better growth opportunities.

I. Introduction

In 2004, Merck found itself amidst allegations that its blockbuster rheumatoid arthritis drug, Vioxx, was causing cardiovascular damage to its users. Merck pulled Vioxx off the market and subsequently embarked on a multi-year legal battle with lawsuits filed in nearly every jurisdiction. At about the same time, similar concerns about Bextra and Celebrex—two drugs in the same class as Vioxx, but produced by Pfizer—started to surface. Like Vioxx, Bextra was pulled off the market, but Celebrex remained approved for cautious use with approval from the Food and

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Drug Administration. In subsequent years, both Merck and Pfizer experienced a series of product liability claims and securities class action lawsuits, resulting in collective settlements of \$6.63 billion for Merck, and \$3.84 billion for Pfizer.

Both scandals were accompanied by CEO turnover. At Merck, CEO Raymond Gilmartin stepped down and was replaced by its former president of manufacturing Richard Clark. Pfizer went a different route by selecting its General Counsel Jeff Kindler to succeed Henry McKinnel, explicitly to deal with this wave of litigation. These scandals created a unique setting in which two large pharmaceutical firms simultaneously faced similar problems related to similar drugs and replaced their top managers; however, one hired a CEO with a set of skills tailored to guide the firm through litigation. Pfizer's strategy of hiring a CEO with legal expertise motivates two central research questions of the article: i) What are the marginal benefits and costs of hiring a CEO with legal training? and ii) When are CEOs with legal training most valuable to the firm?

Exploring the marginal benefits of a CEO with legal training, we hypothesize that they may reduce litigation risk for a firm. The potential advantage of CEO legal training to the reduction of litigation risk is intuitive. Legal training focuses on identifying and avoiding legal risks and risk avoidance is further encouraged and generalized to other settings by the institutional structure of law schools. The intense competition between students and the pressure to perform well on standardized tests, in class rankings and placements tend to discourage risk-taking and deviation from the traditional path through the program (Sturm and Gunier (2007)). In the words of Frank Blake, the CEO of Home Depot, "law school consists of taking normal people and getting them to worry about what no sane person would worry about" (<https://www.institutionalinvestor.com/article/b150zqesh3r750/how-ceo-frank-blake-rebuilt-home-depot>). Training typically continues after graduation as many CEOs in our sample join law firms or the in-house legal teams of corporations.

The academic training and practice of law expose future CEOs to a range of legal issues in a corporate setting and can make them effective at reducing firm litigation risk.¹ Specifically, litigation risk reduction is possible through several channels. First, the CEO can reduce activities that lead to subsequent litigation by committing resources to monitoring, compliance, and disclosure practices. Second, the presence of a lawyer in the highest executive position can, by itself, discourage plaintiffs from filing lawsuits. Third, a lawyer CEO can be valuable in litigation management by preventing misconduct from escalation to a costly and publicly observable lawsuit through arbitration and out-of-court settlements or hiring the best legal team to manage existing costly litigation.

While reducing litigation has obvious benefits, mitigating litigation risk is not necessarily without its own costs. Empirically, CEO legal expertise is not universally valued, and a law school is one of the least common education paths for CEOs. Legal expertise may crowd out core business expertise, which could be particularly

¹In contrast, while graduate training in accounting also exposes individuals to compliance and professional rules and requires additional professional training such as Certified Public Accountants (CPAs), accounting professionals are typically exposed to and focused on securities litigation, as opposed to litigation across a wide range of types.

costly for firms with already low litigation risk. Furthermore, a reduction in risky firm policies may both reduce litigation risk and stifle firm investments and innovation.

Weighing these costs and benefits, we explore under what circumstances CEO legal expertise enhances firm value. Firms with *ex ante* higher regulatory burdens, compliance requirements, or litigation risk are likely to be situations where a lawyer CEO's expertise is most valuable. Firms outside of these categories may experience a reduction in value, particularly due to fewer risky or innovative firm policies. This conjecture is consistent with the observation that lawyer CEOs are often present in regulated industries or firms with the potential for costly litigation. For example, CEOs of Goldman Sachs, MetLife, FirstEnergy, Consolidated Edison, WellPoint, Southwest Airlines, and Wyeth all had law degrees.

To answer our first question, we construct a sample of CEOs covers over 2,345 large companies, among whom 9.1% are lawyers (i.e., have a law degree). Using more than 83,761 lawsuits across nine common types filed from 1992 to 2012, we find that firms run by CEOs with legal education are associated with less corporate litigation in most common litigation types with the exception of product liability suits that are affected heavily by noise.²

We observe the strongest relation in the more common types of litigation, such as civil, personal injury, and contract, which alone account for nearly half of litigation in our sample. Further, lawyer CEOs are associated with less lost and settled litigation of these types. These results are robust to different specifications and controls for a host of firm characteristics, other CEO characteristics, and the presence of other gatekeepers such as directors and in-house legal counsel; they control for time-invariant firm characteristics (via the firm fixed effect) and time-varying industry conditions (via the industry-year fixed effects) that can both affect CEO hiring and litigation risk. However, time-varying industry litigation risk and CEO hiring trends play an important role in explaining this main result.

Litigation reduction is beneficial, but the economic costs of achieving it need to be considered. To shed light on potential costs, we explore the channels through which the presence of a lawyer CEO may influence litigation risk. First, we examine CEO legal network building. We find that a newly appointed lawyer CEO in the first 3 years of tenure tends to expand his legal network and appoint directors with legal expertise. Even if these appointment decisions stem from homophily or friendships, legal experts on the board provide additional legal advice or oversight.

Second, reduction in litigation is associated with a reduction in other risky firm policies. We observe lower levels of investment in tangible assets and R&D, as well as lower quality of risky, innovative activities measured by the number of patents and citations. Further, the gap between operating income and cash flows is narrower, which points to more conservative investments (Hirshleifer, Hou, Teoh, and Zhang (2004)).

Each of these channels yields costs that can outweigh the benefits of reduced litigation. Additional legal expertise may come at the expense of other, general business knowledge. Secondly, less risky policies may lead to foregoing positive

²Product liability litigation is the most common type of litigation in our sample due, in part, to several highly publicized litigation events concentrated in 5 large firms and the pharmaceutical industry.

NPV projects, reducing firm value. To understand the interplay between these costs and benefits, we explore the types of firms and settings in which lawyer CEOs can add value. First, we examine the differential effects of a shock to a firm's compliance and litigation environment around the passage of the Sarbanes–Oxley Act in 2002.³ Firms with lawyer CEOs experience a positive immediate market reaction and positive long-run abnormal return performance after the Act's passage, while their counterparts experience the opposite. This finding suggests that the market views the work of lawyer CEOs as value-enhancing when firms have higher compliance demands and litigation risk.

Second, we explore the cross-industry heterogeneity of the effects of lawyer CEOs on firm valuation and operating performance. We find that lawyer CEOs are associated with higher firm value and better operating performance in high-litigation and high-growth industries. However, outside of these industries, firms run by lawyer CEOs on average have lower market valuation and operating performance. Therefore, specialized professional training may have a rather tailored effect on corporate outcomes and is value-enhancing in settings where it is most necessary, and value-destroying otherwise.

Our results are consistent with the premise that lawyer CEOs reduce firm litigation risk, yet counterbalance this benefit by decreasing risky investments and activities that can lead to litigation (i.e., treatment effect). We also show that under specific circumstances, the skills and training that lawyer CEOs bring to the table are particularly valuable and lead to firm value increases only at those firms that hire a lawyer CEO when that person is best suited for the job (i.e., firm-CEO matching or selection effect).

Further, we argue that understanding both of these effects is important for the identification of scenarios where CEOs with legal expertise create value. We design additional tests to gauge the relative importance of treatment versus selection effects (i.e., fixed effects specification and instrumental variable regression).

The importance of studying CEO legal training goes far beyond identifying yet another measurable attribute that can define CEO style. Legal skills have become more widespread and prominent in corporations (Litov, Sepe, and Whitehead (2014), Morse, Wang, and Wu (2016)). Several factors drive the trend of recognizing legal expertise as an important management skill. First, firms are expected to engage in self-monitoring more than ever after the Sarbanes–Oxley Act in the early 2000s and the Dodd–Frank legislation following the financial crisis. This expectation is enhanced by the recent focus on shareholder activism and ESG. Second, legal strategy as a support for business strategy appears to have become more critical (Bird and Orozco (2014)). Overall, as the legal environment changes both within industries and over time, the importance of selecting the right CEO has implications for firm value.

The rest of the article is organized as follows: [Section II](#) summarizes previous literature that links CEO style to various firm policies and outcomes. [Section III](#) describes data sources. In [Section IV](#), we present our main empirical results on the

³The act was designed to curb financial malfeasance by improving financial disclosure, increasing personal accountability of top managers and other firm monitors, in addition to setting more severe criminal penalties for white-collar crime.

benefit and cost to a firm by having a lawyer CEO. In [Section V](#), we study settings in which lawyer CEOs create firm value. In [Section VI](#), we provide additional evidence for treatment versus selection effect. We then conclude in [Section VII](#) with a brief discussion.

II. Literature and Background

In this section, we review previous research related to executive professional experiences, including legal training. We also review literatures related to the cost of litigation to firms.

A. Professional Experience

The growing literature on the importance of CEO style provides evidence that CEO characteristics that are either endowed or developed through personal or professional experiences can affect firm policies and outcomes. For example, CEO overconfidence leads to distorted investment decisions due to overestimated cost of external financing (Malmendier and Tate (2005)) and aggressive firm policies (Ben-David, Graham, and Harvey (2013)). CEO's talent and characteristics, such as execution, resoluteness, and overconfidence, are positively related to buyout success (Kaplan, Klebanov, and Sorensen (2012)). Other attributes, such as appearance that suggests professional competence (Graham, Harvey, and Puri (2016)), personal conservatism conveyed by political preferences (Hutton, Jiang, and Kumar (2014)), exposure to economic shocks (Malmendier and Tate (2005)), and, in general, unquantifiable uniqueness captured by the individual CEO fixed effect (Bertrand and Schoar (2003)), have been shown to matter for firm policies.

In addition to personal characteristics, professional experiences have been shown to matter just as much for firm outcomes. Custodio, Ferreira, and Matos (2013) document that CEOs with broader professional experiences are viewed as more valuable to restructuring and M&A activities than those who are specialists. CEOs with military backgrounds are better equipped to guide firms during a crisis (Benmelech and Frydman (2014)). Similarly, CEOs with finance training or experience (Custodio and Metzger (2014)) carry out more sophisticated financial policies and investment policies that are less sensitive to firm cash flows. Malmendier and Tate (2005) similarly find that the investment policies of CEOs with financial education or background have less cash flow sensitivity.

Legal education is a form of human capital, much like other types of professional training. Legal expertise can give CEOs an edge in managing and preventing corporate litigation as well as in the broader context of corporate governance, compliance, and risk management. Some existing evidence points to the usefulness of lawyers in executive or director positions. Morse et al. (2016) find that general counsels who are elevated in importance to the executive team effectively curb regulatory noncompliance, monitoring failures, and promoting business development. Similarly, general counsel represented among top executives leads to more accurate earnings forecast disclosures (Kwak, Ro, and Suk (2012)). Jagolinzer, Larcker, and Taylor (2011) find that general counsels can reduce the extent of insider trading based on private knowledge and rent extraction.

Moreover, Litov et al. (2014) show that directors with legal education are helpful in monitoring executives, managing litigation, and reducing regulatory costs. Krishnan, Wen, and Zhao (2011) demonstrate that directors with legal backgrounds on the audit committee are associated with higher financial reporting quality through better monitoring. Similarly, Karsten, Malmendier, and Sautner (2021) show that legal advisors with more expertise are associated with a range of better contractual outcomes for their clients in acquisitions. Finally, Pham (2020) and Chen, Hou, Richardson, and Su (2021) both show that lawyer CEOs are more cautious in firm legal policies, as well as reduced firm risk.

In our article, we focus on the legal training of the CEO, identified by a law degree, since, arguably, the CEO may have a stronger impact on firm policies and outcomes than directors or general counsel. However, we acknowledge the important role of these gatekeepers and control for their presence in our analyses.

B. Litigation Costs

The cost of corporate litigation is not trivial. Lawsuits, especially those stemming from more egregious offenses, lead to significant losses in market value, legal costs, court penalties or settlement costs, reputational losses, and management time. Existing evidence suggests that the economic magnitude of these costs is quite large (Bhagat, Bizjak, and Coles (1998), Karpoff and Lott (1999), Haslem (2005), Karpoff, Lott, and Wehrly (2005), Karpoff, Lee, and Martin (2008), and Bessen and Meurer (2008)). Even lawsuits that go unnoticed by the market result in legal fees.

To better understand the magnitude of legal costs, we examine our initial sample of 198,574 lawsuits for 3,410 publicly traded firms over 20 years (prior to its merge with CEO education data). Approximately 32% of lawsuits are settled in this sample, and nearly 2% are lost. The penalty attached to an average lost lawsuit, including lawsuits with zero or unreported penalties, is \$0.835 million and approximately \$2 million if we exclude observations with missing or zero values. The average reported settlement amount is \$1.7 million, although data availability is sparse. Other types of penalties that are difficult to quantify include clean-up costs in environmental litigation and injunctive relief in intellectual property litigation. While monetary penalties may not consistently be awarded, legal counsel compensation is often significant. These costs are compounded in cases when the defendant is required to reimburse the plaintiff's legal costs.

On average, firms lose market value around the announcement of malfeasance or litigation filing. The 3-day abnormal market value loss around the filing date is -0.11% , which amounts to \$7.02 million for an average company in our sample. Based on the average number of suits each year in our sample, this comes out to roughly \$32.62 million each year in litigation costs for a firm. Market value losses are significantly greater for more impactful litigation. For example, Fich and Shivdasani (2007) and Gande and Lewis (2009) report value market losses on the order of 15% around the filing of class action securities lawsuits (\$957 M per class action in our sample). Furthermore, other indirect costs such as changes in corporate strategy, managers' time, and other resources committed to repairing damaged reputations exacerbate litigation damage.

While all firms may experience routine lawsuits that may not be cost-effective to preempt—such as slip-and-fall accidents—there are very costly lawsuits that arise from preemptable activities: falsifying clinical trial data, discriminatory or unfair workplace policies, fabricated financial data, and other similar types of misconduct. CEOs with legal training should be effective at preventing, mitigating, and managing these types of failures. There is evidence that CEOs with legal training are better equipped to judge which corporate policies may be in violation of law, understand legal costs, and allocate resources to prevent future violations (Bird and Orozco (2014)).

III. Data

A. Data Sources

We use data from multiple sources to identify the educational background of CEOs. Our main sample of firms and managers is from the Compustat-Execucomp database and covers the period from 1992 to 2012 and is driven by the initially available litigation data. Execucomp provides the full name, title, and position of S&P 1500 firm executives for each fiscal year. We use these data as a starting point for a thorough web search of individual biographies, which includes Factiva and Lexis-Nexis searches. We record all undergraduate and graduate degree and major information as well as the name of the educational institution. While we believe our searches yield a complete sample, we cross-reference our data against Boardex. We classify a CEO as a lawyer if she is reported to have a terminal law degree (i.e., J.D., Ph.D. in Jurisprudence) or another law degree. These cases account for 94% of all CEOs with legal training in our sample. The remaining 6% hold an undergraduate degree in law such as an L.L.B. or a graduate degree such as L.L.M.

We use legal education to proxy for legal expertise and refer to CEOs with legal education as lawyer CEOs. The lawyer CEO indicator, `LAWYER_CEO`, is set as one for these CEOs, and zero otherwise. This proxy is supported by our data that CEOs with legal education typically have extensive experience practicing law subsequent to graduation; many of them spend years working for legal firms or legal departments of corporations before transitioning to management roles. We also record other types of degrees obtained by the CEOs and use them as controls in some of our analyses.

Our robustness checks require the use of information about CEO age, gender, and age at the first CEO appointment, which we source either from Execucomp or by hand collection. Data on the educational achievement of directors and their educational, professional, and social connections are sourced from Boardex. Further, we obtain firm-level accounting variables from Compustat. The firm-level return volatility measures and stock returns are computed using daily data from CRSP and the Ken French Data Library.

Summary statistics for CEO and firm characteristics are provided in [Table 1](#). In our sample pool of 3499 CEO-firm pairs, 320 or 9.1%, hold law degrees. This nontrivial number of lawyers in top executive positions that are customarily held by individuals with business degrees suggests that legal training has value in the executive labor market. The average CEO in our sample is born around 1947 and

TABLE 1
Summary Statistics

Table 1 presents summary statistics for firm litigation and attributes, CEOs, and other executives in our sample. All variables are defined in the Appendix.

	Mean	Std. Dev.	5-Pctl	Median	95-Pctl	No. of Obs.
<i>CEO Characteristics</i>						
LAWYER_CEO	0.091	0.288	0.000	0.000	1.000	3,499
CEO_BIRTH_YEAR	1947	9.988	1929	1947	1962	3,499
AGE	55.435	7.498	43.000	55.000	68.000	18,027
TENURE	7.277	7.690	0.000	5.000	23.000	18,027
EXEC_GC	0.314	0.464	0.000	0.000	1.000	18,027
LAWYER_DIR	0.349	0.477	0.000	0.000	1.000	18,027
ACC_DIR	0.298	0.458	0.000	0.000	1.000	18,027
PHD_MD	0.060	0.238	0.000	0.000	1.000	18,027
SCIENCE	0.373	0.483	0.000	0.000	1.000	18,027
MBA	0.592	0.491	0.000	1.000	1.000	18,027
IVY	0.280	0.449	0.000	0.000	1.000	18,027
FEMALE	0.021	0.143	0.000	0.000	0.000	18,027
AGE_FIRST_CEO	48.433	8.497	34.000	49.000	61.000	18,027
<i>Litigation</i>						
ANTITRUST	0.068	1.178	0.000	0.000	0.000	18,027
CIVIL	1.017	3.698	0.000	0.000	5.000	18,027
CONTRACT	0.451	1.616	0.000	0.000	2.000	18,027
ENVIRON	0.053	2.825	0.000	0.000	0.000	18,027
INTEL_PROP	0.199	0.643	0.000	0.000	1.000	18,027
LABOR	0.209	1.790	0.000	0.000	1.000	18,027
PERS_INJURY	0.173	7.076	0.000	0.000	2.000	18,027
PRODUCT_LIABILITY	1.825	53.699	0.000	0.000	1.000	18,027
SECURITIES	0.128	1.469	0.000	0.000	0.000	18,027
ALL	4.646	55.255	0.000	1.000	13.000	18,027
ALL_EXPL	2.574	10.910	0.000	0.000	10.000	18,027
<i>Firm Characteristics</i>						
LogTA	7.381	1.638	4.894	7.268	10.320	18,027
ROA	0.033	0.157	-0.118	0.043	0.160	18,027
LOSS	0.162	0.368	0.000	0.000	1.000	18,027
MB	3.022	4.552	0.688	2.164	8.060	18,027
LEVERAGE	0.225	0.191	0.000	0.208	0.550	18,027
RETURN	0.111	0.994	-0.562	0.006	0.897	18,027
VOLATILITY	0.115	0.077	1.162	0.096	5.699	18,027
IVA	0.065	0.162	-0.077	0.039	0.283	16,067
RDA	0.028	0.059	0.000	0.000	0.139	18,025
NOA	0.601	0.393	0.096	0.611	1.060	15,421
CITATIONS	1.976	2.908	0.000	0.000	7.810	18,027
PATENTS	1.167	1.820	0.000	0.000	5.075	18,027
TOBIN_Q	1.923	1.664	0.932	1.453	4.426	18,027
IND_ADJ_ROA	0.000	0.153	-0.136	0.005	0.136	18,027

has a job tenure of roughly 7 years. Financial characteristics and stock returns of our sample firms are comparable to those documented in similar studies.

The sample of litigation events is constructed, similar to that by Hutton, Jiang, and Kumar (2015), from civil terminations in Federal district courts compiled by the National Archive of Criminal Justice Data (NACJD) and disseminated by ICPSR (Inter-University Consortium for Political and Social Research). Terminated lawsuits are updated annually in the ICPSR, albeit with nearly a 2-year lag making 2012 and some 2013 terminations available in 2014, yielding a sample of lawsuit filings spanning 1992 to 2012. It contains over 5 million lawsuits, including government, individual, and private firm defendants. We map the defendants' names in the NACJD database to publicly traded firms generating a sample of 198,574 lawsuits for 3,410 firms. The advantage of NACJD data over other common sources of litigation data used in the finance literature is that it contains multiple litigation

types in terms of subject matter (i.e., civil, labor) and impact (i.e., single plaintiff vs. class action, penalty, and disposition), and covers a longer time period. Thus, compared to another widely used data set provided by the Stanford Securities Class Action Clearinghouse, NACJD is much larger and more comprehensive.

We focus on the most common categories of lawsuits, defined by the nature of suit (NOS) variable, including antitrust (NOS = 410), civil rights of employment (442), contract (190, 195), environmental (893), labor (710, 720, 790), intellectual property (820, 830, 840), personal injury (310, 340, 350, 360), product liability (245, 315, 345, 355, 365), and securities (850). While NACJD provides other types of litigation, these nine categories contain the vast majority of corporate lawsuits.⁴

Our data set relies on the data filed and reported by Federal district courts, which exclude cases filed in state courts. Despite painting a partial picture of corporate litigation, the Federal court data is a good proxy for total corporate litigation. Some types of litigation, such as securities, environmental, antitrust, and intellectual property, fall under federal law and are filed in federal courts. Other types of lawsuits like employment civil rights stemming from discrimination can violate federal and state-specific discrimination laws and may be filed in either court. Contract and torts (i.e., personal injury and product liability) cases are typically filed in state courts, but the more significant suits may escalate to the federal level. Further, diversity jurisdiction cases (i.e., parties are citizens of different states) are tried in federal courts.

B. Litigation Variables

To construct measures of litigation frequency, we extract data on the nine most common litigation types and match it to our firm-year-level data with available CEO education information. The intersection yields a final litigation sample that contains 83,761 lawsuits of 2,345 firms over 20 years across domains of antitrust, civil rights, contract, environmental, labor, intellectual property, personal injury, product liability, and securities lawsuits. To our knowledge, this database constitutes one of the most comprehensive litigation data sets to date. All lawsuit types are defined in the [Appendix](#).

Our key litigation variables capture the frequency of alleged firm misconduct at the firm-year level. We construct them by aggregating multiple lawsuits filed in the same fiscal year against the defendant into the total annual number of lawsuits for each of nine lawsuit types. For example, in a given year, a firm may have one filing of contract litigation, two filings of employment civil rights litigation, and zero filings of antitrust, labor, environmental, and other types of litigation.

⁴Other types of civil litigation that have limited application to a broad sample of publicly traded corporate defendants include prisoner rights and petitions, vet benefits, foreclosure, marine law, medical malpractice, and others. To give the reader an idea of civil litigation sample composition, the most common type of civil litigation is prisoner civil rights (7.67%, not in our sample); the second most common is product liability (7.44%, in our sample). These two types are followed by prisoner petitions: habeas corpus (7.41%, not in our sample), employment civil rights (6.26%, in our sample), and civil rights – other (6.15%, not in our sample). The last category (civil rights – other) is dominated by individual, state, and municipal defendants, rather than public firms.

Table 1 reports the average firm-year frequency of litigation filings by litigation type. The most common type is product liability litigation, with a 1.825 average number of annual filings, followed by civil litigation (CIVIL, 1.017), personal injury (PERS_INJURY, 0.713), contract rights (CONTRACT, 0.451), labor (LABOR, 0.209), intellectual property (INTEL_PROP, 0.199), securities litigation (SECURITIES, 0.128), antitrust litigation (ANTITRUST, 0.068), and environmental litigation (ENVIRON, 0.053). The distribution of the litigation frequency is right-skewed. For several lawsuit types (i.e., antitrust, environmental, and securities), firm-year litigation volume for the 95th percentile is zero. While antitrust, environmental, and securities are less frequent than other types of litigation, product liability is not only the most frequent type of litigation in our sample but also the most volatile.

Some firms experience bursts of product liability litigation, which generate high annual values in the top percentiles, as the standard deviation of product liability litigation is 53.699. For comparison, the second highest standard deviation of any other litigation category is personal injury cases, with an annual mean of 7.067. We further investigate the volatility of product liability litigation and find that it largely stems from cascades of litigation in the 5 largest firms and firms in the pharmaceutical industry. In some of our empirical analyses, we mitigate the effect of outliers by using the natural log of the number of lawsuits as an alternative dependent variable and winsorizing the distribution of litigation variables (reported in Table A1 in the Supplementary Material).

Furthermore, litigation is, in general, not uniformly distributed across all firms in the sample. Much like in the case of product liability litigation, some lawsuits are more prevalent in certain industries or types of firms. In our subsequent multivariate analyses, we control for firm characteristics that have been shown to affect litigation and year-fixed effects. Our baseline regressions control for firm fixed effects, firms fixed effects combined with industry-year fixed effects, and the alternative specifications using industry and state fixed effects.

IV. CEO Legal Expertise and Corporate Litigation

In this section, we present the main empirical results. We begin our analyses by studying the marginal benefits of CEOs with legal training in the area of litigation reduction, followed by the analyses of the marginal costs of CEO legal expertise.

A. Univariate Sorts

To establish the connection between lawyer CEOs and reduced litigation risk, we first conduct simple sorts of measures of litigation risk for firms with versus without lawyer CEOs. Litigation risk is measured by the average litigation frequency and litigation severity based on lost and settled lawsuits.

1. Litigation Frequency

Litigation frequency is defined as the number of lawsuits in a given firm year. These sorting results are reported in Panel A of **Table 2**, showing that litigation incidence in firms run by lawyer CEOs is lower for most types, which is consistent

TABLE 2
Univariate Sorts

Table 2 presents the average firm litigation measures between firms with lawyer CEOs versus those without. The 2-sample *t*-tests for the differences are presented. LAWYER_CEO is set as one (Yes) for a CEO with legal expertise, and zero (No) otherwise. All variables are defined in the Appendix. The *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Average Annual Number of Litigation Filings

LAWYER_CEO	No. of Obs.	ANTITRUST 1	CIVIL 2	CONTRACT 3	ENVIRON 4	INTEL_PROP 5	LABOR 6	PERS_INJURY 7	PROD_LIAB 8	SECURITIES 9	ALL 10	ALL_EXPL 11
Yes	1,693	0.027***	0.566***	0.284***	0.025***	0.155***	0.102***	0.370***	4.455***	0.057***	6.040***	1.405***
No	16,334	0.071***	1.055***	0.468***	0.056***	0.198***	0.218***	0.748***	1.553***	0.135***	4.502***	2.695***
Diff.		-0.044***	-0.489***	-0.185***	-0.031	-0.043**	-0.116***	-0.377***	2.902**	-0.077***	1.538	-1.300***
(Yes-No)		(-3.26)	(-9.74)	(-6.50)	(-1.31)	(-2.66)	(-6.47)	(-5.13)	(2.01)	(-4.44)	(1.54)	(-10.08)

Panel B. Average Annual Number of Lost and Settled Lawsuits

Yes	1,693	0.006***	0.242***	0.128***	0.013***	0.066***	0.045***	0.159***	0.650***	0.005***	0.577***	0.583***
No	16,334	0.013***	0.458***	0.216***	0.033*	0.083***	0.094***	0.376***	0.614***	0.025***	0.557***	1.182***
Diff.		-0.008	-0.215***	-0.088***	-0.020	-0.018**	-0.049	-0.218***	0.036	-0.019*	0.021	-0.600***
(Yes-No)		(-1.17)	(-5.09)	(-3.72)	(-0.34)	(-2.04)	(-1.49)	(-2.20)	(0.055)	(-1.76)	(0.032)	(-4.29)

Panel C. Average Annual Number of Lost and Settled Lawsuits, Conditional on Litigation

Yes	757	0.028***	0.541***	0.286***	0.022***	0.103***	0.100***	0.355***	1.361***	0.012***	1.281***	1.307***
No	7,757	0.013***	0.964***	0.456***	0.027**	0.125***	0.197***	0.793***	0.827***	0.052***	0.732***	2.490***
Diff.		-0.015	-0.423***	-0.170***	-0.005	-0.022	-0.097	-0.438**	0.534	-0.040*	0.549	-1.182***
(Yes-No)		(-1.08)	(-4.80)	(-3.39)	(-0.64)	(-1.38)	(-1.37)	(-2.05)	(0.94)	(-1.68)	(1.03)	(-3.98)

with a mechanical improvement of firm value. The results are presented for different types of litigation from the most frequent to the least frequent type.

Firms with lawyer CEOs as compared to firms without have lower annual frequency of antitrust (ANTITRUST, 0.027 vs. 0.071), employment civil rights (CIVIL, 0.566 vs. 1.055), contract (CONTRACT, 0.284 vs. 0.468), intellectual property (INTEL_PROP, 0.155 vs. 0.198), labor (LABOR, 0.102 vs. 0.218), personal injury (PERS_INJURY, 0.370 vs. 0.748) and securities (SECURITIES, 0.057 vs. 0.135). In all these cases, the differences in means are statistically and economically significant; they typically differ by a factor of 2, suggesting that a lawyer CEO is associated with an average reduction of litigation likelihood by 50% or more. We find no statistically significant difference in litigation frequency for environmental litigation, which is the least frequent type in our sample and, consequently, most prone to noise.

We observe a significantly higher frequency of lawsuits for firms with a lawyer CEO for product liability. As discussed previously, product liability litigation is highly volatile and sometimes arrives in cascades (in our sample, these cascades occur mainly in the pharmaceutical industry; they are also concentrated in very large firms), during which CEO turnover may have occurred. This positive relationship attenuates when we exclude the top 5 largest firms and pharmaceutical firms from the sample.

To assess the average relation between CEOs and corporate litigation, we aggregate lawsuits from nine categories into an ALL category that is measured by the total number of lawsuits filed in a firm year. However, this aggregate measure is heavily influenced by product liability litigation it accounts for nearly half of litigation volume. To avoid the excess influence of product liability litigation volatility, we combine eight lawsuit categories excluding product liability into an ALL_EXPL category, which reflects the litigation volume across most categories we study.

In these univariate analyses, we find that firms with a lawyer CEO are associated with a significantly lower ALL_EXPL (diff. = -1.300 , t -stat. = -10.08), suggesting a lower litigation volume across all but the product liability category. This difference is worth, in market value terms, \$9.13 million per year. There is no statistically significant difference in the All category between lawyer and nonlawyer CEOs. Overall, the sorting results suggest that lawyer CEOs are on average associated with a lower litigation frequency in all but the product liability category. This lower litigation frequency has important value effects for a firm, equivalent to nearly \$10 million per year to the average firm in our sample.

2. Litigation Severity

We next study the patterns of litigation severity through simple sorts of firms with or without a lawyer CEO. We measure litigation severity with the number of lost and settled suits for the full sample and the sample of firm-year with litigation. If the reduction in overall litigation levels is achieved by deterring frivolous litigation, which is likely to be dismissed, rather than high-quality cases, we expect lawyer CEOs to be associated with a lower number of lost and settled cases.

We report the sorting results for the full sample in Panel B of Table 2. Here we again observe that lawyers are associated with a lower number of cases that are

ultimately lost and settled, in CIVIL, CONTRACT, INTEL_PROP, PERS_INJURY, and SECURITIES, as well as in ALL_EXPL, based on the 10% or better significance cutoff. In no other litigation type do we observe a statistically significantly higher litigation frequency for lawyer CEOs, including PROD_LIAB. This attenuation of the positive difference suggests that product liability category may contain some frivolous lawsuits. The patterns are highly similar in Panel C, where we examine the proportion of lost and settled litigation conditional on litigation. Overall, the evidence suggests that lawyer CEOs tend to be associated with less frequency of severe litigation in a majority of litigation types. This relation is more robust in frequent litigation types such as employment civil rights, personal injury, and contract.

We have evaluated and dismissed other types of litigation costs, such as monetary penalties, since they are frequently unavailable for settled litigation. Using the weighted average of lost and settled penalties, the average incremental monetary penalty avoided by lawyer CEOs is \$2.02 million/year. In the case of lost litigation, financial penalties are not consistently awarded. They can be replaced by clean-up expenses, split-ups, or injunctive relief, which are difficult to translate into dollar terms. Legal fees are also not disclosed because of attorney-client confidentiality. Some studies (e.g., Garoupa and Gomez-Pomar (2008), Karsten et al. (2021)), resort to litigation length as a proxy for legal fees. In this setting, the focus on litigation length is somewhat redundant since it is correlated with lawsuit disposition: lawsuits that are subsequently lost take more time to resolve. Nevertheless, in analyses reported in Table A2 in the Supplementary Material, we examine litigation duration and find that CEOs with legal expertise are correlated with somewhat shorter lawsuits of several types, consistent with our lawsuit outcome results.

B. Multivariate Regressions

Next, we estimate the relation between the CEO's legal expertise and litigation frequency or severity while controlling for the other executive and firm characteristics using panel OLS regressions. Our key independent variable in these regressions is *LAWYER_CEO*, equal to one if the CEO has legal education and zero otherwise. Control variables include CEO age (*AGE*) and tenure (*TENURE*) because more experienced CEOs may be more effective at managing litigation risk. Further, our firm controls include firm size (*LogTA*), profitability (*ROA*), market-to-book ratio (*MB*), leverage ratio (*LEVERAGE*), market-adjusted stock returns (*RETURN*), and stock return volatility (*VOLATILITY*) as these firm characteristics have been shown to matter for litigation occurrence.

While not all of these variables have the same effect on every type of litigation, large firms with deep pockets are generally sued more frequently for a given type of conduct. Firms with poor operating or stock performance are more likely to engage in misconduct, leading to litigations. This is because the cost of misconduct is relatively low for poorly performing firms, and the upside might be relatively high. Poor performance might also correlate with low reputational capital at risk, which implies a higher rate of opportunistic behavior. Furthermore, firms with poor

financial performance may lack resources and underinvest in internal controls and litigation prevention, thus becoming prone to lawsuits.

In our baseline regressions, we also include firm and year-fixed effects and cluster standard errors at firm level. Including firm fixed effects helps control for unobservable time-invariant factors that can contribute to firm-CEO matching. It allows us to better examine the effect of variation in CEO training brought on by turnover on variation in firm litigation and to more robustly establish the relationship between the CEOs with legal experience and firm value through litigation reduction. A yet more rigorous baseline specification combines the firm fixed effect with a high dimensional industry-year fixed effect, which controls for industry factors influencing the choice of CEOs from certain backgrounds.

1. Litigation Frequency with Firm Fixed Effects

Our baseline regressions focus on explaining firm litigation frequency with `LAWYER_CEO` with the set of controls. These regression results are reported in Panel A of Table 3. The dependent variable in these regressions is the number of lawsuits of a certain type filed in a given firm year. Similar to our sorting results in Panel A of Table 2, we find that lawyer CEOs are significantly associated with less firm litigation in five out of nine litigation types: civil rights (t -stat. = -2.42), contract (t -stat. = -2.51), labor (t -stat. = -2.66), personal injury (t -stat. = -2.29), and securities (t -stat. = -1.98), as well as for `ALL_EXPL` (t -stat. = -3.14). For other types (antitrust, environmental, intellectual property, and product liability) and `ALL`, the regression coefficients on `LAWYER_CEO` are mixed in sign and statistically insignificant.

The economic significance of the coefficients in the five statistically significant regressions is notable. When compared to the mean unconditional litigation frequency, CEOs with legal training are associated with lower litigation in employment civil rights by 53.1% (coeff. = -0.540 , mean = 1.017), contract by 30% (coeff. = -0.135 , mean = 0.451), labor by 52.6% (coeff. = -0.110 , mean = 0.209), personal injury regressions by 82.9% (coeff. = -0.591 , mean = 0.713), and securities by 133% (coeff. = -0.170 , mean = 0.128). The overall litigation in the eight types excluding product liability is reduced by 65% (coeff. = -1.676 , mean = 2.574) relative to the unconditional mean. These estimates suggest a substantial reduction of litigation risk associated with the presence of a lawyer CEO, when firm fixed effects have controlled for a time-invariant CEO and firm matching.

The coefficients of control variables are consistent with expectations. Firm size has a significant, positive coefficient in nearly all regressions, supporting the prior that in complex firms, where litigation prevention is difficult, there are more opportunities for wrongdoing and lawsuits are more likely because of the defendant's resources available for penalties or settlement. The remaining control variables, including CEO age and tenure have mixed signs or statistical significance across regressions. Since the dependent variable can be affected by years of heavy litigation, we consider a natural log transformation of annual litigation volume, which mitigates the influence of large observations. Our results remain qualitatively similar (see Table A1 in the Supplementary Material).

Overall, these analyses indicate that lawyer CEOs are associated with lower corporate litigation across most litigation types and no significant increases in

TABLE 3
Lawyer CEO and Litigation

Table 3 presents OLS panel regression estimates of the relation between CEO legal training and annual firm litigation of a given type. In Panels A, B, and E, firm litigation is measured by the total number of lawsuit filings per year. In Panel C, it is measured by the total number of lawsuit filings that were ultimately lost or settled, and in Panel D, by the proportion of lawsuit filings that were ultimately lost or settled, conditional on litigation. LAWYER_CEO is an indicator variable for a CEO with legal expertise. In all Panels but B, firm fixed effects and year fixed effects are included while in Panel B, industry x year fixed effects replace year fixed effects. All control variables are defined in the Appendix and are lagged by 1 year. The t-statistics are computed using standard errors corrected for clustering of observations by firm and are reported in parentheses below the estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Baseline Regressions

	Dependent Variable: Number of Lawsuit Filings per Year										
	ANTITRUST 1	CIVIL 2	CONTRACT 3	ENVIRON 4	INTEL_PROP 5	LABOR 6	PERS_INJURY 7	PROD_LIAB 8	SECURITIES 9	ALL 10	ALL_EXPL 11
LAWYER_CEO	-0.129 (-1.36)	-0.540** (-2.42)	-0.135** (-2.51)	0.012 (0.81)	0.023 (0.53)	-0.110*** (-2.66)	-0.591** (-2.29)	-7.527 (-0.47)	-0.170** (-1.98)	-9.167 (-0.57)	-1.676*** (-3.14)
LogTA	0.014 (1.23)	0.445*** (10.68)	0.192*** (7.52)	0.007 (0.22)	0.077*** (6.63)	0.107*** (5.15)	0.204** (2.20)	1.608*** (3.20)	0.195*** (4.18)	2.850*** (5.44)	1.158*** (8.71)
ROA	0.001 (0.05)	-0.066 (-0.94)	-0.058 (-1.37)	-0.067 (-0.78)	-0.091** (-2.40)	-0.076 (-1.50)	-0.174** (-2.17)	0.007 (0.01)	-0.620 (-1.44)	-1.145 (-0.98)	-0.994** (-2.49)
MB	0.000 (0.20)	-0.006* (-1.69)	0.005** (2.50)	-0.000 (-0.55)	-0.000 (-0.23)	0.001 (0.34)	-0.002 (-0.96)	-0.177** (-2.46)	0.013*** (2.95)	-0.166** (-2.30)	0.011 (1.50)
LEVERAGE	-0.022 (-0.32)	-0.359** (-2.38)	-0.078 (-1.13)	0.103 (0.68)	-0.083** (-2.30)	-0.048 (-0.75)	-0.548** (-2.42)	0.051 (0.02)	-0.273 (-1.41)	-1.255 (-0.52)	-1.327*** (-3.18)
RETURN	-0.003 (-0.92)	0.003 (0.35)	-0.000 (-0.10)	0.003 (0.78)	-0.001 (-0.48)	0.001 (0.30)	0.023 (0.98)	0.123 (1.35)	-0.006 (-0.49)	0.142 (1.45)	0.017 (0.62)
VOLATILITY	-0.103 (-1.34)	-0.338* (-1.78)	0.048 (0.51)	-0.104 (-0.48)	-0.108* (-1.75)	0.010 (0.11)	-0.282 (-0.75)	3.756 (0.89)	0.276 (1.06)	3.154 (0.74)	-0.388 (-0.70)
AGE	-0.002 (-0.81)	-0.003 (-1.02)	0.003 (1.55)	-0.005 (-0.70)	0.000 (0.03)	-0.000 (-0.31)	0.008 (1.52)	0.120 (0.97)	-0.005 (-1.40)	0.115 (0.93)	0.001 (0.07)
TENURE	-0.002 (-0.97)	-0.006 (-1.31)	-0.008*** (-3.26)	0.003 (0.44)	-0.003* (-1.75)	-0.006** (-2.46)	-0.005 (-0.69)	-0.310 (-1.01)	0.001 (0.20)	-0.337 (-1.09)	-0.027** (-2.21)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027
R ²	0.27	0.77	0.67	0.20	0.46	0.25	0.69	0.20	0.18	0.23	0.75

(continued on next page)

TABLE 3 (continued)
Lawyer CEO and Litigation

Panel B. Baseline Regressions with Industry \times Year Fixed Effects Replacing Year Fixed Effects

Dependent Variable: Number of Lawsuit Filings per Year											
	ANTITRUST	CIVIL	CONTRACT	ENVIRON	INTEL_PROP	LABOR	PERS_INJURY	PROD_LIAB	SECURITIES	ALL	ALL_EXPL
	1	2	3	4	5	6	7	8	9	10	11
LAWYER_CEO	-0.142 (-1.32)	-0.443*** (-3.07)	-0.136** (-2.28)	0.017 (0.56)	0.022 (0.50)	-0.068 (-1.54)	-0.428** (-2.20)	-10.096 (-0.54)	-0.149 (-1.62)	-11.421 (-0.61)	-1.365*** (-3.66)
<i>Controls, Firm FEs, and Industry \times Year FEs included</i>											
No. of obs.	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027
R ²	0.31	0.82	0.69	0.23	0.50	0.32	0.73	0.22	0.25	0.25	0.79

Panel C. Alternative Dependent Variable Based on Lost and Settle Lawsuits

Dependent Variable: Number of Lost and Settled Lawsuits											
LAWYER_CEO	-0.011 (-1.20)	-0.259** (-2.46)	-0.069** (-2.27)	0.004 (0.29)	0.015 (0.72)	-0.037* (-1.65)	-0.302** (-2.15)	-6.760 (-0.83)	-0.011 (-0.81)	-6.877 (-0.84)	-0.689*** (-2.62)
<i>Controls, Firm FEs, and Year FEs included</i>											
No. of obs.	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027
R ²	0.10	0.69	0.46	0.20	0.32	0.13	0.68	0.15	0.16	0.14	0.70

Panel D. Alternative Dependent Variable Based on Conditional Lost and Settle Lawsuits

Dependent Variable: Number of Lost and Settled Lawsuits Conditional on Litigation											
LAWYER_CEO	-0.044 (-0.29)	-0.486** (-2.41)	-0.103* (-1.70)	0.339 (0.74)	0.083 (1.20)	-0.179* (-1.91)	-0.996** (-2.02)	-27.556 (-0.80)	-0.027 (-0.24)	-8.481 (-0.83)	-0.892*** (-2.58)
<i>Controls, Firm FEs, and Year FEs included</i>											
No. of obs.	4,088	10,267	9,712	3,881	7,356	6,416	7,398	5,840	4,612	14,734	13,835
R ²	0.21	0.69	0.45	0.35	0.33	0.20	0.69	0.16	0.31	0.14	0.70

Panel E. Baseline Regressions with Excluding First 2 Years of CEO Tenure

Dependent Variable: Number of Lawsuit Filings per Year											
LAWYER_CEO	-0.120 (-0.98)	-0.525* (-1.92)	-0.133* (-1.79)	0.013 (1.02)	0.049 (0.74)	-0.094** (-1.97)	-0.675* (-1.82)	8.476 (1.36)	-0.137 (-1.53)	6.854 (1.09)	-1.684** (-2.36)
<i>Controls, Firm FEs, and Year FEs included</i>											
No. of obs.	14,333	14,333	14,333	14,333	14,333	14,333	14,333	14,333	14,333	14,333	14,333
R ²	0.34	0.77	0.68	0.39	0.43	0.20	0.54	0.32	0.22	0.39	0.66

litigation of any type after we control for a host of firm characteristics, firm and year-fixed effects.

2. Litigation with Firm and Industry \times Year Fixed Effects

Since the interpretation of CEO marginal benefits is affected by both the treatment and selection effects, we make an effort to control for CEO-firm matching, when either firm or industry characteristics can affect both litigation risk and CEO hiring. In Panel B of [Table 2](#), we test a specification that partly addresses this concern using panel regressions with i) firm fixed effects and ii) industry-year fixed effects. Firm fixed effects control for firm-specific time-invariant characteristics that can affect the lawyer-firm match, and industry-year fixed effects absorb time-varying industry characteristics that provide incentives to hire managers and directors with certain professional credentials.

The results reported in Panel B of [Table 2](#) are marginally weaker than those in Panel A indicating that there may be industry-level factors affecting preferences for CEO with legal backgrounds. However, even in this more rigorous specification, we continue to observe negative coefficients in most regressions with particularly strong results in civil rights, contract, and personal injury litigation which rank second, third, and fourth in terms of litigation volume (product liability with the highest number of lawsuits is affected by outlier events); further, the measure of aggregate litigation (without product liability) continues to be negative and statistically significant. The coefficients of CEO type marginally drop below the 10% level of statistical significance in the labor and securities regressions. These results suggest that the negative relation between lawyer CEOs and litigation is robust.

3. Litigation Severity with Firm Fixed Effects

So far, we observe that lawyers in the top executive position are associated with lower litigation frequency and severity. Thus, we examine whether lawyer CEOs are correlated with fewer filings of more impactful cases that can result in losses and settlements for the defendant firm.

In Panel C of [Table 3](#), we run panel regressions of the number of lost and settled suits as a measure of litigation severity on `LAWYER_CEO` together with identical controls as in Panel A. Consistent with our sorting results in Panel B of [Table 2](#), we find that lawyers are associated with a lower number of cases that are ultimately lost and settled, in civil, contract, labor, and personal injury, as well as in `ALL_EXPL`. No significant coefficient on `LAWYER_CEO` is observed in regressions of other types of litigation or `ALL`.

In Panel D of [Table 3](#), we examine the proportion of lost and settled litigation to ensure the observed reduction in the number of lost and settled suits is relative to total litigation filings in that firm year. As in the previous panel, we observe similar effect patterns: significant negative coefficients on `LAWYER_CEO` for some regressions and no evidence of a significant positive coefficient in any. The evidence in Panels C and D provides more robust evidence that lawyer CEOs are associated with severe lawsuit cases across several types of litigation.

Comparing the value effects of these panel regression analyses to our previous univariate tests, the magnitude of our estimates marginally increase. There is incremental additional savings using our panel estimates of \$75.15 M/year for

ALL lawsuits, though these results are not statistically significant, and \$2.64 M/year for ALL_EXPL, calculated as the parameter estimate of LAWYER_CEO times the average value lost for litigation in our sample. Overall, our results are similar in economic magnitude, establishing about 0.8% (\$11.1 M/\$1.43B) of the median firm's Total Assets in our sample in litigation cost savings each year.

4. Excluding New CEOs Firm-Years

To ensure that the effects of lawyer CEOs in managing firm litigation risk are attributed correctly, we consider a firm-year sample that excludes the first 2 years of CEO tenure. Several circumstances influence CEO performance subsequent to CEO turnover. Firms may have existing policies and personnel that can affect implementation of new policies. Even if changes are made immediately, the lag in litigation filings may distort the observed relation between lawyer CEO and litigation. Moreover, a new lawyer CEO may be hired after a scandal when new lawsuits are being filed aggressively, further obscuring the effect of legal training on litigation filings.

To address these concerns, we reestimate our baseline regression with firm fixed effects after excluding the first 2 years of tenure to capture the more representative effect of the CEO. We report the results in Panel E of Table 3. The results remain largely similar for civil, contract, labor, and personal injury, where a significant negative coefficient on LAWYER_CEO is observed. However, the magnitude of coefficients on LAWYER_CEO variable is lower than in the baseline regressions. LAWYER_CEO still carries a negative, but insignificant coefficient for securities lawsuits. The ALL_EXPL regression still produces a negative and significant coefficient on LAWYER_CEO. Overall, the evidence confirms that over all stages of their tenure, lawyer CEOs are associated with reduced litigation frequency in several types of litigation and across all types that exclude product liability. This relation is more persistent and is not driven by turnover events.

5. Litigation Frequency with Industry and Location Fixed Effects

So far, our regressions have controlled for firm fixed effects that rely on CEO turnover and industry-year fixed effects to identify the relative importance of treatment versus selection effect. However, for firms without CEO turnover, firm fixed effects also absorb CEO fixed effects, such as the legal background. Thus, in an alternative specification, we replace firm-fixed effects with industry and state-fixed effects to allow the estimation of CEO effects that may not overlap with firm effects.

Industry fixed effects are based on the 2-digit SIC code, which capture cross-industry differentials in lawsuit propensity. State-fixed effects are determined by the location of the firm's headquarters. They are introduced as certain location-related characteristics, such as state laws, can affect the frequency of litigation filings in federal courts by channeling certain lawsuits into state courts, which we do not observe.

We report these estimates in Panel C of Table A1 in the Supplementary Material. Here, we observe a negative and significant coefficient of LAWYER_CEO for seven out of nine litigation types and for ALL_EXPL, an insignificant coefficient for intellectual property and ALL, and a positive and significant

coefficient for product liability. Overall, some results are stronger than our baseline results due to the baseline's more demanding specification with firm fixed effects. The overwhelming majority of litigation types exhibit a reduced frequency when the firm employs a lawyer CEO.

C. Comparison of Legal Training to Other Executive Attributes

To ensure that our findings are not driven by omitted variables, we complement our baseline estimates from Panel A of [Table 3](#) with additional controls for other CEO attributes and the legal training of other executives. In particular, we introduce controls for executive legal counsel, directors with legal or accounting education, other types of CEO education, gender, and age at first CEO appointment and compare them against CEO legal training.

Several studies, including Litov et al. (2014) and Morse et al. (2016), highlight the importance of alternative gatekeepers, in particular, the firm's general counsel elevated to the role of top 5 executive officers and directors with legal or accounting training. Accountants are trained in financial compliance and reporting, which may offer a similar subset of broader legal expertise. They show that these two groups of gatekeepers independently reduce various compliance failures and some types of lawsuits. In instances where a firm has several types of such gatekeepers in addition to the CEO with legal expertise, our main result could be driven by the influence of these individuals rather than the CEO himself.

We thus construct three indicator variables for other gatekeepers: EXEC_GC, LAWYER_DIR, and ACC_DIR. EXEC_GC is set to 1 if the firm's general counsel is listed among its top executive officers in Execucomp and zero otherwise, following Morse et al. (2016). LAWYER_DIR is equal to 1 if the board has at least one director with a legal background, and 0 otherwise, following Litov et al. (2014). We obtain director and board data from Boardex to identify the director legal background. We consider a director to have legal expertise if she has a law degree (e.g., J.D., L.L.M., L.L.B.) or is listed as having graduated from a law school. Further, similar to LAWYER_DIR, we construct an indicator of ACC_DIR, which is set to 1 if one or more accountant directors are identified by either a degree in accounting or the Chartered Public Accountant (CPA) credential.

Moreover, the legal training of CEOs may correlate with other unobservable CEO characteristics. For example, it is well known that law programs are both highly selective and demanding. Therefore, the law degree can proxy for a higher level of ability or stronger work ethic of CEOs rather than their legal expertise. Further, our results can be affected by gender-driven risk aversion if women are over-represented in the sample of lawyers. To remedy this, we include additional controls such as gender, several educational background indicators (MBA, Ph.D./M.D., or Science degree in a STEM field), a proxy for the talent or professional connections of a CEO (IVY, the undergraduate or graduate Ivy League alumnus), and the age at the first CEO job (AGE_FIRST_CEO) following Custodio and Metzger (2014).

The estimates from these models are reported in [Table 4](#). They indicate that while the general counsel and directors with a legal background are sometimes

TABLE 4
Alternative Attributes of CEOs and Firm Gatekeepers

Table 4 presents OLS panel regression estimates of the relation between CEO legal training and annual firm litigation with additional controls for legal training of other firm gatekeepers and other CEO attributes. The dependent variable is a given type of firm litigation, measured by the total number of lawsuit filings per year. LAWYER_CEO is an indicator variable for a CEO with legal expertise. LAWYER_DIR refers to LAWYER_DIRECTORS. ACC_DIR Refers to ACC_DIRECTORS. All variables are defined in the Appendix and are lagged by 1 year. Control variables are identical to those in Panel A of Table 3. The t-statistics are computed using standard errors corrected for clustering of observations by firm and are reported in parentheses below the estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: Number of Lawsuit Filings per Year										
	ANTITRUST 1	CIVIL 2	CONTRACT 3	ENVIRON 4	INTEL_PROP 5	LABOR 6	PERS_INJURY 7	PROD_LIAB 8	SECURITIES 9	ALL 10	ALL_EXPL 11
LAWYER_CEO	-0.109 (-1.14)	-0.550*** (-2.65)	-0.135*** (-2.59)	0.015 (1.05)	0.011 (0.25)	-0.119*** (-2.80)	-0.441* (-1.70)	-8.907 (-0.52)	-0.164* (-1.95)	-10.399 (-0.61)	-1.518*** (-3.00)
EXEC_GC	0.024 (0.81)	0.229*** (3.12)	0.028 (0.90)	0.024 (0.39)	-0.005 (-0.35)	0.012 (0.41)	-0.069 (-0.36)	-1.818** (-2.06)	0.036 (0.95)	-1.541* (-1.68)	0.258 (1.08)
LAWYER_DIR	-0.044 (-1.41)	-0.117 (-1.54)	0.053 (1.55)	-0.068 (-1.18)	-0.025 (-1.50)	0.043 (0.77)	-0.189* (-1.90)	1.693 (1.13)	-0.071 (-1.42)	1.275 (0.84)	-0.324* (-1.72)
ACC_DIR	0.007 (0.25)	-0.030 (-0.34)	-0.027 (-0.87)	0.001 (0.03)	0.026 (1.54)	-0.098 (-1.08)	0.091 (0.96)	0.713 (0.48)	-0.042 (-1.12)	0.639 (0.43)	-0.100 (-0.47)
PHD_MD	-0.000 (-0.00)	0.301 (1.53)	0.184*** (2.68)	0.037** (1.75)	-0.062 (-0.88)	0.070 (1.32)	0.368*** (2.69)	-2.447 (-0.87)	-0.218 (-1.19)	-1.769 (-0.62)	0.705* (1.74)
SCIENCE	-0.016 (-0.39)	-0.286*** (-3.07)	-0.094*** (-2.72)	0.005 (0.34)	-0.052** (-2.35)	-0.107** (-2.15)	-0.152 (-1.62)	-2.082 (-0.97)	0.043 (0.73)	-2.743 (-1.27)	-0.612*** (-3.08)
MBA	0.087** (2.06)	0.136 (1.55)	0.049 (1.52)	-0.003 (-0.26)	-0.002 (-0.09)	0.045 (1.18)	0.526* (1.74)	-4.215 (-1.51)	0.023 (0.61)	-3.353 (-1.19)	0.866** (2.45)
IVY	-0.019 (-0.47)	-0.152 (-1.25)	-0.027 (-0.40)	0.001 (0.15)	0.010 (0.50)	0.046 (0.90)	-0.533 (-1.36)	-2.152 (-1.13)	-0.012 (-0.14)	-2.837 (-1.44)	-0.697 (-1.48)
FEMALE	0.117 (1.57)	0.682*** (2.94)	0.043 (0.45)	0.037 (1.16)	0.069 (1.15)	0.121* (1.80)	0.102 (0.85)	1.634 (1.41)	0.009 (0.05)	2.814** (2.29)	1.074** (2.47)
AGE_FIRST_CEO	0.000 (0.04)	-0.023 (-1.07)	-0.000 (-0.04)	0.000 (0.03)	0.003 (0.48)	-0.018 (-1.35)	0.018 (1.00)	0.275** (2.02)	-0.000 (-0.04)	0.255* (1.78)	-0.023 (-0.58)
	<i>Controls, Firm FEs, and Year FEs included</i>										
No. of obs.	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027	18,027
R ²	0.27	0.77	0.67	0.20	0.46	0.25	0.69	0.20	0.18	0.24	0.75

associated with less frequent litigation, the relation is typically weak and inconsistent as compared to that of lawyer CEOs.

In contrast, the estimates on `LAWYER_CEO` continue to remain similar to our baseline results and stay significant and negative for five of nine lawsuit types. The evidence suggests that CEO legal training has an independent effect on litigation even after the inclusion of controls for other dimensions of the human capital of CEOs or other executives.⁵ Overall, we confirm our baseline result relating CEO legal training to lower litigation frequency in five types of litigation individually and the aggregate eight types of litigation excluding product liability.⁶

D. Costs of CEO Legal Expertise

In this section, we study the potential channels through which CEOs may achieve reduction in litigation. This is important for two reasons. First, the evidence of consistency would shed light on how firms could achieve lower firm litigation risk. Second, the effects of these channels may shed light on the costs incurred to achieve this litigation reduction, counterbalancing the benefits we document. More specifically, we explore CEO legal network building following new appointments and the riskiness of firm investment policies.

1. CEO Legal Network Dynamics Following Turnover

Better risk management can be facilitated by enhancing legal advice or oversight. In this section, we focus on the dynamics of CEO and firm legal network, including the legal experts in a CEO's personal network, among boards of directors, and compliance officers, as well as the executive status of the General Counsel. CEOs with legal training may seek out individuals with legal expertise that can provide them and the firm with advice on compliance and risk management in addition to legal oversight. In these analyses, we control for industry and year fixed effects (high dimensional industry-year effects cannot be used due to sample size limitations) since the demand for executive legal talent in top management ranks and on the board can be industry-specific. These controls allow for a cleaner test of CEO and firm influence in hiring legal talent.

To test this conjecture, we examine the proportion of lawyers in a CEO's network, that of directors with legal training on the board or among compliance officers, and the presence of Executive General Counsel during the 3-year period following CEO turnover. We use the same method of identifying directors or compliance officers with legal expertise as for CEOs: our definition of legal expertise includes a law degree (J.D., L.L.M., L.L.B., etc.) or graduation from a law school. We calculate the percentage of individuals with legal expertise in CEO's personal network (`%LAWYER_IN_NWRK`), the firm's board directors (`%LAW_`

⁵Analyses reported in Table A3 in the Supplementary Material, we find that Ivy League education and a PhD/MD degree also affect some litigation types when not combined with other education controls, but this effect is often weak and the directional relation varies across different litigation types.

⁶To ensure that the lack of significance of `EXEC_GC` and `LAWYER_DIR` is not due to the differences in sample composition between the studies, we replicate the findings of Litov et al. (2014) and Morse et al. (2016). These results are reported in Table A3 in the Supplementary Material.

DIR) and the firm's compliance officers (%LAW_COMP_OFFIC) as well as the presence of executive general counsel (EXEC_GC).

Our sample in this test consists of 1,956 CEO turnover events during our sample period and has available dependent variables for up to 3 years following the turnover. We run panel regressions of %LAWYER_IN_NWRK, %LAW_DIR, %LAW_COMP_OFFIC, and EXEC_GC in each of the subsequent 3 years on the new CEO legal expertise indicator (LAWYER_CEO). Since staggered boards and lack of board/management refreshment were relatively common during the sample period used in this study, we control for the lagged dependent variable in the year before the CEO turnover ($t = -1$) in addition to other pre-turnover firm characteristics as in Panel A of Table 3. As mentioned above, we include the industry and year-fixed effects; firm fixed effects are not used as CEO turnover is an infrequent event and in most cases, we do not observe multiple turnovers per firm. However, we control for the presence of legal talent in the firm before turnover and that helps establish the firm's existing interest in acquiring legal talent. Standard errors are clustered by firm.

The regression results are reported in Table 5. We find that the proportion of lawyers in the CEO's network in the first 2 years and that of lawyer directors in all 3 years after CEO turnover are higher if the new CEO is a lawyer, with coefficients significant at 10% or better. The proportion of lawyer compliance officers increases significantly only in year 3, at the 1% level. There is no evidence of significant changes in the presence of an executive General Counsel. The pre-turnover lagged dependent variables, independent of the new CEO influence, have significantly positive coefficients, suggesting a persistent influence of the prior legal network on acquiring additional legal talent.

However, the fact that the effect of lawyer CEO remains significant in the presence of controls for pre-turnover legal network variables suggests that lawyer CEOs are independently associated with retention, recruitment, or acquisition of new legal connections, lawyer directors, lawyer compliance officers. We cannot say whether this increase in legal talent comes from deliberate search and selection or simple homophily (i.e., CEO, managers, and directors with legal training knows people similar to them and hire them). Regardless of the mechanism, new connections to and acquisition of legal talent yield additional legal support and oversight. While the increase in homogeneity among a firm's employees may be one channel through which lawyer CEOs are associated with a reduction in litigation, this shift in the makeup of firm employment may incur costs. These employees who specialize in legal risk may have less experience or talent in core business management.

2. Firm Investment and Risk

A lawyer CEO and the increase in internal gatekeepers a lawyer CEO is associated with may further alter firm risk. These executives may be associated with greater risk aversion, foregoing positive NPV projects due to a greater perceived internal cost of capital. We test this, examining the implementation of firm investment policies.⁷ The negative relationship between litigation risk and firm

⁷In Table A5 in the Supplementary Material, we consider previous legal experience as a third channel that Lawyer CEOs may use to manage a firm's litigation risk. We find only minor evidence that previous experience within a private law firm reduces a firm's litigation risk beyond the effects of legal education.

TABLE 5
CEO Turnover and Legal Network

Table 5 presents OLS regression estimates of the relation between CEO legal training and CEO legal network after the new CEO appointment (year t). *LAWYER_CEO* is an indicator variable for the new CEO with legal expertise. Dependent variables are measures of CEO legal network, and in Panels A–C are measured, respectively, during the first ($t + 1$), second ($t + 2$), and third year ($t + 3$) subsequent to the new CEO appointment. CEO legal network is measured in four ways: %LAWYER_IN_NWRK, %LAW_DIR, %LAW_COMP_OFFIC, and EXEC_GC. Pre-turnover ($t - 1$) dependent variables are included as additional controls. Other control variables are identical to those in Panel A of Table 3. All variables are defined in the Appendix. Industry and year-fixed effects are included in all regressions. The t -statistics are computed using standard errors corrected for clustering of observations by firm and are reported in parentheses below the estimates. ***, **, and * indicate the coefficients' statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Legal Network at Year $t + 1$

	Dependent Variables ($t + 1$)			
	%LAWYER_IN_NWRK 1	%LAW_DIR 2	%LAW_COMP_OFFIC 3	EXEC_GC 4
LAWYER_CEO (t)	0.014* (1.83)	0.018** (2.27)	-0.038 (-1.04)	0.007 (0.21)
%LAWYER_IN_NWRK ($t - 1$)	0.577*** (12.75)			
%LAW_DIR ($t - 1$)		0.824*** (38.80)		
%LAW_COMP_OFFIC			0.800*** (26.15)	
EXEC_GC ($t - 1$)				0.586*** (26.73)
	<i>Controls, Industry FEs, and Year FEs included</i>			
No. of obs.	1,073	922	482	1,880
R^2	0.40	0.75	0.72	0.41

Panel B. Legal Network at Year $t + 2$

	Dependent Variables ($t + 2$)			
	%LAWYER_IN_NWRK 1	%LAW_DIR 2	%LAW_COMP_OFFIC 3	EXEC_GC 4
LAWYER_CEO (t)	0.014* (1.83)	0.018** (2.27)	-0.038 (-1.04)	0.007 (0.21)
	<i>Controls, Industry FEs, and Year FEs included</i>			
No. of obs.	1,073	894	462	1,813
R^2	0.37	0.68	0.61	0.26

Panel C. Legal Network at Year $t + 3$

	Dependent Variables ($t + 3$)			
	%LAWYER_IN_NWRK 1	%LAW_DIR 2	%LAW_COMP_OFFIC 3	EXEC_GC 4
LAWYER_CEO (t)	0.012 (1.24)	0.040*** (3.29)	0.097** (2.44)	0.027 (0.69)
	<i>Controls, Industry FEs, and Year FEs included</i>			
No. of obs.	1,073	847	430	1,713
R^2	0.32	0.61	0.57	0.21

policies has been documented extensively; for example, Arena and Julio (2015) show that litigation risk is negatively related to real investment. We conjecture that aggressive firm growth can expose the firm to higher risk in all areas of litigation examined in this article. Therefore, the reduction in legal risk can be achieved by decreasing investment in growth, particularly the riskier type of investment through R&D. We thus consider i) firm investment in tangible assets and inventory, measured by capital expenditures divided by total assets (IVA), ii) firm investment in intangible assets, as measured by R&D expenditures scaled by total assets (RDA), and iii) net operating assets (NOA) following Hirshleifer et al. (2004). NOA captures the cumulative difference between operating earnings and operating cash flows that capture cumulative deviation between accounting value-added and cash

TABLE 6
Firm Investment Policies

Table 6 presents panel OLS regression estimates of the relation between CEO legal training and firm investments. Firm investment characteristics are measured by five variables. IVA is investment in tangible (PPE) assets scaled by total assets and RDA is investment in intangible (R&D) assets scaled by total assets. Net Operating Assets (NOA) captures the cumulative difference between operating earnings and operating cash flows and signals future drop in investment profitability. PATENTS and CITATIONS are the inverse hyperbolic sine transformed annual number of patent filings and patent citations. LAWYER_CEO is an indicator variable for a CEO with legal expertise. The control variables are lagged by 1 year. All variables are defined in the Appendix. In Panel A, firm and year fixed effects are included while in Panel B, firm and industry \times year fixed effects are included. The t -statistics are computed using standard errors corrected for clustering of observations by firm and are reported in parentheses below the estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Firm and Year Fixed Effects

	Dependent Variables				
	IVA 1	RDA 2	NOA 3	PATENTS 4	CITATIONS 5
LAWYER_CEO	-0.017** (-2.30)	-0.003*** (-2.70)	-0.017 (-1.50)	-0.228*** (-3.10)	-0.084** (-2.29)
LogTA	-0.076*** (-14.66)	-0.005*** (-4.76)	-0.101*** (-5.72)	0.309*** (10.56)	0.218*** (14.25)
ROA	0.085*** (6.78)	-0.030*** (-4.22)	0.246*** (4.23)	-0.119 (-1.16)	-0.056 (-1.04)
MB	0.001*** (3.37)	0.000 (0.50)	0.007*** (3.34)	0.011*** (3.53)	0.006*** (3.64)
LEVERAGE	-0.127*** (-7.54)	-0.016*** (-2.77)	-0.161*** (-3.95)	-0.486*** (-4.46)	-0.181*** (-3.19)
RETURN	0.007** (2.10)	-0.001 (-1.40)	0.010* (1.72)	0.006 (0.63)	0.005 (1.34)
VOLATILITY	-0.070*** (-2.89)	-0.006 (-1.12)	-0.330*** (-3.91)	0.468** (2.49)	-0.082 (-0.95)
AGE	-0.000 (-0.67)	0.000 (1.30)	-0.002* (-1.71)	0.003 (1.15)	0.001 (0.61)
TENURE	0.001*** (2.94)	-0.000 (-0.96)	0.003*** (2.91)	0.004 (1.36)	0.001 (0.88)
	<i>Firm FEs and Year FEs included</i>				
No. of obs.	16,067	18,025	15,421	18,027	18,027
R ²	0.35	0.85	0.56	0.87	0.91

Panel B. Firm and Industry \times Year Fixed Effects

	1	2	3	4	5
LAWYER_CEO	-0.017** (-2.23)	-0.002** (-1.97)	-0.024* (-1.90)	-0.104 (-1.40)	-0.053 (-1.41)
	<i>Controls, Firm FEs, and Industry \times Year FEs included</i>				
No. of obs.	16,067	18,025	15,421	18,027	18,027
R ²	0.42	0.85	0.60	0.88	0.92

value added or “balance sheet bloat.” They argue that high net operating assets provide a warning about the future profitability of investments. Finally, we study the innovative nature of R&D as measured by the number of patents (PATENTS) and patent citations (CITATIONS) following Kogan, Papanikolaou, Seru, and Stoffman (2017) and Dong et al. (2020). We obtain these data from WRDS US Patent data’s hosting of Kogan et al. (2017).

We test the relation between CEO legal training and investment by running panel regressions of IVA, RDA, NOA, and measures of patent productivity on Lawyer CEO with controls for firm characteristics. Our regression results are

reported in Table 6 with i) firm and year fixed effects included in Panel A models and ii) firm and industry-year fixed effects included in Panel B models.

Our results indicate that lawyer CEOs are associated with more conservative investment spending. In Panel A of Table 6, the coefficient on `LAWYER_CEO` is negative and significant in the IVA and RDA models. Relative to the unconditional rate of investment (coeff. = -0.017) and R&D (coeff. = -0.003), a lawyer CEO is associated with 26% less investment and 11% less investment in R&D, all else equal. This finding suggests that lawyers may eliminate risky parts of firm investments as well as R&D spending. The effect on NOA is negative, but not statistically significant. In models 4 and 5, we examine the firm riskiness of R&D and as measured by the patents and patent citations. Less innovative R&D will be associated with fewer patents and citations. Consistent with our conjecture, firms run by CEOs with legal expertise have both fewer patents and citations with the coefficients significant at 1% and 5% levels, respectively. This is, roughly, a reduction in 73 forward citations per year, and 1.5 patents per year.

In Panel B of Table 6, we append firm fixed effects with industry \times year fixed effects to allow for a robust identification of lawyer CEO effect. Here we observe significant negative coefficients in IVA, RDA, and NOA regressions and negative, but insignificant coefficients in patent regressions, which suggests a strong effect of time-varying industry omitted variables on patents and citations, following the innovation waves literature (e.g., Dicks and Fulghieri (2021)). In summary, we find evidence that changes in firm policies associated with CEOs with legal training are consistent with reduction in risky firm policies.

This far our results demonstrate that lawyer CEOs are associated with reduction in corporate litigation. This litigation reduction is beneficial to firms by reducing direct market value losses, as well as the costs associated with conducting this litigation. Litigation reduction may be achieved through two interconnected channels. First, lawyer CEOs are associated with an increase in the amount of legal gatekeepers within a firm. Second, through the nature of their own legal education and potentially the education of more gatekeepers, firms with a CEO with legal education also see a reduction in tangible and R&D investments. Reducing firm investment may defray the benefits of litigation reduction, at the cost the firm long-term growth opportunities.

V. Firm Value Implications of Lawyer CEOs

Our results indicate that the benefit of litigation reduction may be associated with some costs. Since these costs and benefits vary across firms, we study the settings where lawyer CEOs may be particularly valuable and lead to improvement in firm value. Our tests up until now have focused solely on the gross benefits of lawyer CEOs. This section examines when and where lawyer CEOs create value, net of any costs, for shareholders and firms.

A. Shock to Corporate Litigation and Compliance

We first study the value of lawyer CEOs by using a “natural experiment” that represents a shock to the litigation environment and compliance standards. Such

shocks increase the benefits of compliance and make a CEO with legal training more valuable to the firm because of her skills and ability to manage the firm in this new environment.⁸ Therefore, we expect to observe a more favorable market reaction to the shock for firms run by CEOs with legal expertise compared to those without.

We use the passage of the Sarbanes–Oxley Act (SOX) in 2002 as a powerful regulatory shock with a market-wide effect. SOX was designed to reduce financial malfeasance by defining new standards for external auditor independence, requiring top managers' personal accountability for the accuracy of financial reports, improving financial disclosure, reducing conflicts of interest, and setting more severe criminal penalties for white-collar crime.

Similar to other regulatory events, the Act's passage spanned a period of time from its introduction in the House by Representative Oxley on Feb. 14, 2002, to its signing by President Bush on July 30, 2002. This period was marked by three additional impactful and well-publicized milestones: the House of Representatives vote on Oxley's bill on Apr. 24, 2002, the Senate vote on Senator Sarbanes's bill on July 15, 2002, and the Congress vote on the combination bill of Sarbanes and Oxley on July 25, 2002.

We follow the methodology used in several studies, including Karpoff et al. (2008) in the context of firm litigation and Zhang (2007) in a more relevant setting of events leading up to the Sarbanes–Oxley Act. These studies estimate the market reaction to litigation events by cumulating abnormal returns over all informationally relevant pre-event dates. More specifically, we cumulate market model-adjusted returns using the value-weighted CRSP index over these 5 key dates on the Act's timeline. In one set of tests, we exclude the date of the bill signing because it is unlikely to have much market reaction due to its highly anticipated nature.

While the literature on the costs and benefits of Sarbanes–Oxley documents the evidence of both, Zhang (2007) finds that the event study over the Act's passage timeline yields negative abnormal returns consistent with it being a net cost to firms. If the event-study analysis captures the cost of the act, we expect this cost to be lower and, therefore, the return to be less negative for the firms managed by CEOs with legal experience.

In Panel A of Table 7, we report cumulative abnormal returns (CARs) for two groups of firms based on the legal training of the CEO. In column 1, firms with lawyer CEOs generate a significantly positive abnormal reaction (mean = 0.013, *t*-stat. = 2.16) to the passage of SOX, consistent with the greater value of the CEOs' legal expertise in a more regulated environment. The firms with nonlawyer CEOs experience a small negative reaction (mean = -0.009, *t*-stat. = -3.34). The difference, -0.022, is significant at the 1% level.

⁸An argument can be made that after better governance and improved financial reporting were mandated by SOX, the value of CEOs with legal training diminished. Further, firms without lawyer CEOs could have been benefitted the most from these changes with the corresponding market value gain. Our evidence is most consistent with Zhang (2007) and is consistent with the high initial costs of SOX to noncompliant firms. We also examine the effect of lawyers on litigation frequency before and after the Act's passage (reported in Table A4 in the Supplementary Material) and find no evidence of attenuation of their effectiveness after 2002.

TABLE 7
Lawyer CEO and Market Reaction Around SOX

Table 7 reports differences in cumulative abnormal returns (CAR) and the buy-and-hold abnormal returns (BHAR) surrounding a shock to litigation environment, proxied by the passage of Sarbanes-Oxley Act (2002) between firms with and without CEOs with legal training. CAR is computed by cumulating market-model adjusted returns on 5 key event dates on the timeline of the Act's passage following Karpoff, Lee, and Martin (2008). BHAR is computed the value-weighted market-adjusted buy-and-hold returns after the Act's passage. Panel A reports the results of *t*-test of the 2-sample difference of CAR and BHAR between firms with or without lawyer CEOs. Panel B presents cross-sectional OLS regression estimates to explain CAR and BHAR using LAWYER_CEO with controls. LAWYER_CEO is an indicator variable for a CEO with legal expertise. The control variables are identical to the baseline regression reported in Panel A of Table 3. The *t*-statistics are reported in parentheses below the estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variables			
	CAR at SOX Passage		Post-SOX BHAR	
	5 Event Dates 1	4 Event Dates (Excl. Pres. Bush Signing) 2	3-Month 3	6-Month 4
<i>Panel A. Two-Sample Differences</i>				
<u>LAWYER_CEO</u>				
Yes	0.013** (2.16)	0.015*** (3.13)	0.001 (0.06)	0.037* (1.67)
No	-0.009*** (-3.34)	-0.009*** (-3.79)	-0.054*** (-6.67)	0.000 (0.04)
Diff. (Yes-No)	-0.022*** (-3.35)	-0.024*** (-4.49)	-0.055** (-2.58)	-0.036 (-1.49)
<i>Panel B. OLS Regressions</i>				
LAWYER_CEO	0.014** (2.19)	0.015*** (2.89)	0.053** (2.47)	0.046* (1.83)
<i>Controls and Industry FEs included</i>				
No. of obs.	952	952	962	962
R ²	0.19	0.24	0.15	0.09

Furthermore, in column 1 in Panel B of Table 7, we test these differences in a regression that controls for the same set of firm and CEO characteristics as in our baseline litigation regressions in Table 3 and industry fixed effects. The coefficient of LAWYER_CEO is positive at 0.014 and statistically significant at the 5% level.

We repeat these analyses using cumulative announcement returns computed without the date on which the bill was signed into law. The exclusion of this milestone is justified by its largely anticipated nature due to the bill's strong bipartisan support. We obtain qualitatively similar, albeit marginally stronger results in both the 2-sample *t*-test and regression. Overall, these results suggest that during periods when firms experience a shock to the litigation environment, CEOs with legal training become more valuable to shareholders.

Going beyond the short-run market reactions, we also examine market-adjusted buy-and-hold returns over the 3- and 6-month holding periods commencing on the day of the bill's signing. These *t*-test and regression analyses reported in columns 3 and 4 in Table 7 also confirm higher abnormal returns in firms run by lawyers. The regression coefficient suggests 5.5% (*t*-stat. = 2.58) and 3.6% (*t*-stat. = 1.49) higher returns in the 3- and 6-month periods, respectively. The evidence suggests that the greater value of lawyer CEOs for shareholders after SOX is not immediately appreciated and is incorporated in stock prices with a few months' delay.

The market reaction to SOX supports our conjecture that lawyer CEOs are viewed by the market as particularly valuable during the regime in which litigation risk is heightened and compliance is demanded. The takeaway from this analysis is 2-pronged: i) CEOs with legal training have more value in environments with high compliance demands and high litigation risk and ii) by placing high value on the legal skill set of CEO during these regimes, the market communicates its support for the treatment effect.

B. Cross-Sectional Heterogeneity Across Industries

CEO legal training may also bring net benefits to firms in industries that have innate higher risk and cost of litigation. We thus study whether firm valuation and operating performance correlate with CEO legal training. We measure firm valuation by Tobin's Q and firm operating performance by the return on assets (ROA) and industry-adjusted ROA. The latter is computed by subtracting the annual 2-digit SIC mean ROA from firm ROA.

In addition to studying the relation between lawyer CEOs and firm valuation and performance, we focus on the subset of firms that can gain the most from litigation prevention and risk management. Specifically, we target two types of firms: those in high-litigation or high-growth industries. This choice is intuitive because, in high litigation firms, the reduction in litigation costs should be most valuable. High-growth firms may benefit more from the guidance related to disclosure, security issuance, insider trading, or intellectual property, which can also prevent costly litigation at the expense of future growth opportunities.

To capture the two types of firms, we construct the high litigation industry dummy (HIGH_LIT_IND) and the high growth industry dummy (HIGH_GROW_IND) and use its interaction with LAWYER_CEO to identify the effect of CEOs with legal expertise for such firms. HIGH_LIT_IND equals 1 if the firm belongs to the industry in the top 10th percentile of litigation frequency during our sample period, and 0 otherwise. HIGH_GROW_IND dummy includes industries that are in the 25% in revenue growth and top 25% in R&D or capital expenditure because firms tend to substitute investment in tangible assets with investment in intangible assets and vice versa. We use a wider cutoff point of 25% because this joint conditioning scheme results in too few HIGH_GROW_IND observations when the 10% cutoff is used. These classification schemes are largely nonredundant in that industries classified as high litigation or high growth have little overlap.

In Table 8, we present the results of panel regressions in which Tobin's Q , ROA, and industry-adjusted ROA serve as the dependent variables. The key independent variables are LAWYER_CEO and its interaction with HIGH_LIT_IND or HIGH_GROW_IND. We control for the main effect of the Industry dummies and the standard firm or CEO characteristics and year-fixed effects. We make small changes from our baseline set of control variables: we exclude market-to-book ratio in Tobin's Q regression because its effect would be similar to the lagged Tobin's Q . In the ROA regression, lagged ROA is replaced by a dummy variable LOSS which equals 1 if lagged ROA is negative, and 0 otherwise.

TABLE 8
Firm Valuation and Operating Performance

Table 8 presents OLS panel regression estimates of the relation between CEO legal training and firm valuation measured by Tobin's Q (TOBIN_Q) and firm performance measured by ROA and industry-adjusted ROA (IND_ADJ_ROA). LAWYER_CEO is an indicator variable for a CEO with legal expertise. HIGH_LIT_IND is an indicator variable for the firm in an industry within the top 10th percentile of litigation frequency over the sample period, and 0 otherwise. HIGH_GROW_IND is an indicator variable for the firm in an industry that is in the top 25th percentile of revenue growth and combined investment in R&D and CAPEX. All control variables are defined in the Appendix and are lagged by 1 year. Industry and year-fixed effects are included in all regressions. The t -statistics are computed using standard errors corrected for clustering of observations by firm and are reported in parentheses below the estimates. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variables					
	TOBIN_Q		ROA		IND_ADJ_ROA	
	1	2	3	4	5	6
LAWYER_CEO \times HIGH_LIT_IND	0.816** (2.56)		0.021 (1.36)		0.150*** (2.64)	
LAWYER_CEO \times HIGH_GROW_IND		0.868** (2.41)		0.045*** (2.70)		0.115*** (2.79)
LAWYER_CEO	-0.228*** (-3.08)	-0.248*** (-4.30)	-0.006 (-0.90)	-0.010 (-1.63)	-0.034** (-2.22)	-0.028* (-1.90)
HIGH_LIT_IND	0.333*** (3.39)		0.004 (0.59)		0.252*** (11.37)	
HIGH_GROW_IND		0.516*** (6.77)		-0.001 (-0.27)		0.321*** (28.20)
LogTA	-0.214*** (-7.23)	-0.200*** (-6.76)	-0.002 (-0.91)	-0.002 (-0.89)	-0.030*** (-7.53)	-0.022*** (-5.92)
ROA	0.407 (0.71)	0.416 (0.73)				
LEVERAGE	-0.457 (-1.12)	-0.372 (-0.92)	-0.048 (-1.30)	-0.048 (-1.30)	-0.113*** (-2.80)	-0.061 (-1.54)
MB			0.002*** (2.82)	0.002*** (2.76)	0.005*** (5.27)	0.003*** (3.94)
LOSS			-0.100*** (-13.41)	-0.100*** (-13.37)	-0.053*** (-5.36)	-0.059*** (-5.95)
RETURN	0.658*** (10.77)	0.644*** (10.53)	0.034*** (7.89)	0.034*** (7.88)	0.029*** (5.47)	0.025*** (4.87)
VOLATILITY	0.597 (1.43)	0.469 (1.16)	-0.359*** (-7.05)	-0.360*** (-7.06)	-0.174*** (-3.14)	-0.235*** (-4.23)
AGE	-0.017*** (-5.07)	-0.014*** (-4.28)	0.000 (1.12)	0.000 (1.12)	-0.001 (-1.45)	0.001 (1.45)
TENURE	0.004 (1.13)	0.005 (1.36)	0.000** (2.43)	0.001** (2.52)	-0.001 (-1.02)	-0.000 (-0.55)
			<i>Year FEs included</i>			
No. of obs.	18,013	18,013	18,014	18,014	18,014	18,014
R^2	0.16	0.17	0.14	0.14	0.23	0.34

Across six regressions in Table 8, for five out of six regressions, our main variable of interest, LAWYER_CEO \times HIGH_LIT_IND and LAWYER_CEO \times HIGH_GROW_IND are positive and statistically significant at the 5% level or better. The results indicate a positive effect of CEO's with legal expertise in high litigation and high growth environments. In contrast, the coefficient on LAWYER_CEO is negative for all six regressions and often statistically significant, indicating that, outside of high-litigation or high-growth industries lawyer CEOs are associated with lower firm value and poorer operating performance.

The magnitude of positive coefficients on these interaction terms is 3 to 4 times the coefficients on LAWYER_CEO. This suggests that in high-litigation and high-growth industries, the adverse effects of lawyer CEOs are attenuated and reversed.

For example, in Tobin's Q regression, the coefficient of `LAWYER_CEO` is -0.228 (t -stat. = -3.08), while the coefficient on `LAWYER_CEO × HIGH_LIT_IND` is 0.816 (t -stat. = 2.56), with both coefficients being statistically significant. The net effect of Lawyer CEOs in high litigation industries is positive and large ($0.816 - 0.228 = 0.588$), which is nearly 31% of Tobin's Q mean of 1.923. The effect of lawyers on Tobin's Q in high-growth industries is approximately 32% higher than the mean. We find a similar economic effect in ROA and industry-adjusted ROA regressions.

In summary, legal training of CEOs is related to higher firm value and better performance only when litigation is a significant concern, or legal guidance is important. However, outside of these industries, lawyer CEOs are associated with a negative effect on firm value and operating performance. This result suggests that the value of CEO legal skill is not universal and is valuable in settings where litigation risks and compliance costs are high. These findings also explain why we observe legal training only in a small portion of CEOs.

VI. Treatment Versus Selection: Additional Evidence

The main two goals of the article are to provide evidence on the marginal benefits and the offsetting costs of hiring a CEO with legal training and identify the circumstances under which the benefits outweigh the costs and vice versa. Therefore, selection effects are an important part of our analysis.

We observe evidence consistent with the treatment effect (i.e., the lawyer CEO effect survives firm and industry-year fixed effects; the effect of lawyer-CEO on litigation is long-term; personal legal network of CEO grows post-appointment; the market highly values lawyer-CEO post SOX consistent with treatment effect). At the same time, the introduction of firm-fixed effects and industry-year fixed effects that control for factors that can influence firm-CEO weaken the relationship between CEO legal training and litigation. This suggests that matching mechanisms are also at play in the CEO selection process. In this section, we contribute to the treatment versus selection question by using an identification strategy with an instrumental variable approach.

To establish the strength of treatment effect, we explore an instrument that affects firm litigation risk only through its relationship with CEO legal training. We identify the instrument on the supply side of CEO selection rather than the demand side as the supply channel is less likely to depend on the firm's litigation risk and violates the exclusion condition. Specifically, we use the proportion of executives in top 5 executive positions, outside of the firm's industry, but located within a 100-mile radius of the firm, whose credentials are suitable for the CEO position connected to a firm's board, denoted as `LAW_CEO_POOL`. We use `LAW_CEO_POOL` as an instrument in the first stage of 2-stage instrumental variable regressions to predict the choice of a lawyer CEO. In the second stage, the instrumented variable, denoted as `LAWYER_CEO*`, is used to predict lawsuit filings.

These results are reported in [Table 9](#). In the first model of the stage reported in Panel A, in regression 1 where firm and year fixed effects are included, the instrument is positive (0.140) and statistically significant (t -stat. = 2.50), which

TABLE 9
Instrumental Variable Regression

Table 9 presents 2-stage instrumental variable regression estimates to explain firm litigation with CEO legal training. Firm litigation is measured by the number of lawsuit filings per year. In Panel A, LAWYER_CEO is instrumented by LAW_CEO_POOL, defined as the number of lawyer CEOs outside of the firm's industry, but located within 100 miles of the firm divided by the total number of all CEOs, directors, and Top 5 executives in that area. In Panel B, the instrumented variable, LAWYER_CEO*, is used to predict firm litigation. The control variables are identical to those in the baseline regression in Panel A of Table 3. In specification 1, firm and year fixed effects are included, while in 2 firm and high dimensional industry-year fixed effects are included. The *t*-statistics are reported in parentheses and are computed using standard errors adjusted for clustering by firm. ***, **, and * indicate the coefficients' statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. First Stage Logit Regression and F-test

	Dependent Variable: LAWYER_CEO	
	1	2
LAW_CEO_POOL	0.140** (2.50)	0.152*** (2.67)
Fixed effects and controls	<i>Firm FEs,</i> <i>Year FEs and Controls</i>	<i>Firm FEs,</i> <i>Industry × Year FEs and Controls</i>
No. of obs.	18,027	18,027
Pseudo R ²	0.79	0.75
F-test for significance of instrument	2.51***	1.06*

Panel B. Second Stage OLS Regressions

	Dependent Variable: NUMBER_OF_LAWSUIT_FILINGS_PER_YEAR										
	ANTITRUST	CIVIL	CONTRACT	ENVIRON	INTEL_PROP	LABOR	PERS_INJURY	PROD_LIAB	SECURITIES	ALL	ALL_EXPL
	1	2	3	4	5	6	7	8	9	10	11
<i>i) Controlling for Firm FE, controls, and year FEs</i>											
LAWYER_CEO*	-2.753 (-0.79)	-3.890 (-0.74)	-10.221** (-2.05)	-0.343 (-0.52)	-1.637 (-1.12)	-0.874 (-0.75)	0.932 (0.23)	360.980 (1.56)	-5.580* (-1.76)	336.608 (1.47)	-22.384** (-2.23)
<i>ii) Controlling for Firm FE, controls, and industry × year FEs</i>											
LAWYER_CEO*	-1.639 (-0.71)	-2.252 (-0.61)	-9.452** (-2.46)	-0.239 (-0.35)	-1.050 (-1.02)	-0.313 (-0.38)	-0.153 (-0.06)	230.532 (1.40)	-4.059* (-1.73)	211.367 (1.29)	-17.868** (-2.53)

satisfies the relevance condition. The F -statistic that tests the validity of the instruments strongly rejects the null of a weak instrument (F -stat. = 2.51). Significant results are also observed in regression 2, where industry and state-fixed effects are in place of firm-fixed effects. We observe similar coefficients (coeff. = 0.152, t -stat. = 2.67) with considerably smaller albeit significant F -statistic (1.06), likely because of industry-geography correlation.

In the second stage regressions reported in Panel B of Table 9, when firm and year fixed effects are included in specification 1, the relation between the LAWYER_CEO* and litigation volume remains statistically significant in three reported regressions, including that for ALL_EXPL. In most regressions, the coefficient estimates of LAWYER_CEO* are negative. After appending firm fixed effects with industry and state fixed effects in specification 2, we observe qualitatively similar results.

The results here are weaker than those from the baseline regressions in Panel A of Table 3, which is not surprising as firm fixed effects can subsume the time-invariant, firm-specific heterogeneity, and industry-year fixed effects can subsume the time-varying industry heterogeneity in lawyer CEO supply, weakening the identification of our instrumental variable in the cross-section to only its geographic-specific component. Despite so, for both specifications, we observe a significant negative relationship between LAWYER_CEO* and the aggregate litigation frequency excluding product liability. In addition, LAWYER_CEO* carries a negative coefficient in nearly all but the product liability and ALL litigation regressions and one of the personal injury litigation regressions. We interpret the overall evidence to be consistent with lawyer CEO's active management of litigation.

Our previous reduced form estimates of litigation reduction achieve back-of-the-envelope benefits of an average of \$11 million/year. Our instrumented estimates of the effect of lawyer CEOs on litigation reduction is over 12 times larger. Back of the envelope benefits increasing in a similar manner may be as large as \$157.14 million a year in the value of reduced litigation. These more precise estimates of litigation reduction highlight the potential benefits to a firm. Yet simultaneously, based on our previous findings around the net benefits to firms, even these substantial benefits may still be achieved at value reducing costs.

VII. Conclusion

In this article, we study when and where CEOs with legal training add values to their firms. Lawyer CEOs are associated with a lower frequency of the majority of types of common corporate litigation and decreased severity. Counterbalancing this effect, we find that lawyer CEOs are associated with a reduction in tangible and innovative firm investments and a legal expansion of their personal network and firm employment.

Examining both the costs and benefits of a lawyer CEO in tandem, CEOs with legal experience improve the overall firm value under an exogenous shock to the litigation environment in the form of the Sarbanes–Oxley Act of 2002. We also find that the legal skill set of CEO is particularly valuable when compliance requirements are high and among industries with high litigation risk and high growth

potentials, where lawyer CEOs on average are associated with higher firm value and better operating performance. However, in firms outside of the high-growth or high-litigation industries, lawyer CEO conservatism negatively affects firm value.

Finally, we discuss whether these results are driven by the lawyer CEOs' active management of the firm (i.e., treatment effect) or CEO-firm matching (i.e., selection effect). We provide support for active CEO influence in an instrumental variable regression instrumented with the local pool of executives with legal expertise. As we better identify the effect of litigation reduction, our improved estimates show a 12 times increase in the benefits, and therefore an implied similar magnitude rise in the foregone investment policy-related costs of lawyer CEOs. Moreover, our result is not driven by omitted variables like CEO talent or other parties with legal training or unobserved state, firm, year, or industry-year heterogeneity.

Appendix. Variable Definitions

Litigation Dependent Variables

ANTITRUST: Number of antitrust lawsuits, defined by nature of suit (NOS = 410), filed in a fiscal firm year. Antitrust litigation deals with monopolization, price fixing and price discrimination, and similar offenses. Source: NACJD.

CIVIL: Number of employment civil rights lawsuits (NOS = 442) filed in a fiscal firm year. Employment civil rights litigation deals with intimidating acts or discrimination based on race, ethnicity, national origin, religious beliefs, gender, sexual orientation, or disability. Source: NACJD.

CONTRACT: Number of contract lawsuits filed (NOS = 190, 195) in a fiscal firm year. Contract litigation deals from contract breaches or contract disputes. Source: NACJD.

ENVIRON: Number of environmental lawsuits (NOS = 893) filed in a fiscal firm year. Environmental litigation deals with air, land, and water supply pollution. Source: NACJD.

LABOR: Number of labor lawsuits (NOS = 710, 720, 790) filed in a fiscal firm year. Labor litigation deals with union and labor disputes and other similar employee matters. Source: NACJD.

INTEL_PROP: Number of intellectual property lawsuits (NOS = 820, 830, 840) filed in a fiscal firm year. Intellectual property rights lawsuits deal with patent, copyright, and trademark infringements, false advertising, licensing, false marking, and trade secret matters. Source: NACJD.

PERS_INJURY: Number of personal injury lawsuits (NOS = 310, 340, 350, 360) filed in a fiscal firm year. Personal injury lawsuits deal with policies, conditions, or faulty products that caused injury or harm. Source: NACJD.

PROD_LIAB: Number of product liability lawsuits (NOS = 245, 315, 345, 355, 365) filed in a fiscal firm-year. Product liability lawsuits deal with faulty products that caused injury or harm. Source: NACJD.

SECURITIES: Number of securities lawsuits (NOS = 850) filed in a fiscal firm year. Securities litigation deals with activities unfairly influencing security prices, or otherwise benefiting from insider knowledge about security prices, such as

earnings manipulation, opportunistic merger and acquisition activities, security issuances, insider trading, option backdating, and other related events. Source: NACJD.

ALL: Number of all lawsuits (across all nine types) filed in a fiscal firm year. Source: NACJD.

ALL_EXPL: Number of all lawsuits filed in a fiscal firm-year across eight types that exclude product liability. Source: NACJD.

Independent Variables

LAWYER_CEO: Indicator variable equal to 1 if the CEO has a J.D. degree, Ph.D. in Jurisprudence, master's degree such as L.L.M. or an undergraduate degree such as L.L.B., and 0 otherwise. Source: hand collected.

AGE: Age of the CEO. Source: Execucomp.

TENURE: Number of years in the current CEO position defined as current year minus the year of appointment (BECAMECEO). Source: Execucomp.

EXEC_GC: Indicator variable equal to 1 if a firm has an executive general counsel, elevated to the firm's top 5 officers in pay rank, and 0 otherwise. Source: Execucomp.

LAWYER_DIR: Indicator variable equal to 1 if the firm has at least one director with legal background, and 0 otherwise. Source: ISS and Boardex.

ACC_DIR: Indicator variable equal to 1 if the firm has at least one director with accounting background, and 0 otherwise. Source: Boardex.

PHD_MD: Indicator variable equal to 1 if the CEO holds a Ph.D. or M.D., and 0 otherwise. Source: hand collected.

SCIENCE: Indicator variable equal to 1 if the CEO holds a degree in a STEM field, and 0 otherwise. Source: hand collected.

MBA: Indicator variable equal to 1 if the CEO holds an MBA, and 0 otherwise. Source: hand collected.

IVY: Indicator variable equal to 1 if the CEO holds an undergraduate or graduate degree from an Ivy League institution broadened to include Chicago and Stanford, and 0 otherwise. Source: hand collected.

FEMALE: Indicator variable equal to 1 if the CEO is female, and 0 otherwise. Source: Execucomp.

AGE_FIRST_CEO: Age at first CEO appointment. Source: Execucomp.

Control Variables

LogTA: Natural logarithm of a firm's total book assets (AT) in millions of dollars. Source: Compustat.

ROA: Return on total assets defined as net income (NI) over total assets (AT). Source: Compustat.

LOSS: Indicator variable equal to 1 if ROA < 0, and 0 otherwise. Source: Compustat.

MB: Market to book ratio defined as market value of equity (PRCC_F) over book value of equity (BKVLP5). Source: Compustat.

LEVERAGE: Debt in current book liabilities (DLC) and long-term book debt (DLTT) divided by total book assets (AT). Source: Compustat.

RETURN: Market-adjusted monthly return (RET) compounded over the fiscal year. Source: CRSP.

VOLATILITY: Standard deviation of monthly stock returns (RET) computed over the fiscal year. Source: CRSP.

Legal Network or Talent Pool

%LAWYER_IN_NWRK: The number of individuals within the network of each board member with a J.D. degree, Ph.D. in Jurisprudence, master's degree such as L.L.M. or an undergraduate degree such as L.L.B., divided by the total number of individuals within each board member's network. Source: BoardEx.

%LAW_DIR: The number of directors on the board with a J.D. degree, Ph.D. in Jurisprudence, master's degree such as L.L.M. or an undergraduate degree such as L.L.B., divided by the total number of directors on the board. Source: BoardEx.

%LAW_COMP_OFFIC: The number of compliance officers in a firm with a J.D. degree, Ph.D. in Jurisprudence, master's degree such as L.L.M. or an undergraduate degree such as L.L.B., identified by SEC Power of Attorney disclosures, divided by the total number of compliance officers in a firm each year. Source: WRDS Insiders, S&P People Intelligence, BoardEx.

LAW_CEO_POOL: The number of lawyer CEOs outside of the firm's industry, but located within 100 miles of the firm divided by the total number of all CEOs, directors, and Top 5 executives in that area.

Firm Outcome Variables and Industry Definition

IVA: Change in gross tangible assets (PPEGT) and inventory (INVT) divided by lagged total book assets (TA). Source: Compustat.

RDA: Research & Development expense (XRD) divided by total book assets (TA). Source: Compustat.

NOA: Operating assets minus operating liabilities divided by lagged total book assets (TA). Operating assets are total book assets (AT) minus cash and short-term investment (CHE). Operating liabilities are total book assets (AT) minus the sum of short-term debt (DLC), long-term debt (DLTT), minority interest (MIB), preferred stock (PSTK), and common equity (CEQ). Source: Compustat.

PATENTS: The inverse hyperbolic sine transformation of the total number of patents filed in a calendar year by a firm, taken from Kogan et al. (2017).

CITATIONS: The inverse hyperbolic sine transformation of the total number of forward cites of a firm's patents in a calendar year, taken from Kogan et al. (2017).

TOBIN_Q: Ratio of market values of debt (AT-SEQ) and equity (CSHO*PRCC_F) to total book assets (TA). Source: Compustat.

IND_ADJ_ROA: ROA less the annual SIC 2-digit industry mean ROA. Source: Compustat.

HIGH_LIT_IND: Indicator variable equal to 1 if a firm is in an industry within the top 10th percentile of litigation frequency over the sample period, and 0 otherwise. Source: NACJD.

HIGH_GROW_IND: Indicator variable equal to 1 if a firm is in an industry that is in the top 25th percentile of revenue growth and combined investment in R&D and CAPEX, and 0 otherwise. Source: Compustat.

Supplementary Material

To view supplementary material for this article, please visit <http://doi.org/10.1017/S0022109023001333>.

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