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Sticky Charters? The Surprisingly Tepid Embrace of Officer-Protecting Waivers in Delaware

Law Working Paper N° 762/2024
March 2024

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Abstract

This article investigates the reaction to a much-heralded 2022 legal reform in Delaware that permitted a corporation's charter to exculpate its officers from monetary exposure for breaching their fiduciary duty of care. To isolate reactions to this statutory reform, we make extensive use of generative AI tools to identify and interpret charter amendments that introduce officer-facing waivers. We find a surprisingly tepid rate of uptake among Delaware corporations through the end of the first post-reform year, notwithstanding widespread predictions that corporate entities would quickly storm the exculpation exits once permitted to do so. Our study makes two contributions to the empirical study of law—one methodological and the other substantive. Methodologically, we develop a novel and powerful use case for deploying large language models as a tool for distilling and extracting technical provisions from legal texts (in this case corporate charters), allowing us to accelerate and streamline an endeavor that would have consumed substantial time and resources using traditional human-labeling protocols. Notably, and in a significant departure from previous machine learning tools, ChatGPT accomplishes this set of tasks without the need for training data specifically tailored for this purpose. Perhaps most impressive is the accuracy with which ChatGPT can operate: we perform several validation exercises, which generally indicate that our proposed method yields highly accurate results. Substantively, we demonstrate that Delaware's statutory invitation attracted few takers in its first year of effectiveness: specifically, we show that only a modest minority of eligible corporations amended their charters to include officer-facing waivers. This tepid rate of uptake, moreover, persists even in corporations that went public after the reform's effective date, suggesting that transaction costs are unlikely to be the culprit for the listless response. Furthermore, we show that stock market investors also exhibited a muted response to the reform, raising doubts about whether firms feared amendments would trigger an adverse market reception. Our results seem more consistent with alternative explanations, ranging from the plausible irrelevance of Delaware's reform, to a risk-averse reticence among corporate managers who rationally adopt a "wait and see" approach to gauge how such waivers are received by both courts and corporate stakeholders while keeping their options open.

Keywords: corporate governance, fiduciary duties, officer liability, natural language processing, large language models

JEL Classifications: K22

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STICKY CHARTERS? THE SURPRISINGLY TEPID EMBRACE OF OFFICER-PROTECTING WAIVERS IN DELAWARE

Jens Frankenreiter & Eric Talley[*]

March 19, 2024

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Introduction

In corporate law circles, contractarianism is all the rage. Once again. This now-familiar account of corporate law traces its roots at least as far back as Easterbrook and Fischel's seminal 1991 manuscript that unapologetically advanced the thesis that corporate law is best understood as network (or nexus) of interconnected contracts. By their accounting then (and now), corporate law is—by and large—an *enabling* body of law: Outside of a few "off-limits" exceptions, corporate law permits participants in the corporate contract to contract over cash flow and control rights in ways that (the theory goes) will maximize the surplus available.[1] The contractarian account of corporate law always had and still has today ample critics, many of whom argue that corporate structures are sufficiently complex and externality-laden that a strong commitment to contractarianism is destined to collapse on itself.[2] And even if it does not, contractarianism is thought to sow the seeds of exacerbating wealth and income inequalities.[3]

Whatever its overall policy merits, contractarianism has proven exceedingly powerful in academic corporate law debates. So much so, in fact, that it is now well accepted that corporate law permits (and even invites) a significant amount of tailoring, so long as attempts to do such tailoring to not transgress a winnowing inventory of "off-limits" boundaries.[4] Contractarianism's allure is not simply confined to academic audiences. Legislators and judges have embraced it as well, if somewhat more belatedly. A significant amount of corporate law innovation in the last quarter century has pivoted on the opening of intra-corporate rights and obligations to the domain of contracting. Such movements are by now unexceptional: they include (among other things) now-widespread waivers of directors' fiduciary duties of care,[5] of the corporate opportunity doctrine,[6] of appraisal rights,[7] or even of fraud liability;[8] the embrace of

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[1] FRANK H. EASTERBROOK & DANIEL R. FISCHEL, THE ECONOMIC STRUCTURE OF CORPORATE LAW (1991).

[2] *E.g.*, John C. Coffee, Jr., *No Exit?: Opting Out, the Contractual Theory of the Corporation, and the Special Case of Remedies*, 53 BROOK. L. REV. 919, 936 (1988).

[3] *See* Reza Dibadj, *Beyond Facile Assumptions and Radical Assertions: A Case for "Critical Legal Economics"*, 2003 UTAH L. REV. 1155, 1189–90, 1199 (2003).

[4] *See* Manti Holdings v. Authentix Acquisition Co., 261 A.3d 1199, 1217 (2021) (explaining flexibility permitted under corporate law); *id.* at 1204 (noting that some "fundamental features of a corporation" that "cannot be waived"); *see, e.g.*, Jonathan G. Rohr, *Corporate Governance, Collective Action and Contractual Freedom: Justifying Delaware's New Restrictions on Private Ordering*, 41 DEL. J. CORP. L. 803, 806–08 (2017) (stating that Delaware corporate law prohibits fee shifting and limits forum selection).

[5] DEL. CODE ANN. tit. 8, § 102(b)(7) (2022).

[6] DEL. CODE ANN. tit. 8 § 122(17) (2022).

[7] *Manti Holdings*, 261 A.3d at 1204.

[8] *Fortis Advisors LLC v. Johnson & Johnson*, No. 2020-0881-LWW, 2021 WL 5893997, at *11 (Del. Ch. Dec. 13, 2021) (stating lack of "general rule prohibit[ing] parties from using contracts to shield themselves for liability from their own fraud.") (quoting RAA Mgmt., LLC v. Savage Sports Holdings, Inc., 45 A.3d 107, 116 (2012)).

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dual class stock;[9] the permissibility of tenured and volume-diluted voting schemes;[10] and the use of inter-shareholder contracts to outflank supposedly immutable duties in corporate law.[11] If such deviations from corporate law's default rules are adequately disclosed and executed in the appropriate document,[12] the theory goes, sophisticated investors will adjust their willingness to pay accordingly, and a self-interested corporate designer will have the incentives to design rules that attract (or at least don't scare away) investment capital.[13] Arguments of this ilk have backstopped most rationales for expanding corporate contractarianism, toppling in the process several of the "off limits" shibboleths that courts have traditionally imposed.

In this article, we consider the most recent example where contractarianism has jostled the traditional boundaries of corporate law: the 2022 Delaware reform that expanded corporations' power to waive certain fiduciary duties for officers (and not just directors) of firms incorporated in the state. The famous antecedent to this reform is by now a familiar tale to students of Delaware corporate law: In 1986, Delaware amended its statutes to permit corporate charters to waive monetary exposure for *directors* found to have breached their fiduciary duty of care. That reform—codified in § 102(b)(7) of the Delaware General Corporate Law—came on the heels of a landmark opinion holding that board members could be held liable for failure to discharge their duty of care: i.e., gross negligence in the process by which directors prepared a decision to sell the company.[14] Significantly, the statute left several facets of fiduciary duties off limits for a (so-called) "102(b)(7) waiver," including the duty of loyalty, bad faith conduct, claims seeking injunctive relief, and actions alleging a breached duty as predicate offence in an aiding-and-abetting claim brought against a third party (such as a financial or legal advisor).[15]

An equally curious omission from the 1986 statute was any provision for waiving the duty of care for corporate *officers*.[16] Only directors could benefit from a 102(b)(7) waiver, and then only if the waiver was explicitly enshrined in the corporate charter.[17]

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[9] Del. Code Ann. tit. 8 § 151(a); *see* David T. White, *Delaware's Role in Handling the Rise of Dual-, Multi-, and Zero-Class Voting Structures*, 45 DEL. J. CORP. L. 141, 142–44 (2020); Paul H. Edelman et. al., *Will Tenure Voting Give Corporate Managers Lifetime Tenure?*, 97 TEX. L. REV. 991, 991 (2019).

[10] Edelman, *supra* note 8, at 997–98 (discussing use of tenure voting); Sarah C. Haan, *Voting Rights in Corporate Governance: History and Political Economy*, HARV. L. SCH. F. CORP. GOVERNANCE (Jan. 31, 2023), https://corpgov.law.harvard.edu/2023/01/31/voting-rights-in-corporate-governance-history-and-political-economy/ (discussing use of volume diluted voting schemes or "voting caps").

[11] *See* Gabriel Rauterberg, *The Separation of Voting and Control: The Role of Contract in Corporate Governance*, 38 YALE J. ON REGUL. 1124, 1124, 1134–35 (2021).

[12] *See, e.g.,* West Palm Beach Firefighters' Pension Fund v. Moelis & Co., 2024 WL 747180 (Del. Ch. 2024) (invalidating contractual control provisions that were inappropriately executed outside the corporate charter).

[13] EASTERBROOK & FISCHEL, *supra* note 1, at 4–6.

[14] *Smith v. Van Gorkom*, 488 A.2d 858, 864 (1985).

[15] DEL CODE ANN. tit. 8 § 102(b)(7) (1988).

[16] *Id.*

[17] *Id.*

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In the years following the 1986 reform, Delaware corporations quickly flocked to adopt charter provisions that embraced this new protection, typically deploying language that parroted back the express terms of the statute verbatim. By 2020, in fact, over 95% of Delaware incorporated public companies had adopted such a provision.[18]

Three and a half decades after § 102(b)(7)'s genesis, the Delaware legislature revisited the section once again in 2022, allowing—for the first time—a corporate charter to waive monetary exposure for *officers* found to have breached their duty of care.[19] Although the 2022 amendment placed even more strings on officer-facing waivers (most significantly an explicit exclusion for derivative litigation[20]), the change brought about what many commentators perceived to be a significant expansion of the enabling landscape in Delaware.[21] Dozens of client alerts advised clients not to walk, but to run to amend their charters to make use of this new permissive wiggle room.[22] Newly public companies, too, were advised to make maximal use of duty-of-care waivers.[23] Yet not everyone was impressed. Some observers pointed to the

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[18] Frankenreiter et al., *Cleaning Corporate Governance*, 170 U. PA. L. REV. 1 (2021).

[19] DEL CODE ANN. tit. 8 § GCL 102(b)(7) (2022).

[20] *Id.*

[21] *See* Sandra Feldman, *Delaware Corporations can Now Limit the Liability of Senior Officers for Breaches of the Duty of Care*, WOLTERS KULWER (Aug. 2, 2022), https://www.wolterskluwer.com/en/expert-insights/delaware-corporations-can-now-limit-the-liability-of-senior-officers (describing the amendment as a "significant development").

[22] *See* Ethan Klingsberg & Oliver Board, *DGCL Amendment Merits Amending Charters and Engagement with Institutional Shareholders,* HARVARD CORPORATE GOVERNANCE FORUM, September 4, 2022 ("Amendments to the charters of Delaware corporations are advisable as a result of a new amendment, effective August 1, 2022, to the Delaware General Corporation Law (the DGCL) that permits the extension of exculpation rights to executive officers."); Ethan Klingsberg, Pamela Marcogliese, & Elizabeth Bieber, *To Exculpate, or Not to Exculpate: Is It Even a Question?,* HARVARD CORPORATE GOVERNANCE FORUM, March 8, 2023 ("we believe the benefits of exculpation are significant and, at most companies, worth the costs of pursuing shareholder approval of a charter amendment"); Stuart C. Rogers & Andrew T. Sumner, *Securities Law / Securities Litigation Advisory: Recent Amendments to the Delaware Code Expand Personal Liability Protections to Corporate Officers*, ALSTON & BIRD (Aug. 11, 2022), https://www.alston.com/en/insights/publications/2022/08/recent-amendments-to-the-delaware-code ("Language within corporate charters reflecting the new changes is expected to become industry standard in the coming months, particularly for newly formed companies."); Exculpation of Officers of Delaware Corporations from Liability for Breach of Fiduciary Duties Now Permitted, BAKER BOTTS (Aug. 18, 2022), https://www.bakerbotts.com/thought-leadership/publications/2022/august/exculpation-of-officers-of-delaware-corporations ("We strongly recommend each Delaware corporation consider [amending its charter] to exculpate its officers from personal liability from monetary damages . . . we believe this protection . . . will quickly become standard practice among Delaware corporations"); Roger A. Cooper & Mark E. McDonald, *Delaware Extends Exculpation from Personal Liability to Senior Officers*, CLEARY GOTTLIEB (Jan. 17, 2023), https://www.clearygottlieb.com/news-and-insights/publication-listing/delaware-extends-exculpation-from-personal-liability-to-senior-officers ("Some companies have, since the passage of the amendment, successfully amended their charters and ISS and Glass Lewis have generally supported these measures.").

[23] Spencer D. Klein and JD Husband, *Should You Amend Your Charter to Provide for Officer Exculpation? Key Considerations for Delaware Corporations*, MORRISON FOERSTER (Feb. 16, 2023),

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reform's limited scope and questioned whether officer-facing waivers would see widespread adoption.[24]

We are now more than a year into Delaware's experiment expanding the permissible space of care waivers to officers—a significant milestone because it guarantees that all Delaware companies will have had an opportunity to seek a charter amendment as part of their annual meeting calendar. This timing affords us a propitious opportunity to assess how (or whether) Delaware corporations have responded to this newest exculpation experiment. In the pages below, we assess the patterns of uptake through a newly created dataset of officer-level fiduciary duty waivers within Delaware corporations.

Our analysis makes contributions that are both methodological and substantive in nature, and both are highly relevant for the empirical study of law. Methodologically, our inquiry builds from our prior work assembling a comprehensive corpus of corporate charters.[25] For the analysis presented here, we substantially update and extend this corpus in both breadth and time. But perhaps our largest methodological contribution concerns *how* we executed that expansion. While the charters identified in our original corpus were the product of meticulous collective efforts by human coders, our new data set was assembled with an algorithm that scoured all filings available on the SEC's EDGAR database, a process that required minimal human supervision or intervention.[26] To validate our new approach to collecting charters, we include a comparison of how our algorithmically harvested data stack up against comparators collected by human research assistants similarly tasked with scouting EDGAR for such amendments.[27] In short, it performs exceptionally well.

Our methodological contribution breaks additional ground by marshaling generative AI and large language models (LLMs) as a key tool for interpreting the content of harvested documents. Specifically, we make use of OpenAI's ChatGPT platform to smoke out officer-exculpating waiver amendments within corporate charter amendments, significantly reducing the time and costs compared to conventional human coding methods.[28] In a significant departure from previous machine learning tools, ChatGPT accomplishes this task without the need for training data specifically tailored for this purpose. To assess the accuracy and reliability of our

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https://www.mofo.com/resources/insights/230216-should-you-amend-your-charter ("Moving forward, companies going public should strongly consider including the officer exculpation provision in their IPO charters. In this scenario, the company receives the benefits of officer exculpation without the potential downside of stockholder concern that the added protection could lead to inadequate risk management by officers.").

[24] Ann Lipton, *Exculpation*, BUSINESS LAW PROF BLOG, Aug. 6, 2022, https://lawprofessors.typepad.com/business_law/2022/08/exculpation.html.

[25] Frankenreiter et al., *supra* note 18.

[26] *See infra* Section III.A.1.

[27] *See infra* Section III.A.2.

[28] *See infra* Section II.

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automated approach to charter interpretation, we once again complement our automated process with a validation step, comparing its outputs against data compiled by research assistants for a select group of companies.[29] This test also produces highly accurate results, as strong or stronger than traditional manual processes. Overall, this analysis constitutes powerful use case for deploying large language models as a tool for distilling and extracting technical provisions from legal, allowing us to accelerate and streamline an endeavor that would have consumed substantial time and resources using traditional human-labeling protocols.

Substantively, our AI-built dataset permits us to assess whether—as many had predicted—Delaware-incorporated companies rushed to amend their charters to extend fiduciary waiver provisions to officers. And to the extent that they did, we are also in a position to explore what key factors predict whether a corporation adopts an officer-facing waiver, as well as the capital market's reaction to such moves. Our results paint a picture of a surprisingly tepid response to Delaware's invitation. Only a small, single-digit percentage of public Delaware corporations amended their charters in the first year after the reform to include an officer-exculpating provision.[30] Even a smaller percentage had preexisting provisions in their charters that would automatically extend such protections to officers upon the reform's enactment.[31] Of those Delaware corporations that *did* move to amend their charters, most tended to be larger than the average U.S. publicly traded firm, though none of them falls within the highest echelon of public issuers (as measured by market capitalization and inclusion in the Dow Jones Industrial Average).[32] Economically, adopters generally exhibited stronger earnings performance in the years leading up to the reform.[33]

Even if uptake was limited on a head-count basis, might the market have responded to officer waivers with greater alacrity (in either the positive or negative direction)? To explore this possibility, we employ a series of event studies to examine the stock market's reaction both to the introduction of the reform proposal, as well as to the response to individual corporations' decisions to adopt officer-facing waivers. Our analysis indicates that investors did not perceive the new availability of officer-facing waivers to be generally problematic, and if anything the market's response was positive.[34] By the same token, we document a slightly negative market response to issuers who *actually proposed* officer exculpation.[35] This dichotomy is consistent with the view that while market participants overall viewed the reform's increased legal flexibility favorably (aligning with a contractarian perspective of corporate law), the decision by self-selected companies to swiftly exploit this newfound flexibility raised

[29] *See infra* Section III.B.2.
[30] *See infra* Section IV.B.
[31] *See infra* Section IV.A.
[32] *See infra* Section IV.C.
[33] *Id.*
[34] *See infra* Section V.B.
[35] *See infra* Section V.A.

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some suspicions. In particular, quick adoption might convey adverse signals about those firms' governance quality or short-term risk profiles.

Finally, after establishing that corporations generally did not experience severe adverse stock market reactions when adopting a waiver, we turn our attention to whether the transaction costs associated with amending a corporation's charter could be influencing the limited uptake. Our investigation, however, reveals several insights that appear inconsistent with this hypothesis. Notably, even among companies that went public in an IPO after the reform, a slight majority chose not to incorporate an officer waiver into their charters.[36] Additionally, numerous corporations undertaking significant charter amendments post-reform did not exploit the opportunity to introduce a liability waiver provision as part of the mix.[37] We are therefore skeptical that inertia or transaction costs have played a prominent role in restraining corporations from proposing waiver amendments that would otherwise be valuable.

This leaves open the question of what *does* explain the tepid uptake. We view two alternative explanations as the most plausible. The first is that officer-level waivers are simply not as important as advertised, possibly because there are many substitute strategies for accomplishing the same end. Indeed, Delaware's statutory embrace of fiduciary waivers has not occurred in a vacuum. Along with this reform, corporate actors have won significant freedoms to use other contractual vehicles to sidestep the consequences of officer liability, such as through shareholder agreements that limit / eliminate the ability to sue for a breach of duty.[38] To the extent that such alternatives already provide a mechanism to shield officers without resort to a charter amendment, the revision of Delaware's statutes may simply be redundant of other tools.

An alternative hypothesis consistent with our results is that issuers value taking a "wait and see" approach to officer waivers. They may, for example, be risk averse about how such provisions will be interpreted in the courts. At present, there is simply no track record for interpreting officer-facing waivers, and thus no guarantee that such innovations will be treated just like their director-facing counterparts. A related possibility is that issuers interested in officer waivers find it necessary to socialize their shareholders and other stakeholders to the idea, a process that may take longer than a year (particularly when peer firms are also sitting on the sidelines). Such possibilities are not far-fetched: While corporate actors did make haste to embrace director-facing waivers immediately after the 1986 reform that introduced this option,[39] not all waiver-enabling statutes have had such immediate adoption. Indeed, one of us has shown that adopting "corporate opportunity waivers" for their officers, directors, or controlling

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[36] *See infra* Section VI.A.2.

[37] *See infra* Section VI.A.1.

[38] *See, e.g.*, *Manti Holdings*, 261 A.3d; New Enterprise Associates 14 v. Rich, 292 A.3d 112 (Del. Ch. 2023).

[39] Roberta Romano, *Corporate Governance in the Aftermath of the Insurance Crisis*, 39 EMORY L. J. 1155 (1990), at 1160-1.

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shareholders took years.[40] Such waivers only became widespread 5-7 years after Delaware statutes started authorizing them.[41] Charter revisions may be "sticky" because issuers are rationally waiting for others to serve as the proverbial canaries in the coal mine. To the extent that these first movers emerge unscathed, it may cause (or foreclose) a cascade of other adopters. While such hypotheses can be empirically tested, doing so requires waiting a sufficient amount of time for such cascades to take hold.

The findings of this article speak to several audiences. For students and practitioners of corporate law, ours is the first academic study[42] to systematically establish the noticeable hesitation among companies in adopting modified 102(b)(7) waivers following the 2022 Delaware reform. This muted reaction is particularly interesting given earlier predictions from some law firms about these waivers becoming increasingly standard in the industry. The reluctance observed might indicate that companies, while plausibly seeing some value in enhanced executive liability protection, do not perceive the value proposition of proceeding at breakneck speed.

Our analysis also bears on the academic discourse on contractual evolution and the role of boilerplate in corporate contracting.[43] Our analysis explores but ultimately finds little support the theory that the relative difficulty in altering corporate charters is behind firms' reticence to adopt officer-facing waivers. Additionally, our findings hint at the potential significance of the availability of standardized templates in promoting the adoption of new contractual provisions. Notably, we observe that among the few waivers enacted, most employ bespoke language, contrasting with many of the pre-existing directors-only waivers which often rely heavily on standardized wording.[44] This finding raises an interesting question about whether the absence of a widely accepted template may have played a part in deterring corporations from implementing modified waivers.

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[40] Gabriel Rauterberg & Eric L. Talley, *Contracting Out of the Fiduciary Duty of Loyalty: An Empirical Analysis of Corporate Opportunity Waivers*, 117 COLUM. L. REV. 1075 (2017).

[41] *Id.*

[42] Several law firms have compiled reports attempting to quantify the number of officer-facing waivers adopted. *E.g.*, Brian V. Breheny, Allison L. Land & Ryan J. Adams, *Officer Exculpation Under Delaware Law—Encouraging Results in Year One*, HARVARD CORPORATE GOVERNANCE FORUM, June 1, 2023; Klingsberg et al., *supra* note 22; Douglas K. Schnell & Daniyal Iqbal, *Lessons from the 2023 Proxy Season: Advance Notice Bylaws and Officer Exculpation*, HARV. L. SCH. F. CORP. GOVERNANCE (Sept. 5, 2023), https://corpgov.law.harvard.edu/2023/09/05/lessons-from-the-2023-proxy-season-advance-notice-bylaws-and-officer-exculpation/; WEIL GOTSHAL & MANGES, Officer Exculpation Charter Amendments: A 2023 Proxy Season Review (2023).

[43] *See, e.g.*, Michael Klausner, *Market Failure and Community Investment: A Market-Oriented Alternative to the Community Reinvestment Act*, 143 U. PA. L. REV 1516 (1995); Marcel Kahan & Michael Klausner, *Standardization and Innovation in Corporate Contracting (or "the Economics of Boilerplate")*, 83 VA. L. REV 713 (1997).

[44] *See infra* Section IV.B.

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Finally, and significantly, our article contributes to an important set of applications combining law and computational methods,[45] demonstrating how generative AI can be leveraged to assist in constructing large-scale datasets that report features of legal text. As others have noted, validation is crucial when using such big-data methods.[46] And on this score, we illustrate how comparing ChatGPT-generated data with human-coded data can help evaluate the reliability of automated approaches to coding.

Our analysis proceeds as follows. Section **Error! Reference source not found.** p rovides some background on the 2022 reform of DGCL §102(b)(7). In Section II, we conceptualize our utilization of ChatGPT within the framework of a legal research project, emphasizing the transformative potential of this and similar tools. Section III describes our data collection process. Section IV reports the study's findings, followed by an exploration of the study's implications in Section VII, and a brief conclusion.

I. Legal Background

Delaware corporations are situated within a legal framework that has traditionally regarded fiduciary duties—and other fundamental shareholder protection mechanisms like appraisal rights—as immutable, standing outside the extensive customization available in corporate arrangements.[47] However, a series of legislative and judicial actions have gradually allowed for increased flexibility in modifying fiduciary duties under Delaware corporate law, with firms generally showing a strong appetite for this enhanced flexibility. The 2022 reform of DGCL Section 102(b)(7), which we explore in this article, marks one of the latest advancements in expanding this flexibility.

A. Previous Moves towards greater Customizability

1. DGCL §102(b)(7) (1986)

One of the earlier moves of the modern development towards more customizability of fiduciary duties was the adoption of DGCL § 102(b)(7) in its original form, enacted by the Delaware legislature on July 1, 1986.[48] This move was primarily motivated by a perceived crisis in the market for D&O insurance, coupled with

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[45] *See, e.g.*, Jens Frankenreiter & Michael A. Livermore, *Computational Methods in Legal Analysis*, 16 ANN. REV. L. & SOC. SCI. 39 (2020).

[46] *Cf.* JUSTIN GRIMMER, MARGARET E. ROBERTS & BRANDON M. STEWART, TEXT AS DATA: A NEW FRAMEWORK FOR MACHINE LEARNING AND THE SOCIAL SCIENCES (2022) (discussing validation in the context of the use of natural language processing techniques in social science).

[47] *See also* Lucian Arye Bebchuk & Assaf Hamdani, *Optimal Defaults for Corporate Law Evolution*, 96 NW. U. L. REV. 489, 496 n.16 (2002); Bernard S. Black, *Is Corporate Law Trivial?: A Political and Economic Analysis*, 84 NW. U. L. REV. 542, 551–53 (1990); Melvin Aron Eisenberg, *The Structure of Corporation Law*, 89 COLUM. L. REV. 1461, 1486 (1989); Marcel Kahan, *The Qualified Case Against Mandatory Terms in Bonds*, 89 NW. U. L. REV. 565, 607 n.164 (1995); Rauterberg & Talley, *supra* note 40.

[48] Elizabeth A. Nowicki, *Director Inattention and Director Protection under Delaware General Corporation Law Section 102(b)(7): A Proposal for Legislative Reform*, 33 DEL. J. CORP. L. 695, 708, n. 38.

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concerns that directors might be less willing to serve on boards than in the past.[49] These concerns were amplified by the Delaware Supreme Court's decision in *Smith v. Van Gorkom*, which found TransUnion's board liable for a breach of the duty of care due to the hasty approval of the company's sale to financial investors.[50] In adopting DGCL § 102(b)(7), the Delaware legislature opted for a solution that curtailed liability while allowing stockholders some say over whether to accept limited liability or not,[51] preferring this method over other options, such as capping total director liability.[52]

To understand the exclusive focus of §102(b)(7) on directors, it is important to recognize that, at the time of its enactment, shareholder lawsuits predominantly targeted directors. This trend was significantly shaped by Delaware's "implied consent" statute, which allowed Delaware courts to assert personal jurisdiction over non-resident directors of Delaware corporations, but not over officers.[53] Consequently, it was relatively rare for officers to be named in lawsuits, likely contributing to their initial exclusion from the protections offered by DGCL §102(b)(7).

Corporations are often assumed to have almost universally embraced liability waivers,[54] and our recent work has confirmed their widespread adoption among

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[49] Romano, *supra* note 39. The bill's legislative synopsis explicitly described § 102(b)(7) as "a legislative response to recent changes in the market for directors' liability insurance... [which] has become a relatively standard condition of employment for directors." The synopsis went on to note that the unavailability of traditional insurance policies made directors less willing to serve on boards, thus "threaten[ing] the quality and stability of the governance of Delaware corporations..." LEGISLATIVE SYNOPSIS to S. 533, 133d Del. Gen. Assembly (1986).

[50] *See* Romano, *supra* note 39, at 1160. Note that the question of whether *Smith v. Van Gorkom* impacted the insurance crisis is subject to debate. Compare Interview by Edward McNally and Morris James with E. Norman Veasey, Former Chief Justice, Del. S. Ct., [in Philadelphia, Penn.] (Jun. 20, 2017) (Veasey describing "the insurance crisis [as] a kind of a perfect storm there that was inspired, I guess, by [the] whole takeover thing... and aggravated by the *Van Gorkom* case...") and Interview by Edward McNally and Morris James with Stephen Lamb, Former Vice Chancellor of Del. Ct. of Chancery., [in Philadelphia, Penn.] (Mar. 21, 2017) (Lamb stating that the Corporation Law Council began considering an amendment like 102(b)(7) with "the issue of the D&O [insurance] crisis coming up... in conjunction with probably some general unhappiness about the Delaware Supreme Court's recent decision in the *Van Gorkom* case.) with Charles J. Hartmann, Pamela Gayle Rogers, *The Influence of Smith v. Van Gorkom on Director's and Officer's Liability*, Vol. 58 No. 3 J. OF RISKS AND INS. 525, 531 (citing a Wyatt Company report on the declining insurance market to support the proposition the Van Gorkom case was not responsible for the insurance crisis, including one statement by a representative that they "[did] not know of any response in the market to Van Gorkom").

[51] *Cf.* Interview by Edward McNally and Morris James with Stephen Lamb, Former Vice Chancellor of Del. Ct. of Chancery., [in Philadelphia, Penn.] (Mar. 21, 2017) ("Instead of legislating it, it would permit companies to choose to put this in their own certificate of incorporation... the shareholders would have consented to including this in [the company's] certificate... so it has perhaps greater legitimacy than to just do it by legislative act.")

[52] Memorandum from Stephen Lamb, Partner, Skadden, Arps, Slate, Meagher & Flom, to Corporate Law Section Council, (Apr. 10, 1986).

[53] DEL. CODE ANN. tit. 10, § 3114 (1991).

[54] *See* Romano, *supra* note 39, at 1160.

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publicly traded companies.[55] Research conducted after the reform suggests that the adoption happened quickly: Investigating a randomly selected sample of 180 Delaware-incorporate corporations trading on the New York Stock Exchange, Roberta Romano found that over 90% of them had adopted a waiver within one year after the reform's enactment.[56]

2. DGCL §122(17) (2000)

In 2000, the Delaware legislature made another significant move towards enhancing the flexibility of fiduciary duties by adopting DGCL § 122(17). This section enables corporations to renounce in advance any interest, expectancy, or opportunity to participate in specified business opportunities, effectively reducing or even eliminating fiduciaries' duties to offer such opportunities to the corporation or risk violating their duty of loyalty.[57]

Prior work by one of us documented that substantial numbers of companies have made use of the freedom offered to them by DGCL § 122(17), suggesting that there is widespread demand for rules that allow corporations to fine-tune fiduciary duties.[58] At the same time, this research also documents that might have taken companies comparably long to adopt corporate opportunity waivers: In a marked contrast to the quick adoption of 102(b)(7) waivers, these novel waivers did not become widespread until 5-7 years after the reform.[59]

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[55] Frankenreiter et al., *supra* note 18.

[56] Romano, *supra* note 39, at 1160-1. This finding is corroborated by additional research indicating widespread acceptance of exculpatory charter provisions among major corporations. Lawrence Hamermesh notes that 98 out of 100 Fortune 500 companies incorporated in jurisdictions allowing such provisions quickly adopted them. Lawrence A. Hamermesh, *Why I Do Not Teach Van Gorkom*, 34 GA. L. REV. 477, 490 (2000). A study by Celia Taylor study echoes the high adoption rate of limited liability provisions, with over 90% of a random sample of 180 Delaware firms incorporating such measures within one year of Section 102(b)(7)'s enactment, a trend that appears to hold steady over time. Celia R. Taylor, *The Inadequacy of Fiduciary Duty Doctrine: Why Corporate Managers Have Little to Fear and What Might Be Done about It*, 85 Or. L. Rev. 993, 1022 (2006)). Further, the Delaware Corporation Law and Practice highlights the significant number of charter amendments and new certificates of incorporation containing director liability provisions filed shortly after the enactment of Section 102(b)(7). It reported that during "the one-year period from September 1, 1986, through August 31, 1987, 4,206 charter amendments or restated certificates of incorporation containing director liability provisions were filed by the Secretary of State," and that "13,697 new certificates of incorporation with director liability provisions." *1 Delaware Corporation Law and Practice* § 6.02 (2023)). Despite these studies, a comprehensive investigation into the timing of waiver adoptions remains unavailable. This scarcity of research could be attributed to the reliance on public disclosures available online primarily since the late 1990s. Although older documents can theoretically be sourced from the SEC, they are accessible at a significantly higher cost, potentially hindering extensive historical analysis.

[57] *Cf. Guth v. Loft, Inc.*, 5 A.3d 503 (Del. 1939); *Broz v. Cellular Info. Systems, Inc.*, 673 A.2d 148 (Del. 1996).

[58] Rauterberg & Talley, *supra* note 40.

[59] *Id.*

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3. Recent court decisions (2021 and 2023)

In addition to the legislative expansion of §102(b)(7) discussed below, recent years have also witnessed court decisions supporting the idea that, under certain conditions, parties may contract around otherwise mandatory shareholder protections. One case, *Manti Holdings, LLC v. Authentix Acquisition Co.*, questioned whether stockholders could validly waive their appraisal rights through a Stockholders Agreement.[60] The Supreme Court concluded that, although the DGCL mandates appraisal rights in certain transactions, §262 does not outright prohibit sophisticated shareholders from voluntarily waiving these rights for valuable consideration.[61] In *New Enterprise Associates 14, L.P. v. Rich*, the Court of Chancery upheld a contractual covenant preventing stockholders from suing for breach of fiduciary duties in a drag-along sale, with the court's approval partly based on the covenant's narrow tailoring and reasonableness under the circumstances.[62]

B. The 2022 Reform of DGCL §102(b)(7)

In 2022, Delaware adopted the reform that is the focus of this article, extending the possibility to exculpate a corporation's agents from liability for duty-of-care violations to corporate officers. The 2022 amendments are rooted in the increasing practice among plaintiff's lawyers of naming officers in duty-of-care litigation. This strategy has become attractive for plaintiff attorneys as it may circumvent the dismissal of a lawsuit at the motion to dismiss stage—a common outcome when lawsuits target only directors protected by waivers.[63] This litigation strategy has become viable largely due to the Delaware legislature's 2004 decision to extend the implied consent statute's coverage to out-of-state officers,[64] coupled with court decisions that have eased the

[60] *Manti Holdings*, 261 A.3d 1199 at 1205–06.

[61] *Id.* at 1205. Note that the Court leaves room for limitations on this holding by articulating the possibility of a situation where contractual waivers of shareholder rights may be unenforceable. *Id.* at 1227. Additionally, the Court's holding specifically applies to the "sophisticated stockholder," insinuating that business savvy and familiarity with the merger market may influence whether shareholders may waive appraisal or other shareholder rights.

[62] New Enterprise Associates 14, L.P. v. Rich 295, A.3d 520 (Del. Ch. 2023).

[63] *Delaware General Corporation Law Expands Exculpation Rights to Officers*, REED SMITH (Dec. 28, 2022), https://www.reedsmith.com/en/perspectives/2022/12/delaware-general-corporation-law-expands-exculpation-rights-to-officers; *see also* Lisa Rene Stark & Sean M Jones, *Despite Legal and Other Challenges, Amendments to Delaware's Corporate Statute Remain Compelling*, ABA (Feb. 14, 2023), https://www.americanbar.org/groups/business_law/resources/business-law-today/2023-february/legal-challenges-amendments-delawares-corporate-statute/.

[64] This decision is often described as a response to the corporate scandals of the early 2000s. *E.g.*, Lawrence A. Hamermesh, *The Policy Foundations of Delaware Corporate Law*, COLUMBIA L. REV. 1749 (2006), at 1769.

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criteria for naming out-of-state directors and officers as defendants in the absence of specific allegations of a breach of fiduciary duty by the individual.[65]

The trend to include officers as defendants has been viewed by some as creating a systemic imbalance in the Delaware Code, unfairly singling out officers for due care claims with the primary aim of increasing the settlement value of class action and stockholder suits. Several leading experts on Delaware law, including former Delaware Chief Justice Leo Strine, advocated for an expansion of duty-of-care waiver coverage to officers to remedy this imbalance.[66]

Shortly thereafter, the Delaware Bar Association's Corporation Law Council considered and proposed an amendment to expand coverage to officers.[67] The Delaware State Bar Association approved the amendment on April 12, 2022,[68] and it was proposed to the legislature as Section One of Senate Bill 273 on April 28, 2022. The amendment ran a clean sweep of the legislative process,[69] and the Governor signed the bill into law on July 27, 2022. The amendment took effect on August 1, 2022.[70]

The amendment permits Delaware corporations to expand the coverage of their duty-of-care waivers to exculpate officers, in addition to directors, from personal liability for duty-of-care breaches. Officer exculpation is subject to several constraints already known from director exculpation, including the exclusion of protection for duty-of-loyalty violations, bad faith, intentional, or knowingly illegal misconduct, and transactions resulting in improper personal benefit. Moreover, the amendment introduced a limitation unique to officers: they may not be exculpated from liability in any action taken by or in right of the corporation.[71]

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[65] In particular, *Hazout v. Tsang Mun Ting*, 134 A.3d 274 (Del. 2016); *Deutsch v. ZST Digital Networks, Inc.*, No. CV 8014-VCL, 2018 WL 3005822, at *12 (Del. Ch. June 14, 2018).

[66] Lawrence Hamermesh, Jack B. Jacobs & Leo E. Strine, Jr., *Optimizing The World's Leading Corporate Law: A 20-Year Retrospective and Look Ahead*, 72 BUS. LAW. 321, 364–71 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3954998; *see also* Theodore N. Mirvis, David A. Katz & Sabastian V. Niles, *Delaware Approves Permitting Exculpation of Officers from Personal Liability*, HARV. L. SCH. F. CORP. GOVERNANCE (Aug. 4, 2022), https://corpgov.law.harvard.edu/2022/08/04/delaware-approves-permitting-exculpation-of-officers-from-personal-liability/.

[67] Mirvis, *supra* note 66..

[68] Allison L. Land & Edward B. Micheletti, *Proposed 2022 DGCL Amendments Include Significant Changes Addressing Exculpation of Officers, Appraisal Rights and Domestication-Related Transactions*, SKADDEN (Apr. 18, 2022), https://www.skadden.com/insights/publications/2022/04/_proposed-2022-dgcl-amendments.

[69] The amendment received the near unanimous approval of the Senate, garnering twenty votes in favor with one member absent on May 12, 2022. The House followed suit with thirty-eight votes in favor and three members absent on June 12, 2022.

[70] 83 Del. Laws c. 377 (2022); *see also* S.B. 273, 151st Gen. Assemb. (Del. 2022).

[71] Notably, this limitation prevents exculpation of officers in connection with derivative litigation and creates an interesting interplay between duty-of-care waivers and the body of caselaw surrounding derivate and direct litigation, such as *Brookline.* 83 Del. Laws c. 377, § 1 (2022); *see also* Richard J. Grossman, Allison L. Land & Marc S. Gerber, *Exculpation of Personal Liability Expanded to Include Certain*

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Notably, Delaware is not the first jurisdiction to provide corporate officers with protection against liability in duty-of-care litigation. Maryland and Pennsylvania have previously allowed corporations the option to adopt officer-facing liability waivers in their corporate governance documents.[72] Louisiana, Nevada, and Ohio even establish liability limitations as the default rule for corporate officers.[73] Virginia offers an intermediate solution by capping the monetary liability of officers in most lawsuits at relatively modest levels, with the option for corporations to further reduce this liability.[74]

How might Delaware-incorporated companies be expected to react to the passage of the 2022 amendments? Of course, the requirement of a stockholder-approved charter amendment suggests that immediate changes are unlikely.[75] However, since corporations hold annual shareholder meetings, a board set on adopting an updated waiver should typically be able to secure the necessary approval within a year of the amendment's enactment. Alternatively, to the extent that companies anticipated the amendment's passage, they could have proactively adopted waivers that automatically extend to cover officers once the reform took effect.[76]

Several factors support the prediction that boards would act swiftly to adopt modified waivers. Among the most significant are the developments following the adoption of §102(b)(7)'s first version—likely the closest analogue to the officer-facing waivers at issue—when many companies rapidly adopted director-facing waivers within a year of their availability.[77] Additionally, considering the 2022 reform addresses what observers described as a pressing issue with plaintiff attorneys targeting officers in lawsuits to secure settlements,[78] quick board action appears to be a plausible response to the reform. Moreover, the requirement for the waiver to be enacted via a charter amendment, which necessitates shareholder approval, generally precludes corporations from enacting a modified waiver in response to shareholder lawsuits promptly. Consequently, the proactive adoption of an amended waiver seems like a

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Corporate Officers, HARV. L. SCH. F. CORP. GOVERNANCE (Dec. 20, 2022), https://corpgov.law.harvard.edu/2022/12/20/exculpation-of-personal-liability-expanded-to-include-certain-corporate-officers/#1. Expanded waiver coverage is only available to a certain class of officers. This includes any officer who holds or previously held the position of president, chief executive officer, chief operating officer, chief financial officer, chief legal officer, controller, chief accounting officer, or treasurer of a corporation. Additionally, it includes individuals identified as highly compensated executives in a corporation's SEC filings, or those who have given written consent to be identified as an officer for purpose of accepting service of process on behalf of the corporation. DEL. CODE ANN. tit. 10 § 3114(b); *see also* Grossman, *supra* note 71..

[72] MD Cts & Jud Pro Code § 5-418; 15 PA Cons Stat § 1735.

[73] LA Rev Stat § 12:1-832; NV Rev Stat § 78.138; OH Rev Code § 1701.641.

[74] VA Code § 13.1-692.1.

[75] DEL CODE ANN. tit. 8 § 242(b) (2022).

[76] *See infra* Section C.A for example language.

[77] Romano, *supra* note 39, at 1160-1.

[78] *See* Lawrence Hamermesh, Jack B. Jacobs & Leo E. Strine Jr., *Optimizing the World's Leading Corporate Law: A 20-Year Retrospective and Look Ahead* 367–71 (Oct. 29, 2021) (working paper).

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sensible option. Given that the waiver is intended to reduce wasteful litigation driven by plaintiff attorneys rather than legitimate shareholder claims,[79] it is also reasonable to assume that it would generally secure broad approval among shareholders.

At the same time, there are reasons corporations might hesitate to promptly amend waivers. Managers may fear adverse market reactions or potential defeat in shareholder votes, concerned that not all shareholders see the adoption of an officer-facing waiver as a means to curb wasteful litigation. This prediction is fueled by the amendment's limited scope[80] and the fact that courts have grown more reluctant to side with plaintiffs in duty-of-care litigation since the initial adoption of §102(b)(7).[81] Notably, major shareholder advisory firms such as ISS and Glass Lewis have taken cautious stances on officer-facing waivers, indicating they would evaluate proposals on a case-by-case basis.[82] Glass Lewis even announced that they would generally recommend against waiver proposals "unless compelling rationale . . . is provided."[83]

Second, the transaction costs associated with charter amendments can serve as a deterrent to the swift adoption of a modified waiver.[84] Specifically, such adoption necessitates a charter amendment, which in turn requires a shareholder vote and the issuance of a preliminary proxy statement before the shareholder meeting.[85] In contrast, Delaware courts, in response to early challenges, have determined that adopting modified waivers does not require a class vote under DGCL §242(b)(2).[86] This provision would have otherwise allowed nonvoting shareholders the opportunity to veto the amendment; with regard to low-vote shares, it would have amplified the power of their holders to resist such changes.

These more cautious predictions are in line with the fact that, overall, historical precedents provide a somewhat muddied picture about the speediness of corporations' reactions to reforms offering more flexibility. While companies' reactions to §102(b)(7)'s initial version appear to have been swift, the implementation of corporate opportunity waivers following the enactment of DGCL §122(17) was markedly slower, with many companies taking years to make the necessary adjustments.[87]

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[79] *Id.*

[80] Lipton, *supra* note 24.

[81] *See, e.g.*, Holger Spamann, *Monetary Liability for Breach of the Duty of Care?*, 8 J. L. Analysis 337 (2016), at 338 ("In more recent decisions, the Delaware Supreme Court goes to great lengths to emphasize that the BJR alone would be sufficient to protect even rather careless behavior").

[82] INSTITUTIONAL S'HOLDER SERVS., UNITED STATES PROXY VOTING GUIDELINES BENCHMARK POLICY RECOMMENDATIONS 20 (2022); GLASS LEWIS, UNITED STATES 2023 PROXY GUIDELINES 72 (2023).

[83] *Id.*

[84] *Cf.* Schnell & Iqbal, *supra* note 42 (listing the procedural hurdles associated with charter amendments as one potential reason for the observed slow uptake among Silicon Valley companies).

[85] DGCL §242(b); 17 C.F.R. § 240.14a-6.

[86] Electrical Workers Pension Fund, Local 103, I.B.E.W. v. Fox Corporation.

[87] Rauterberg & Talley, *supra* note 40.

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II. Foundational Models and Legal Research

Our analysis evaluates the reactions of publicly traded, Delaware-incorporated corporations to the passage of the 2022 amendments primarily by evaluating the contents of their corporate charters pre- and post-reform. Overall, this analysis requires us to extract information from almost 4,900 such documents. Traditionally, collecting this data would require hiring numerous research assistants to manually read and code each charter. Although we have embarked on such extensive coding endeavors in the past,[88] they inherently bring substantial drawbacks. These projects are time-consuming and costly. Scale requires researchers to grapple with challenges like ensuring consistent coding quality across a growing team, training replacements for departing skilled coders, and managing coder fatigue and supervisory burdens.

In this project, we chart a new path by employing OpenAI's ChatGPT to read and code the charters. While this strategy isn't free of charge,[89] it allows us to rapidly process and code charter data—a task that traditionally might take a team of coders a semester or more—in just a few days, and at a significantly reduced expense. This method also eliminates the variability in coding quality typically seen among different human coders, ensuring greater consistency and reliability in our results. The total cost for this phase of the project, including prompt engineering and preliminary validation exercises, amounted to USD 930.[90] Comparing these costs with some simple back-of-the-envelope calculations for employing research assistants, we estimate that the traditional method would have been approximately ten times more expensive.[91]

While NLP techniques have existed for some time, the emergence of tools like ChatGPT, powered by large language models that equip them with near human-like proficiency in understanding and generating language, provide significant new opportunities for researchers who aim to digest large amounts of legal texts in the context of an empirical research projects.[92] In essence, we posit that our study

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[88] Frankenreiter et al., *supra* note 18; Frankenreiter et. al., Sex & Startups (Feb. 18, 2024) (pre-publication draft) [hereinafter Sex & Startups].

[89] OpenAI charges fees for users accessing its services via its API on a per-token basis. In other words, the more text one submits to ChatGPT, and the more text ChatGPT includes in its answer, the higher the price for each query. The price per token also varies with the model used. *See* OPENAI, *Pricing*, https://openai.com/pricing (last visited Feb. 23, 2024).

[90] A primary factor for this expense was our choice to use GPT-4, the latest iteration from OpenAI, due to its superior performance in preliminary tests. Had we employed GPT-3.5-Turbo, used in our corpus construction described above, the costs would have been substantially lower, likely in the double digits.

[91] These cost calculations assume human coders can read and process one charter every five minutes, at an average wage of USD 13 per hour. Additional considerations factored into this estimate include the necessary overlap in charter coding to assess inter-coder reliability and the time required for training new research assistants.

[92] *See also* Jonathan H. Choi, *How to Use Large Language Models for Empirical Legal Research,* J. INST. THEO. ECON., forthcoming (2024).

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exemplifies the revolutionary impact that this new class of AI tools—sometimes described as *foundational models*—can and will have on legal research.

Previous methods, while theoretically enabling automated extraction and analysis of liability waivers from corporate charters, came with important limitations. Traditional machine learning approaches, for instance, would have necessitated the creation of extensive training datasets to accurately code these waivers. This process would still require employing research assistants, albeit fewer in number, to manually annotate and prepare these datasets. Furthermore, earlier NLP methods often depended on analyzing the specific vocabulary of charter provisions. In the context of our project, this reliance means they could potentially overlook waivers drafted in nonstandard language.

Novel tools like ChatGPT and similar foundational models offer substantial advantages over these earlier available methods. Unlike traditional machine learning models, these tools are not trained on data with structures directly mirroring those of the data they're intended to process, such as an image recognition tool trained on labeled images of cats and dogs. Instead, they are trained on vast quantities of diverse information unrelated to the specific task at hand. In the case of large language models such as ChatGPT, training primarily involves predicting the next word (or token) in a sequence of words. Crucially, through mastering next-word prediction tasks, these models develop the ability to generate text that appears to stem from a substantive understanding of the concepts discussed.[93]

In the context of legal research tasks, this implies that ChatGPT does not require prior model training on similar documents or specific response types sought by researchers.[94] It can also interpret and measure the meaning of a text based on context, not just predefined vocabularies or structures, implying that it will usually not be thrown off by the use of nonstandard language. These characteristics seem to offer excellent conditions for using ChatGPT to read documents and extract legally relevant information from them.

However, employing advanced tools like ChatGPT is not without its challenges. Notably, these models can sometimes generate responses that are misleading or unrelated to the actual content or query, a phenomenon often informally known as "hallucination."[95] Furthermore, the effectiveness of ChatGPT's responses can vary significantly with the task at hand. While these tools have often been shown to excel at summarizing and extracting information from documents, it is as of yet unclear

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[93] *See also* Jens Frankenreiter & Julian Nyarko, *Natural Language Processing in Legal Tech*, LEGAL TECH AND THE FUTURE OF CIVIL JUSTICE 70 (David Freeman Engstrom ed., 2023), at 79.

[94] Choi, *supra* note 92, at 79.

[95] *See* Elena Alston, *What are AI Hallucinations and How do You Prevent Them?*, ZAPIER (Sept. 5, 2023), https://zapier.com/blog/ai-hallucinations/; Cade Metz, *Chatbots May 'Hallucinate' More Often than Many Realize*, N.Y. TIMES (Nov. 16, 2023), https://www.nytimes.com/2023/11/06/technology/chatbots-hallucination-rates.html.

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whether they can engage in tasks that require more complex legal reasoning.[96] Also, responses are known to vary depending on how the user's prompt is phrased, with shifts in wording leading to changes in response quality in sometimes unexpected ways.[97] Another limitation lies in the tool's text processing capacity: ChatGPT's models have a limit on the length of texts they can handle,[98] and even within this limit, the model's performance can diminish—often resulting in less accurate or relevant outputs—as the length of the text increases.[99] In the analysis below, we describe in detail the strategies we employ to manage these challenges and ensure the validity of our results.

III. Data Collection

Our analysis utilizes a novel dataset that tracks the adoption and modifications of 102(b)(7) waivers in the charters of Delaware-incorporated corporations following the 2022 amendment to DGCL §102(b)(7), effective August 1, 2022. Building on our prior work in assembling a comprehensive corpus of publicly traded companies' charters,[100] we greatly expand the corpus's scope by developing automated methods to extract charter documents from the SEC's EDGAR database that require minimal human oversight. Our corpus now encompasses the charters of nearly all publicly traded companies filed with the SEC up to mid-September 2022, providing a broad and up-to-date foundation for our analysis. Next, we employ OpenAI's ChatGPT to automatically determine the presence of a 102(b)(7) waiver in a charter and discern whether its protection extends to officers as well as directors. To ensure the reliability of our data, we compare the results from our automated processes against datasets compiled by human coders.

While our validation exercises generally confirm the accuracy and robustness of our methodology, they also suggest a limited undercounting of charter amendments in our automatically assembled charter corpus. To address this possible shortcoming, we supplement our data by reviewing preliminary proxy statements to identify companies seeking stockholder approval for the enactment of officer-facing waivers.

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[96] Frankenreiter & Nyarko, *supra* note 93.

[97] *See* Metz, *supra* note 95 (outlining this phenomenon and offering methods of "'prompt engineering,' the techniques we can apply to our prompts to make the bots less likely to hallucinate and more prone to providing a reliable outcome.").

[98] This limitation stems from what is referred to as the "context window size" of ChatGPT and similar large language models. The context window size indicates the maximum amount of input text that the model can process when generating a response.

[99] *See* NonStop io, *What is Prompt Engineering?—Part 2: Properties of Effective Prompts*, MEDIUM (Aug. 3, 2023), https://blog.nonstopio.com/what-is-prompt-engineering-part-2-properties-of-effective-prompts-83fc1976f537 (outlining various performance issues related to longer prompt lengths); OPENAI, *Prompt Engineering*, https://platform.openai.com/docs/guides/prompt-engineering/six-strategies-for-getting-better-results (last visited Feb. 24, 2024) ("Complex tasks tend to have higher error rates than simpler tasks.").

[100] Frankenreiter et al., *supra* note 18.

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Subsequently, we manually check whether these companies have made the corresponding amendments to their charters.

A. The Charter Corpus

1. Constructing the Corpus

Anyone interested in researching the charter histories of publicly traded companies in the United States can, in theory, access a complete set of charter documents via the SEC's website.[101] Companies are required to publicly disclose these documents in their annual reports on Form 10-K. Additionally, if a corporation amends its charter within a year, it must report this change in a current report on Form 8-K.

However, despite this data's theoretical availability, a comprehensive, easily accessible collection of charter documents has not been available until very recently. This state of affairs primarily results from how charters are filed: they are not distinct, standalone documents. Instead, companies submit them under various categories alongside other, related corporate materials. These documents can include a corporation's bylaws, charters of affiliated or acquired companies, among others. Additionally, a company might file the same charter document multiple times for different purposes, and individual filing exhibits might contain several charters. Complicating matters further, charter amendments are submitted in varying formats. Sometimes, only the text directly affected by the amendments is submitted (which we refer to as a "partial amendment"), while at other times, the entire amended charter is provided (a "full restatement"). Consequently, gathering this information is not as straightforward as simply hitting a 'download all charters' button; it requires navigating through a complex and often convoluted array of filings to extract the relevant charter documents.

In previous work, we compiled a corpus of charters by tasking human coders with sifting through the EDGAR database to locate charters and provide us with the necessary details for downloading their texts.[102] This method, for the first time, enabled us to build a comprehensive corpus encompassing the charter histories of several thousand publicly traded companies.[103] However, this approach comes with significant downsides. Most importantly, the process is labor-intensive, and updating the corpus

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[101] U.S. SEC, *EDGAR—Search and Access*, https://www.sec.gov/edgar/search-and-access (last visited Feb. 23, 2024).

[102] Frankenreiter et al., *supra* note 18.

[103] *See* HARV. DATAVERSE, *CCG Dataverse*, https://dataverse.harvard.edu/dataverse/ccg (last visited Feb. 23, 2024), for public access to the data.

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with new charter filings since the original compilation would demand considerable resources.[104]

For this project, we build on our earlier work by developing an automated pipeline to download charter documents from EDGAR, significantly reducing the need for human oversight. Our methodology starts with assembling a roster of all publicly traded corporations of interest. We generate this list by gathering Central Index Key (CIK) numbers, unique identifiers assigned by the SEC, for companies meeting three key criteria: (a) they have filed at least one 10-K (or 10-KSB) report at any time since the inception of EDGAR, indicating their incorporation in the United States; (b) they have submitted at least one definitive proxy statement to the SEC within the same period, demonstrating that their shares are publicly traded; (c) relevant company data linked to these CIK numbers is available in Compustat, a database of financial, statistical, and market information, ensuring we have access to further information about these companies. To focus our analysis, we later filter out companies that either turned inactive before the relevant time period or that were not incorporated in Delaware in 2022.

The next step consists of downloading of all filing types that corporations typically use to file their charters with the SEC. We then subject each document to an iterative process, which includes: (a) assessing whether each document is a charter, (b) segmenting the exhibit into individual documents when multiple are included in a single filing, (c) identifying key document attributes such as the associated corporate entity and the effective date, and (d) eliminating duplicate entries. The key steps in this process are the following:

In the first step of our process, we determine whether a document is indeed a charter. To do this, we first deploy a custom-made classification algorithm, utilizing a Random Forest machine learning classifier. This classifier effectively identifies documents that are evidently not charters. However, given its tendency to be overly inclusive, we employ a second review layer using OpenAI's ChatGPT. ChatGPT not only assists in making a more refined determination about whether a document is a charter, but it also extracts other crucial features from the document, such as its title, the relevant corporation, and the effective date.[105] The resultant dataset, especially with

[104] The original corpus provided comprehensive coverage for the corporations included until 2018 only, as the work on building the corpus began in the fall of 2019.

[105] We employ the GPT-3.5-Turbo-0301 model for this task, interfacing with the OpenAI API using the python openai package. This setup was chosen to automate the process of querying and extracting information from corporate bylaws and other legal documents. Section III.B.1 below contains more information on how users can interact with this API. In this task, our system message was the same that we use below: "You are a star paralegal at a law firm, renowned for your skill in extracting information from corporate bylaws. Your work is known for its diligence and reliability."

Each query to the model was structured in a standardized format to ensure consistent and accurate results. For documents within a 6,000 character limit, we submitted the entire text. In cases where the

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the capability to compare document titles against ChatGPT's document categorizations, enables us to efficiently verify and rectify any instances where ChatGPT might have inaccurately categorized a document.

In the second step of our process, we verify whether a filing categorized as a charter actually contains multiple charter documents. If this is the case, we proceed to divide the filing into its separate documents. This step is implemented using a series of custom-built, automated routines based on regular expressions and similarity comparisons against document titles, enabling us to determine the junctures at which one document ends and another begins. This task is particularly challenging due to the lack of clear, consistent markers signaling breaks between documents. Although document beginnings are often recognizable through their all-caps titles, some headings bear striking resemblance to these titles, leading to potential misidentifications in our document segmentation. To mitigate this, we employ various methods to assess whether a segmented document seems incomplete, allowing us to reconsider and, where necessary, reassemble divided documents. Once this segmentation process is complete, we again utilize ChatGPT to extract key information, similar to that gathered in the initial step, from each distinct document identified.

The third step of our process identifies whether a charter is a full restatement or a partial amendment. For this determination, we again rely on a custom-made classification algorithm using a Random Forest machine learning classifier. The fourth step is to verify whether the charter belonged to the publicly traded corporation as opposed to a subsidiary or other affiliate, which we achieve by comparing the name of the entity as identified by ChatGPT with the current and former names of the

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document exceeded this limit, only the first and last 2,000 characters were used, accommodating the model's input constraints. The prompt used was:

Your task today is to categorize legal documents and to extract information from them.

First, please indicate the TYPE of document, i.e. whether the excerpt below is from a Certificate of Incorporation, a Certificate of Designation, a Certificate of Elimination, or another type of document. Please answer "C" for a Certificate of Incorporation, "D" for a Certificate of Designation, "E" for a Certificate of Elimination, "B" for the Bylaws, or "O" for other. Please treat amendments to these types of documents the same as the original documents.

Second, please determine (a) the DATE that the document became effective, (b) the NAME of the corporation/organization who the document pertains to, for example the company whose bylaws you are reading, and (c) the TITLE of the document.

Regarding (a), please report the effective date of the latest bylaw revisions, not earlier dates.

Please render the results in the following format: [TYPE/YYYYMMDD/NAME/TITLE]

If you are unable to determine any piece of information, please just return XXXX in the respective field. Please do not justify your decision in any way.

[CHARTER TEXT]

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corporation as indicated on EDGAR.[106] Finally, we identify and discard duplicate charters.[107]

Having identified the complete charter histories for all companies in our dataset, we next refine this selection to focus on documents most relevant for our current study. For each corporation, we locate the last full charter restatement filed prior to the reform's entry into force on August 1, 2022, along with all subsequent partial amendments. Corporations lacking at least one full restatement before this date are excluded. Additionally, we omit any corporations that conducted their initial public offerings after the reform's enactment date. [108] This approach yields a final corpus of 4,894 charters, encompassing 2,491 full restatements and 2,403 partial amendments, across 2,294 companies. 493 companies have amended their charters at least once since the entry into force of the reform.

2. Validation

To safeguard the validity of our analysis against the possibility that we miss important charter amendments, we validate our approach to charter collection with the help of a human research assistant. We tasked the research assistant to scout EDGAR for charter amendments adopted since August 1, 2022 by a random sample of 100 companies in our dataset. Given that our data indicates that a majority of companies did not implement charter changes post this date, the primary objective of this validation exercise was to ascertain whether our protocol consistently overlooked any particular categories of charters filed with the SEC during this timeframe.

Table 1 reports results. In over 90% of cases, both the research assistant's findings and our automated coding protocol were in agreement. We manually inspected each instance in which the research assistant and the coding protocol disagreed. In every such case, the source identifying a charter amendment (whether the research assistant or the coding protocol) was found to be correct. Specifically, the research assistant failed to identify three charter amendments that our coding protocol detected, while in six instances, the situation was reversed.[109] Assuming no charter amendments were

[106] We implement this step by computing the Levenshtein distance between various candidate pairs of names and discarding the filing if the distance lies above a certain threshold for all pairs.

[107] We identify duplicates by comparing documents along two main dimensions: The vocabulary they use, which we operationalize by computing the cosine similarity between pairs of documents, and the date at which they became effective.

[108] Corporations often incorporate their earlier charters in their registration filings during an IPO. As such, technically, companies with IPO dates following the August 1, 2022 reform might still possess charters dating before the reform in their filings. By excluding these companies from our analysis, we ensure our dataset exclusively focuses on charters from corporations with a pre-reform history as publicly traded companies.

[109] The primary limitation of our automated protocol in identifying charter amendments typically arose when these amendments were filed as image files (e.g., scanned documents or PDF images) rather than text-based documents. There were only two instances where the protocol failed to detect text-based charter amendments. In one case, the amendment was filed under an exhibit category not typically

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overlooked by both methods (or, improbably, both methods incorrectly identified an amendment), our coding protocol achieved a recall rate of .8125 and a precision of 1. These figures result in an F-1 Score of .8965.

Table 1: First Validation Exercise

		Research Assistant	
		No amendment	Amendment
Our dataset	No amendment	68	6
	Amendment	3	23

These results are broadly encouraging, yet they also indicate a potential for a limited underreporting of charter amendments in our dataset during the observed period.

B. The Waiver Dataset

1. Extracting Information on Liability Waivers

Assessing the uptake of officer-level fiduciary duty waivers requires information on whether the almost 4,900 charters included in our study contain 102(b)(7) waivers, and if these waivers extend to officers. We conduct the charter coding through a two-step automated process, utilizing the GPT-4 model in both phases. The first step involves identifying the presence of a 102(b)(7) waiver in a charter and extracting its text. The second step assesses whether the waiver extends protection to officers as well as directors. For both stages, we interact with the OpenAI API through automated python scripts utilizing the openai package.

Users accessing ChatGPT through the OpenAI API have several customization options that are unavailable in the standard chat interface. Notably, they can create a "system message" —a feature that provides additional context or establishes a specific tone for the interaction. Furthermore, the adjustable "temperature" setting controls the level of randomness in generating responses. A higher temperature results in more creative and varied responses, while a lower temperature yields outputs that are more predictable and align more closely with the most probable responses based on the model's training. In our project's two-step coding process, we consistently used a temperature setting of 0 to ensure responses that align as closely as possible with our

used for charters. In the other, there was an error with ChatGPT's coding of the amendment's effective date, leading to its omission.

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textual inputs. Our system message is also the same throughout the entire process: "You are a paralegal at a law firm, with a lot of experience extracting information from corporate charters. You are known for your diligent and reliable work."

Determining the Presence of 102(b)(7) Waivers and Text Extraction

The initial phase of our coding process requires detecting the presence of a liability waiver within a charter and extracting its text. Our primary challenge in this step arises from the limited context window size of GPT-4, coupled with a reduction in accuracy when processing larger documents.[110] Several charters in our dataset were lengthy enough to surpass the maximum context window size of GPT-4.[111] Moreover, our preliminary testing revealed that submitting longer documents increased the likelihood of ChatGPT missing a waiver.

We therefore divide longer charters—those exceeding approximately 1,900 words[112]—into smaller segments before submitting them to GPT, later compiling the responses from these multiple submissions into a unified set of variables. In our analysis, dividing charters into segments shouldn't impact the identification of liability waivers, as recognizing a waiver does not require comprehension of the charter's overall context.[113] To avoid any accuracy issues from waivers inadvertently split between segments, we follow two rules in our division protocol: (1) we ensure splits occur at the end of paragraphs to preserve their integrity, and (2) we create an overlap between adjacent segments that includes at least one full paragraph and about 200 words so that waivers would be included in full in at least one segment.[114]

We next submit each charter text or segment to ChatGPT, preceded by the following prompt:

> Your task is to read a corporate charter (or excerpts thereof) and determine if it contains a 102(b)(7) waiver.

---

[110] *See supra* notes 98–99 and accompanying text.

[111] OpenAI provides two variants of the GPT-4 model, differing primarily in their maximum context window sizes. The larger model can handle up to 32,000 tokens, with approximately 750 words equating to 1,000 tokens. *See Pricing*, *supra* note 89. Notably, the longest charter in our dataset exceeds 47,000 words.

[112] Here and in the following, we report numbers approximately, as ChatGPT calculates input length in tokens rather than words. Our analysis and calculations predominantly rely on token counts.

[113] This might be different for other types of provisions, where understanding might hinge on definitions or contexts provided elsewhere in the document. Therefore, the outlined strategy might not suit all tasks involving the analysis of corporate charters and similar complex documents.

[114] Most 102(b)(7) waivers observed in our dataset are shorter than the 200-word minimum length we set for segment overlap. However, we later found that some waivers slightly exceed this word limit, suggesting our minimum overlap length might have been marginally too short. Nonetheless, due to the additional requirement that the overlap encompasses at least one full paragraph, the impact of this issue should be limited. This conclusion is further supported by our validation tests detailed in Section III.B.2 below.

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> If such a provision is present in a charter, please answer YES and include the language of the respective provision from the charter. If there is more than one provision that is relevant (for example in case of separate provisions for directors and officers), please include the text of both provisions.
>
> If the answer is no, please answer NO.
>
> Please do not explain your answer any further. Please do also not include any other text not referenced above.
>
> [CHARTER OR SEGMENT TEXT]

We record whether ChatGPT's response starts with the word "YES" and extract the provided text. Preliminary tests confirmed that ChatGPT reliably follows the given instructions, consistently delivering responses in the specified format. In instances involving multiple queries, the presence of a waiver is ascertained by checking if any response starts with "YES." Should ChatGPT identify more than one waiver across different text segments—a situation that typically arises due to overlaps between segments containing the charter's liability waiver—we consolidate these text excerpts to form a complete 102(b)(7) waiver extract.

Finally, we consolidate all gathered data into a dataset that specifies for each corporate charter whether it includes a liability waiver, and if so, details the text of that waiver. Our data suggests that 2,409 out of the total charter documents (accounting for 49.2% of our dataset) featured a 102(b)(7) waiver. The relatively low frequency of these waivers can primarily be attributed to many charters being partial restatements. Such documents often amend sections unrelated to the liability waiver and thus might not mention the waiver's text, despite its existence in the full charter. In contrast, among the 2,491 full restatements included in our dataset, we identified a liability waiver in 2,282 of these documents, amounting to 91.6%.

Assessing Waiver Coverage

The second step of our process involves assessing the scope of the waiver coverage, determining whether officers, along with directors, are protected under the waiver's terms. This task is simpler compared to the first step. The extracted waiver text is usually concise, mostly under 200 words, which means that there are no concerns about exceeding the context window limits of ChatGPT. The relatively short length of the waiver texts also eliminates the necessity for multiple queries per charter document. Finally, we only need ChatGPT to determine whether officers are covered by a waiver, but not extract any more text.

For the second step, we use the following prompt to structure our queries, utilizing the extracted waiver text obtained in the first step:

> Please take a deep breath and determine whether the "102(b)(7)

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> waiver" in the following charter excerpt applies to a corporation's officers/other agents (and not only to the corporation's directors). If the waiver only applies to directors, please answer D. If the waiver also applies to officers, please answer O. If the waiver specifies that it applies to all agents of the corporation (to the extent legally permitted), please reply A. If you cannot answer the question, please reply X.
>
> If the text contains separate provisions limiting the liability of agents and stipulating a right or obligation of the corporation to indemnify agents, please DO NOT consider whether the right/obligation to indemnify also applies to other agents. Please only consider whether the provision limits the liability of an agent (director, officer, other agent) for monetary damages.
>
> Please do not explain your answer any further. Please also do not include any other text not referenced above.
>
> [WAIVER TEXT]

Similar to its performance in the initial step, ChatGPT consistently followed our instructions, responding with only "D," "O," or "A" to our prompts. It did not make use of the option to use "X." However, our analysis of ChatGPT's responses found inaccuracies in cases where ChatGPT incorrectly identified waivers as covering all agents ("A") or directors and officers ("O"). This issue mainly arose when the extracted text from the first step included parts or entire sections of indemnification provisions. This inclusion was sometimes unavoidable due to the indemnification provision's position, often nestled between the liability waiver and stipulations on its alteration upon changes in Delaware law. In response, we manually re-examined all charters where "A" or "O" was recorded and corrected any errors found.[115]

In a final step, we combined all instances of "O" and "A" codings into one unified category, denoting waivers that extend coverage to officers in addition to directors. 205 waivers (equating to 8.5% of all waivers) extend protection to both officers and directors, while 2,204 waivers cover exclusively directors.

2. Validation

To validate the accuracy of our waiver dataset, we tasked two research assistants with reading and evaluating 120 (60 each) randomly selected charters from our sample.[116] They specifically examined whether each charter included a 102(b)(7) waiver and, if so, determined whether the waiver exculpated only directors, or officers as well. To ensure a balanced sample, we selected thirty charters from each of four groups: (1)

[115] Overall, we corrected classifications for fifty-six charters.

[116] On the importance of validation, *see* Choi, *supra* note 92.

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full charter restatements adopted before August 1, 2022; (2) partial charter restatements adopted during the same period; (3) full charter restatements adopted after August 1, 2022; and (4) partial charter restatements adopted after that date.

Table 2 reports the results of our validation exercise. Overall, for 97% of the charters, the data compiled by the research assistants matched the data in our dataset. Discrepancies between the datasets were found for only four charters. In each case, the research assistants had correctly classified the charter, whereas ChatGPT had produced incorrect results. Specifically, ChatGPT failed to detect a 102(b)(7) waiver in two charters, even though each contained such a waiver.[117] In another two charters, ChatGPT characterized an existing 102(b)(7) waiver as covering both directors and officers, while, in reality, it covered directors only.[118]

Table 2: Second Validation Exercise

		Research Assistants		
		No waiver	Directors only	Dir & Officers
Our dataset	No waiver	54	2	0
	Directors only	0	45	0
	Dir. & Officers	0	2	17

Under the assumption that our data collection methods did not simultaneously produce incorrect results, the metrics suggest a high level of accuracy in our approach. Specifically, for detecting 102(b)(7) provisions in charters, our method achieved a recall of .9697 and a precision of 1, resulting in an F-1 score of .9846. Similarly, in distinguishing officer-protecting waivers from directors-only waivers, our method attained a perfect recall of 1 and a precision of .8947, leading to an F-1 score of .9444.

These results bolster our confidence that the main findings reported below offer a predominantly accurate representation of corporate decisions concerning 102(b)(7) waivers. In particular, the outcomes of our validation exercise indicate that coding errors are unlikely to have skewed the main result we report below: the limited adoption of 102(b)(7) waivers following the reform. Firstly, while overlooking a 102(b)(7) waiver could theoretically lead to an underestimated adoption rate, we observe that such errors made by ChatGPT were exclusively within full charter

[117] Both charters were full restatements adopted before the reform, and the waivers covered exclusively directors.

[118] These charters were full restatements adopted after the reform.

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restatements, not partial amendments. Given the few instances (only eight) of full charter restatements post-reform that were identified by ChatGPT as lacking a 102(b)(7) waiver, the possible impact of such mistakes on our overall adoption rate estimation remains minimal. Second, ChatGPT did not mistakenly categorize any director-only waivers as officer-protecting; however, it did erroneously identify non-existent officer-exculpating waivers in several cases. Note that these errors impact our estimates for the incidence of officer-protecting waivers in opposite directions, potentially offsetting each other. This suggests that our classification algorithm does not substantially undercount or overcount the incidence of officer-exculpating waivers within the charters in our dataset.[119]

C. Amending the Dataset with the Help of Preliminary Proxy Statements

Our validation tests, as reported in Sections III.A.2 and III.B.2, indicate that our automatically assembled charters dataset might not fully capture the actual number of waivers, primarily due to missing charter amendments adopted since August 2022. To remedy this potential underrepresentation, we expanded our dataset by examining preliminary proxy statements from firms identified by our waiver dataset as not having adopted an updated waiver. Specifically, we looked for instances where these firms had sought shareholder approval for a waiver amendment after June 1, 2022. Upon finding such instances, we manually verified whether the firm had indeed amended its charter to incorporate the approved officer-facing waiver.

This additional data gathering approach capitalizes on the requirement that companies intending to amend their charters must file a preliminary proxy statement with the SEC in preparation of the required shareholder vote at a shareholder meeting. Conversely, no such preliminary filing is mandated if shareholder meetings do not include any extraordinary items. Our data confirms that the latter route is the one that most companies chose for their meetings: Among the companies in our dataset not recorded as having adopted an officer-exculpating waiver by the end of our observation period, 2,106 filed some type of proxy statement with the SEC between April 1, 2022 and September 1, 2023. Of these, only 520 submitted at least one preliminary proxy statement during the same time period.

Using ChatGPT in a manner similar to our approach for extracting waivers from charters, we search these preliminary proxy statements for language indicating that shareholders were asked to vote on the proposed adoption of an officer-exculpating

[119] However, it is important to note that, aside from occasionally deviating from the human coders' interpretations, some of ChatGPT's codings were manually corrected during the data collection process. *See supra* note 115 and accompanying text. The differences reported above reflect those between the final dataset and the codings by the research assistants, not between ChatGPT's raw output and the research assistants' codings. Therefore, this validation exercise does not entirely reflect ChatGPT's accuracy in similar tasks. While ChatGPT proved to be a valuable tool, its performance notably lagged behind that of our human coders, underscoring the necessity for significant human supervision in such tasks.

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waiver. In a first step, we task ChatGPT with identifying the list of items up for vote within the first ~2,000 words of the preliminary proxy statements.[120] Subsequently, we ask ChatGPT to ascertain whether any of these items include a proposal to adopt an officer-exculpating waiver. In instances where ChatGPT cannot complete the initial identification, or where the language relating to a proposed charter amendment is ambiguous, we engage a human research assistant to complete the coding. Our findings reveal that 63 out of the 520 corporations that submitted at least one preliminary proxy statement called for a shareholder vote on amending their 102(b)(7) waiver to extend protections to officers.[121]

However, not every company that proposes a charter amendment ultimately adopts it. Shareholders might vote down the proposal, or the board might withdraw it for various reasons before it reaches a vote. Consequently, we revisited the charters to verify which of these proposals have been ultimately incorporated into the corporations' governance regimes. We tasked a research assistant with examining the most recent charters of these 63 companies available on EDGAR to determine whether the charters now include a modified 102(b)(7) waiver. For 25 of these companies, the most recent charter confirmed that an officer-facing waiver was adopted. While this number corresponds to a "conversion rate" of only 39.7%, it is important to keep in mind that these are not a representative sample of companies, but include only companies for which our initial approach failed to locate an amended waiver.[122]

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[120] More precisely, we cut off the document after 10,000 letters. This part usually contains the notice of the meeting that the corporation is required to give to shareholders.

[121] As with our previous methods, we validated our approach for identifying waiver amendment proposals in preliminary proxy statements with the help of human research assistants who we tasked with reading 100 preliminary proxy statements. The results from this validation exercise suggest that our approach achieves 100% recall, meaning it successfully identifies all relevant documents without systematic omissions.

[122] We further note that the number of companies with officer-facing waivers identified through this approach roughly aligns with our validation exercises reported in Sections III.A.2 and III.B.2. Specifically, from our automatically collected charters data, out of 491 companies without pre-reform future-proof waivers that adopted charter amendments since August 2022, 166 (or 33.8%) incorporated an officer-exculpating waiver. Given the recall rate of 0.8125 from our validation test described in Section III.A.2, the estimated actual number of companies with charter amendments is likely higher, possibly around 604. Assuming the adoption rate of officer-exculpating waivers among these additional companies is consistent with our dataset—an assumption supported by the validation test in Section III.B.2, which indicates that our classification algorithm, though not perfectly precise, does not systematically undercount the incidence of officer-exculpating waivers—the estimated number of additional companies adopting such waivers would be approximately thirty-eight.

Finally, this additional data gathering is conducted independently of the assembly of the automatically assembled charters dataset. In particular, research assistants retrieve the charters that they use to verify the adoption of an officer-facing waiver directly from EDGAR. The independence of our two approaches ensures that the issues that are responsible for the undercounting of charter amendments in the automatically assembled charters dataset cannot also lead to an undercount of waiver adoptions in the data gathered via this second route.

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Our final dataset comprises waiver amendments identified both through our automated data collection methods described in III.A and III.B, and through the supplementary data collection described in this Subsection III.C.

IV. Limited Uptake

The first part of our analysis is descriptive. We examine the data referenced earlier to determine how many Delaware-incorporated corporations had in place a self-executing 102(b)(7) waiver before the 2022 amendment's entry into force or subsequently amended their charters to incorporate such a waiver for their officers. Contrary to the assertions by some law firms, our findings challenge the emerging narrative that updated 102(b)(7) waivers are swiftly becoming a standard practice in the industry.[123] Our data reveal that only a small percentage of companies had proactively adopted future-proof waivers in anticipation of the amendment. Additionally, in the year following the amendment, only a modestly larger number of firms revised their 102(b)(7) provisions.

A. The Landscape of 102(b)(7) Waivers Pre-Amendment

We begin by examining the prevalence of expandable or "future-proof" 102(b)(7) waivers among corporations prior to the implementation of the 2022 amendment. Consistent with our earlier observation that waivers extending to officers are infrequent in our dataset, we find that only a small number of companies had adopted waivers poised to automatically broaden their coverage to include officers following the amendment's activation. Out of 2,104 companies with a 102(b)(7) waiver, merely 17 (less than 1%) had provisions in their waivers that anticipated this future expansion. A notable example within this minority is Kraft Heinz Co., which, according to Wikipedia, ranks as "the third largest food and beverage company in North America."[124] The company's prevailing charter, ratified in 2015 by its forerunner, H.J. Heinz Holding Corporation, includes this provision as Article VII(B):

> To the full extent the DGCL, as it exists at the Effective Time, permits the limitation or elimination of the liability of directors, no director made party to any proceeding shall be liable to the Corporation or its stockholders for monetary damages for breach

[123] *E.g.*, Sean Sheely, Mark Reinhardt, *Delaware's 102(b)(7) Exculpation of Senior Officers - One Year Later*, JENNER & BLOCK (Sept. 2023), https://www.jenner.com/en/news-insights/publications/delawares-102b7-exculpation-of-senior-officers-one-year-later ("The change has been embraced by Delaware corporations. It is quickly becoming standard practice for Delaware corporations to amend their governing documents to include express exculpation of both directors and senior officers."). *But see* Schnell & Iqbal, *supra* note 42 ("Thus far, companies in the SV150 have been relatively slow to adopt officer exculpation charter provisions.").

[124] WIKIPEDIA, *Kraft Heinz*, https://en.wikipedia.org/wiki/Kraft_Heinz (last visited Feb. 24, 2024).

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> of fiduciary duty as a director. If the DGCL is amended to authorize corporate action further eliminating or limiting the personal liability of directors, officers or other eligible persons, then the liability of a director or officer of the Corporation or other eligible person shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended. All references in this Article VII(B) to a director shall also be deemed to refer to a member of the Redemption Offering Board.

Interestingly, our (manual) reading of these waivers suggests that there wasn't a uniform template or standard format adopted for these future-proof waivers. Instead, each company's approach seems to have been distinct, with every waiver incorporating unique elements and language.

By contrast, most corporations had liability waivers in place that applied to directors only. An inspection of these waivers suggests that there were various templates in use for such waivers and that corporations stuck closely to the text of the respective template. A fairly typical example is the 102(b)(7) waiver used by Coca-Cola Consolidated Inc., which had last adopted a full charter restatement in 2017 (then still under its old name, Coca-Cola Bottling Co. Consolidated). The text of the waiver in this full restatement closely tracks the text of DGCL §102(b)(7):

> No director of the Corporation shall be liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided that such provision shall not eliminate or limit the liability of a director (a) for any breach of the director's duty of loyalty to the Corporation or its stockholders, (b) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (c) under Section 174 of Title 8 of the Delaware Code or (d) for any transaction from which the director derived an improper personal benefit. This provision shall not eliminate or limit the liability of a director for any act or omission occurring prior to the date that it becomes effective.
>
> Any repeal or modification of the foregoing paragraph by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of such repeal or modification.

Note that this charter, along with many others in our dataset, includes a provision that broadens the scope of coverage in the event of legislative reforms granting corporations greater freedom to extend additional immunity to their directors. Yet, according to the language of this expansion clause, any such broadened coverage would be limited to directors and not extend to officers or other agents.

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To better understand the influence of waiver templates on companies' adoption of future-proof waivers, we analyze the text of all waivers prior to the reform. We use straightforward language processing techniques and some basic machine learning to analyze these texts. We turn the charter documents into number-based forms (vectors) based on the words they used. [125] This helps us illustrate how similar or different they are from each other. In Figure 1, we show a plot that sorts these waivers into a two-dimensional space, based on the vocabulary used.[126]

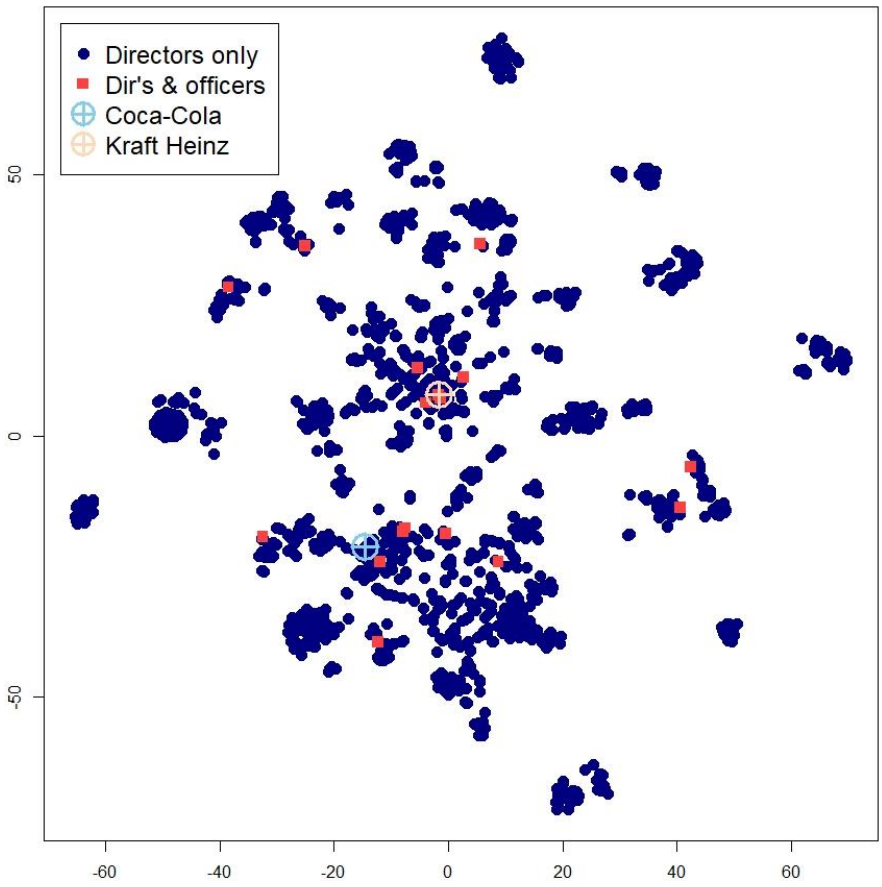


Figure 1: Two-dimensional representations of waiver vocabulary pre-reform

[125] For details of the method, see Frankenreiter, *supra* note 18. See also more generally Frankenreiter & Livermore, *supra* note 45. We use binary TF-IDF representations of the waiver language.

[126] We use SVD to reduce the number of dimensions to fifty and subsequently use T-SNE to reduce the number of dimensions further to two. All operations were performed using the sklearn package in python.

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The plot reveals several distinct groups of waivers, with each cluster representing waivers that are similar in language and structure. Notably, the waiver used by Coca-Cola falls into one of these groups. On the other hand, the future-proof waivers, as we suggested above, don't form one clearly identifiable group. Instead, they are scattered across different clusters, suggesting a unique wording.

When examining the language of the waivers in terms of their similarity (measured by cosine similarity), we uncover evidence that confirms this observation. For this analysis, we calculate the cosine similarity between all pairs of waivers in our dataset. We then identify, for each waiver, its most linguistically similar counterpart—that is, the waiver that exhibits the highest cosine similarity. Subsequently, we compare the cosine similarity of director-only waivers with their respective most similar counterparts against that of future-proof waivers with their closest matches. If our hypothesis—that future-proof waivers feature more distinctive wording than director-only waivers—is correct, then we would expect a lower average similarity score for the latter group. Our findings confirm this hypothesis: Figure 2 illustrates the distribution of similarity scores for both groups, and a visual inspection confirms that the scores for future-proof waivers are substantially lower than for director-only waivers. Director-only waivers and their most similar counterparts have an average cosine similarity score of .8806, while future-proof waivers and their closest matches have a significantly lower average score of .6005. This difference is statistically significant at the 1% level.[127] These results confirm that there appears to have existed no template for future-proof waivers pre-reform. Instead, if a company wanted to adopt such a waiver, they seem to have adopted a custom-made provision.

[127] Both the Wilcoxon Rank Sum Test and the t-test reject the null hypothesis, indicating that the two samples do not have similar measures of central tendency, with p-values less than .0001.

We also confirm that the lower average cosine similarity score for future-proof waivers is not merely a result of their smaller number in the dataset. To test this, we repeatedly select a random sample of eighteen director-only waivers from the population of such waivers and calculate the cosine similarity scores among all waivers in the corpus consisting of those eighteen waivers plus all eighteen future-proof waivers. We then identify the most similar counterpart for each waiver. Subsequently, we compute the average cosine similarity between waivers in both groups and their respective most similar counterparts. If the differences in sample sizes were solely responsible for the observed difference, we would expect future-proof waivers to have higher average cosine similarity scores approximately half the time. However, in 1,000 repetitions, they never have higher average cosine similarity scores, a result that is highly unlikely to occur by chance (p-value: <.0001).

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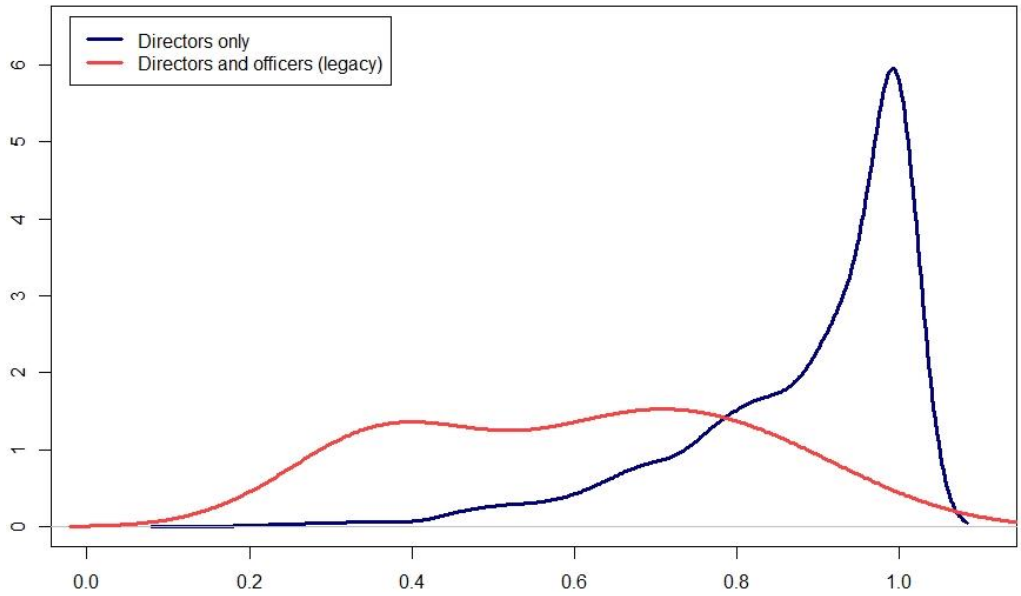


Figure 2: Density plots depicting cosine similarities between waivers and most similar counterparts in dataset

B. Changes Post-Amendment

What happened post-reform? Some companies amended their waivers to encompass officers, yet they remain a clear minority. As of mid-September 2022, our last corpus update, there were 2,127 companies with liability waivers. Out of these, only 208 had waivers extending to officers.[128] Although this represents a significant shift from the pre-amendment scenario, it still constitutes about 9.8% of the companies with waivers. In fact, as we explore in more detail below, not all companies that made substantial charter revisions post-reform chose to alter their waiver provisions.

Among the new adopters of these waivers, we find a mix of prominent corporations and several lesser-known ones. A more prominent example is Coca-Cola, where shareholder approved a charter amendment at the annual meeting on May 9, 2023. The revised waiver in their charter states:

> To the fullest extent permitted by the General Corporation Law of the State of Delaware, no director or officer of the Corporation shall be liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director or officer, provided that such provision shall not eliminate or limit the liability of (a) a director or officer for any breach of the director's or officer's duty of loyalty to the Corporation or its stockholders, (b)

[128] All companies who had future-proof waivers in place are in this group.

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> a director or officer for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (c) a director under Section 174 of the General Corporation Law of the State of Delaware, (d) a director or officer for any transaction from which the director or officer derived an improper personal benefit or (e) an officer in any action by or in the right of the Corporation. If the General Corporation Law of the State of Delaware is hereafter amended to authorize corporate action further eliminating or limiting the liability of directors or officers, then the liability of a director or officer of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law of the State of Delaware, as so amended. This Article ELEVENTH of this Restated Certificate of Incorporation shall not eliminate or limit the liability of a director or officer for any act or omission occurring prior to the date that it becomes effective. Any amendment to, modification of, or repeal of this Article ELEVENTH of this Restated Certificate of Incorporation by the stockholders of the Corporation shall not adversely affect any right or protection of a director or officer of the Corporation existing hereunder with respect to any act or omission of such director or officer occurring prior to such amendment, modification or repeal.

Compared to the previous version of Coca-Cola's waiver, the provision's length has increased, reflecting not just the inclusion of officers among the protected individuals, but also several other changes, mainly editorial in nature. At the same time, the fundamental structure of the waiver remains intact. It continues to assert limited liability while outlining exceptions that closely align with the language of DGCL §102(b)(7).

In examining the broader post-reform waiver landscape, we replicate the earlier steps to plot waivers on a two-dimensional graph, shown in Figure 3. Notably, the overall pattern of waivers remains largely unchanged, and the distinct clusters identified pre-reform persist. Updated waivers, by contrast, are generally scattered throughout the graph, not forming a distinct cluster. This suggests that a standardized template for updated 102(b)(7) waivers has not yet emerged.

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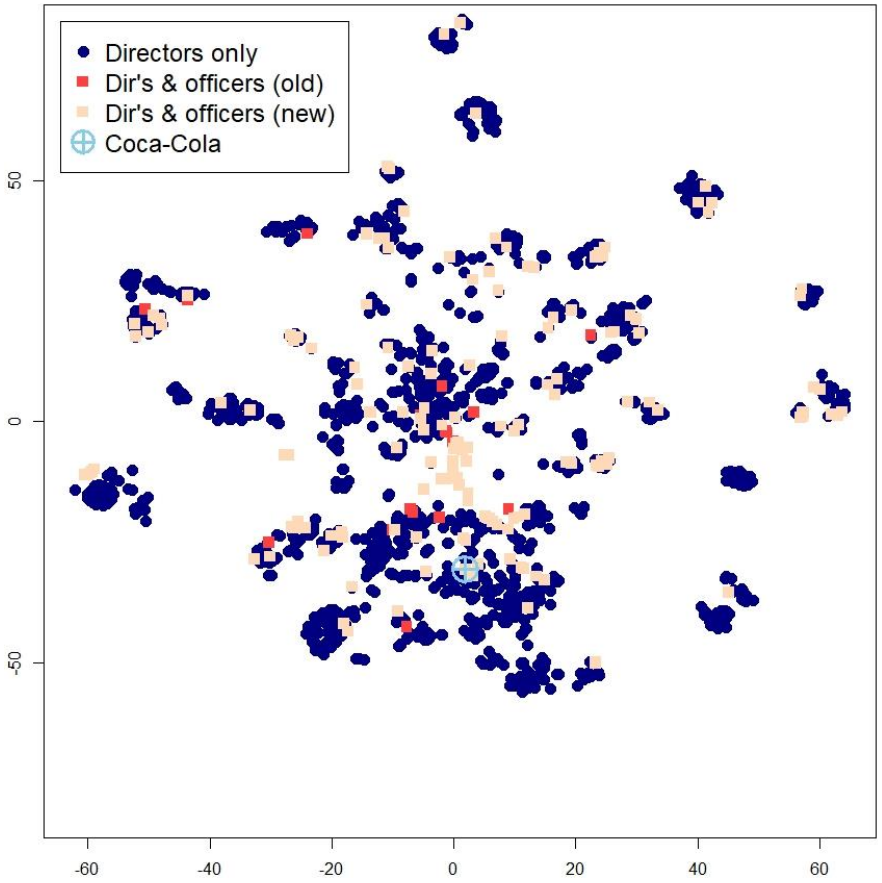


Figure 3: Two-dimensional representations of waiver vocabulary post-reform

We further support this observation by again examining the distributions of cosine similarities between each waiver and the most similar waiver in the dataset for the three distinct groups illustrated in Figure 3. Density plots representing these distributions are shown in Figure 4. Notably, most waivers exclusively covering directors often have at least one nearly identical counterpart in the dataset. Despite a slight decrease from pre-reform measurements, the average similarity for director-only waivers remains high, at .8786.[129] In contrast, waivers extending protection to officers generally lack similarly close counterparts. The average cosine similarity among the original, future-proof waivers and their nearest equivalents has decreased marginally to .6004. This suggests limited use of existing future-proof waivers as models for new charter amendments. Newly amended waivers extending officer protection exhibit an

[129] A certain drop is to be expected, given that some corporations whose waivers might have served as the most similar counterparts for some observations in our dataset updated their director-only waivers to now also cover officers.

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average cosine similarity of .8192 to their closest counterparts, a difference from the director-only waivers that is statistically significant at the .01% level.[130]

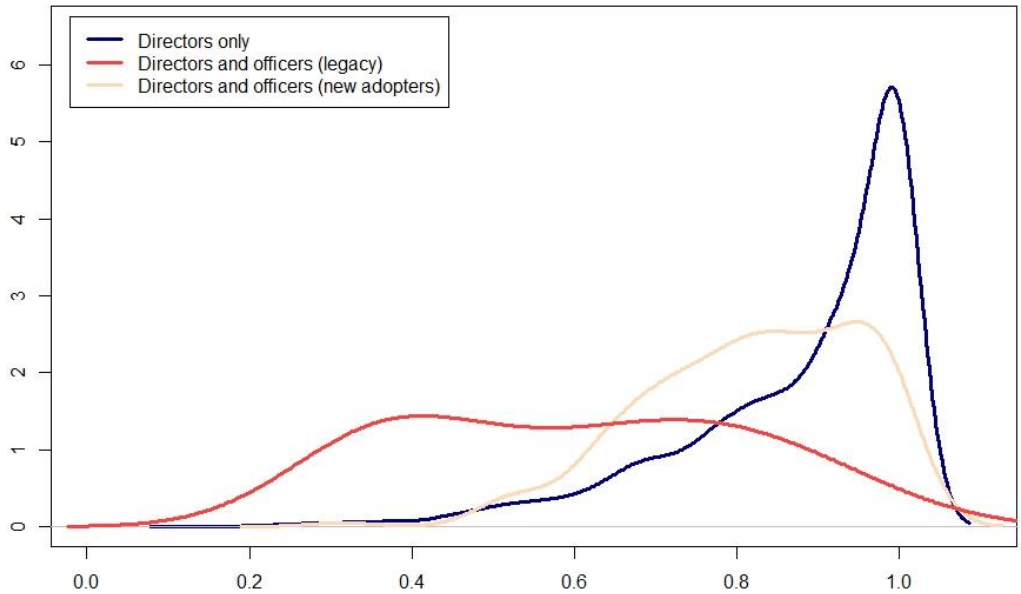


Figure 4: Density plots depicting cosine similarities between waivers and most similar counterparts in dataset

One potential objection to the aforementioned result is that the observed discrepancy in the average cosine similarity between director-facing and amended waivers and their respective most similar counterparts might be expected due to the greater number of director-facing waivers in our dataset. To address this concern and rule out the possibility that our result is merely an artifact of differing subsample sizes, we conducted a simulation exercise. In this exercise, we randomly created balanced samples of waivers from both groups in each iteration.[131] For these samples, we recalculated cosine similarities between all waivers and then recomputed the average cosine similarity between waivers and their nearest counterparts within each subsample. The findings, presented in Figure 5, provide strong evidence against the hypothesis that differences in sample size are the main explanation behind the observed differences. In a large majority of iterations, the average difference between

[130] Both a Wilcoxon rank-sum test and a t-test reject the null hypothesis that the distributions are centered around the same median/mean, with p-values below .0001.

[131] To construct this sample, we sample (without replacement) 191 observations from the population of director-facing waivers and combine those with all 191 newly adopted officer-facing waivers.

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director-facing waivers and their closest counterpart is smaller than the same measure for amended waivers, a result that is very unlikely to be the result of chance.[132]

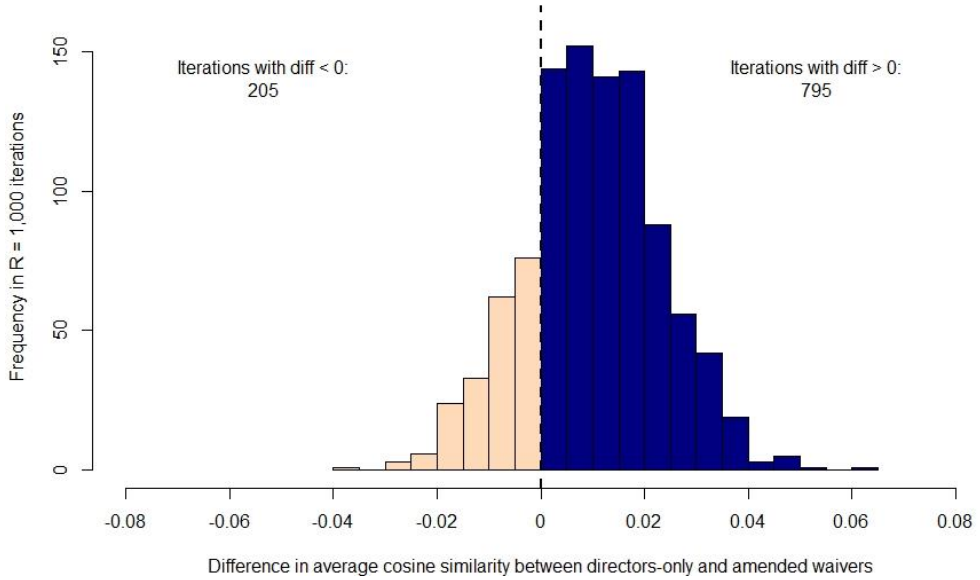


Figure 5: Histogram Depicting Differences in the Average Cosine Similarity between Directors-Only and Amended Waivers and their Respective Most Similar Counterpart

In a final step, we investigate if the transition from director-only waivers to updated, officer-inclusive waivers affects their similarity to the closest counterpart in our dataset. Our findings confirm that this is indeed the case. Before the reform, the waivers of firms that later updated were indistinguishable, in terms of similarity to their nearest counterpart waivers, from other director-only waivers. The mean similarity was 0.8884 for the updating firms and 0.8800 for the others.[133] After the reform, the mean similarity of the updated waivers from these changing firms to their most similar counterparts significantly decreased, averaging 0.8164[134]—a change that is highly statistically significant.[135]

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[132] Both a t-test and a Wilcoxon signed rank test reject the null hypothesis with a p-value of below .0001.

[133] Both a Wilcoxon rank sum test and a t-test fail to reject the null of a distribution centered around the same median/mean. The respective p-values are .4362 and .4381.

[134] Note that there are some firms in our dataset that did not have a waiver pre-reform but adopted an officer-protecting waiver post-reform. Therefore, this number is different from the average of the similarity scores for all officer-exculpating waivers post-reform.

[135] We apply paired tests to this setting because we are looking at the same sample of firms pre- and post-reform. Both a Wilcoxon signed rank sum test and a paired t-test reject the null with p-values below .0001.

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C. Which Companies Adopt Modified 102(b)(7) Waivers?

To better understand which companies adopted officer-protecting waivers and which ones did not, we integrate our data with information from the CRSP/Compustat and information regarding stock market index compositions as of early August 2022.[136] This allows us to investigate if adopters differed from non-adopters in important ways.

Table 3 reports how adopters of modified 102(b)(7) waivers differ from non-adopters along various metrics, revealing some notable trends. Notably, the largest and most influential companies, especially those in the Dow Jones Industrial Average, are generally not adopters. Non-adopters exhibit a higher average market capitalization and total asset values. However, we observe a reversal in median values: adopters have significantly higher median market capitalization and total asset values. This indicates that although the very largest firms typically do not adopt these waivers, the bulk of adopting companies are larger than the average publicly traded firm. In terms of Tobin's Q values, which assess market valuation relative to asset replacement costs, no significant difference emerges, suggesting a parallel perception of market-to-asset value across both groups.

Our analysis of performance metrics (ROA and ROE) reveals more differences between both groups, especially in the Fiscal Year 2022. In that year, adopters showed generally higher ROA and ROE values than nonadopters, with differences that are borderline significant. These differences might suggest that most adopters showed above-average performance in the year preceding the reform, albeit within a broader context of challenging profitability for both cohorts. Longer-term averages show a similar pattern, although with less pronounced differences. Finally, financial health indicators (Debt-to-Equity Ratio, Debt-to-Assets Ratio, and Current Ratio) show no meaningful differences for both groups of companies.

[136] We obtain information on index composition from historical versions of Wikipedia.

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Table 3: Stock Index Membership, Financial Information, and Waiver Adoption

	No modified waiver adopted (N = 2,086)			***Modified waiver adopted post-reform (N = 191)***			
	Mean	Median	SD	Mean	Median	SD	p-value
DJIA Membership	.0101	0	.0999	0	0	0	.2505
S&P 500 Membership	.1294	0	.3358	.1414	0	.3493	.6532
Russell 1000 Membership	.2589	0	.4381	.2670	0	.4436	.7963
Market Capitalization (USD B)	10.162	.9085	40.647	6.7578	1.3511	16.636	.0649
Total Assets (USD B)	17.308	1.0437	137.88	9.1290	1.1800	25.916	.1149
Tobin's Q	2.1011	1.4905	2.0889	1.9425	1.4485	1.6532	.4406
ROA (FY2022)	-.2233	-.0077	.6275	-.1377	.0139	.3666	.0561
ROA (3yr average)	-.1860	-.0238	.4734	-.1411	-.0062	.3248	.4231
ROA (5yr average)	-.2381	-.0043	1.2000	-.1142	.0025	.3114	.2951
ROE (FY2022)	-.8002	.0041	23.255	.0175	.0694	2.3779	.0920
ROE (3yr average)	-.0381	-.0172	13.986	-.1417	.0070	1.3747	.2751
ROE (5yr average)	-.2318	.0277	6.6756	-.0845	.0429	.8865	.1988
Debt-to-Equity Ratio	3.1679	1.0169	111.38	.1398	.08799	27.088	.4306
Debt-to-Asset Ratio	.6032	.5633	.4210	.5424	.4934	.3186	.0525
Current Ratio	4.0300	2.1069	7.2202	3.9431	2.1019	4.7219	.9166

Notes. P-values are based on Fisher's Exact Test (index memberships) and Wilcoxon rank sum tests (all other measures).

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V. Market Reactions

This section proceeds to assess the extent to which the market reacted to adoptions of modified 102(b)(7) waivers. As noted in the previous section, 191 companies adopted Officer exculpation charter amendments between the effective date of the effective date of DGCL § 102 and its one year anniversary. In addition, by our reckoning, an additional 17 issuers had "self executing" charter provisions, that would extend to officers automatically upon the effective date of the revised statute.

A standard way to assess market effects of various governance changes is an event study. This approach, when applied to financial markets, attempts to unpack whether a sudden surprise "shock" (such as a company-relevant news, a rule change, or corporate announcement) was associated with an unusual or "abnormal" change in stock price for companies subject to the shock—one that cannot be explained with overall market movements on the date of the shock. Typically, financial event studies express price changes using the language of returns: i.e., the percentage increase or decrease in the stock price on the date of the shock. In the case of officer waivers, one can employ this strategy to determine whether stock returns of various Delaware-incorporated firms responded abnormally to a variety of different shocks associated with officer waiver reforms.

There are several potential ways that markets might have responded to the reform in Delaware in ways measurable through an event study. First, and most saliently, Delaware-incorporated issuers that proactively amended their charters after the effective date represent publicly observable announcements of corporate governance regime changes that unfold in a staggered form. Under this view, the "shock" that is visited on an issuer is the issuer's explicit adoption of an officer exculpation provision through a charter amendment. While the firm-level analysis has considerable appeal, it also faces an endogeneity limitation, since the amending firms are (by definition) self-selected—a factor that complicates the interpretation of abnormal returns.

A second, alternative approach would be to treat the "shock" as the first material news of Delaware's embrace of officer exculpation—which is visited on all Delaware-incorporated firms simultaneously. The theory behind this approach is that the reform represented a material new option for all firms to embrace officer exculpation where such an option had previously been unavailable. Within this population, one could drill down further still to concentrate on how news of Delaware's statutory reform landed with Delaware-incorporated issuers that already had in place a self-executing charter provision that would expand automatically with the expanded scope of § 102(b)(7).

We present evidence from both of these approaches below. In each of the event studies, we rely on relatively conventional assumptions. We use a familiar asset pricing model (either CAPM or the 3-factor Fama French model) to deliver predicted returns for each treated firm. The calibrating model was estimated over a 100-day window of time preceding the event date by at least 50 days, and at least 70 observations were

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required to calibrate the model. Our event window consisted of the 10 trading days before the event through the end of 10 trading days after the event. For each date within that window, we compute the difference between realized returns and predicted returns, to yield an abnormal return, which we then aggregate across the event window to generate both average and cumulative abnormal returns.

A. Firm-Level Changes

Consider first the most straightforward type of event study, which focuses on Delaware-incorporated issuers that proactively embraced officer exculpation after the effective date of the statutory reform. These companies would stand out in the disclosure space, having specifically announced plans to change the charter. Two potential dates are most relevant in assessing this group. The first is the date that the initial preliminary proxy materials that contain the proposed charter amendment are disclosed to the public in a preliminary proxy solicitation. The second is the date of the stockholder meeting itself, where stockholders get the final say (up or down) of whether the exculpation provision is approved. Unlike contested director elections, proposed charter amendments do often not draw significant controversy, so we would expect most of the action in assessing price effects of charter amendments would be in the preliminary proxy disclosures. Therefore, in the analysis below, we focus on that date.

For each of the amending issuers, we determined the date of the first preliminary proxy statement disclosed to the SEC and available on EDGAR. This date serves as the event date for our event study. Figure 6 shows the mean cumulative abnormal (by day) for the amending issuers, where expected returns are calibrated using a CAPM model. As can be seen from the figure, amendment does not appear to be overly well-received in markets, and the mean cumulative abnormal return by the end of the event window is approximately -2.5%, not enough to satisfy conventional 95% statistical significance criterion for two-tailed test, though significant at a one-tailed test (t=-1.742).

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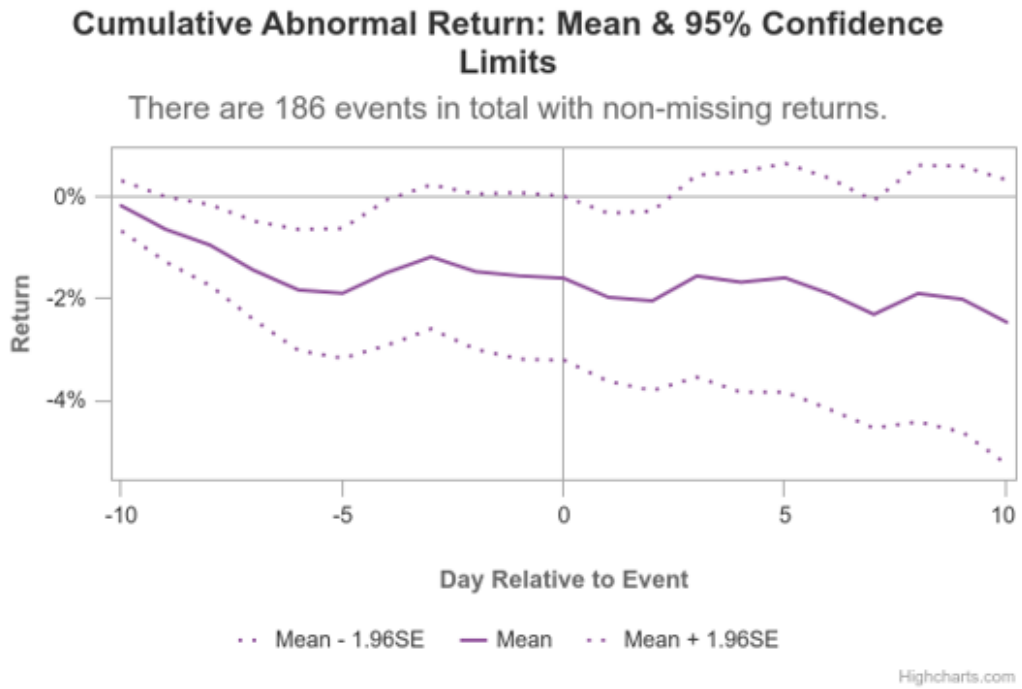


Figure 6: Mean Cumulative Abnormal Returns of Amending Issuers (21-day event window around Preliminary Proxy); CAPM Benchmark; Two-sided 95% Confidence Interval in dashed lines

That said, the result above is somewhat sensitive to the underlying asset pricing model utilized. Figure 7 presents the same analysis but with a Fama-French three-factor model as the asset pricing benchmark. Here, cumulative returns are mildly *positive* over the event window (2.2%), and not statistically significant under either one-tailed or two-tailed tests (t=1.570)

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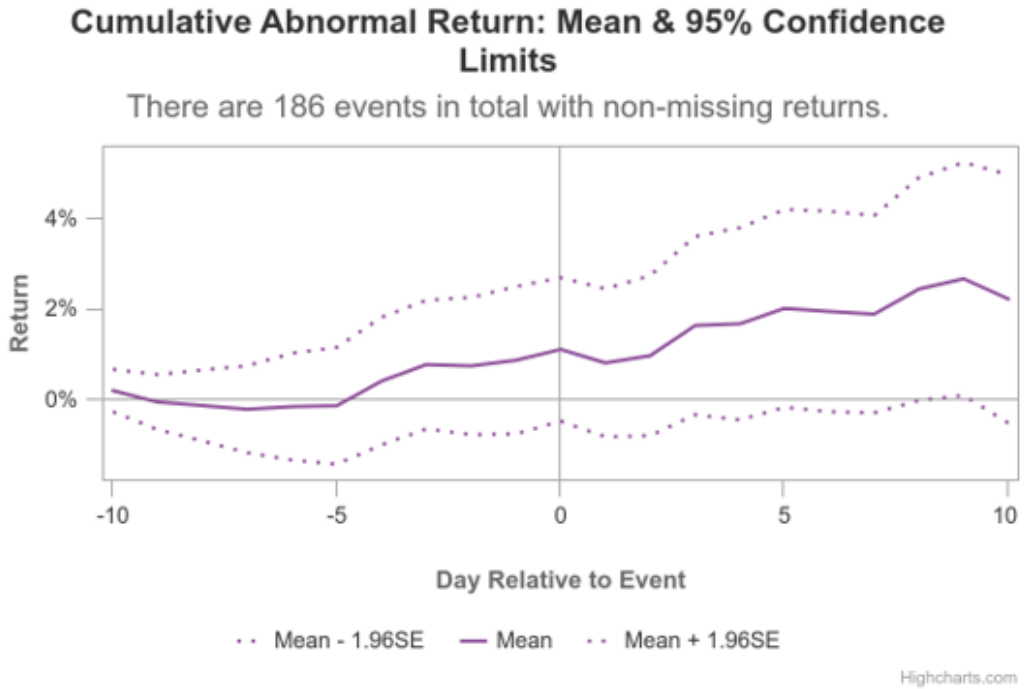


Figure 7: Mean Cumulative Abnormal Returns of Amending Issuers (21-day event window around Preliminary Proxy); Fama-French Benchmark; Two-sided 95% Confidence Interval in dashed lines

Combined, these results offer a somewhat mixed picture, but one that is relatively mild in any direction. Market participants certainly did not appear to celebrate the embrace of officer exculpation by amending issuers, and they may (under some measuring methodologies) viewed officer-exculpation amendments warily. Even here, however, the evidence is somewhat mixed, and we do not uncover overpowering evidence that the response was extremely negative.

One potential complication with studying actual charter amendments is that they are frequently bundled with a variety of other proposed changes in an annual stockholder meeting, thereby adding considerable noise to the signal of an amendment decision. An alternative way to explore market reactions is to focus on events that do not entail this degree of event bundling at the firm level. We turn to that alternative analysis below.

B. State-Level Changes

Now consider an alternative approach, where the event study "shock" takes the form of news about Delaware's planned embrace of statutory reform. Under this approach, the treatment group consists of any Delaware-incorporated issuer, as the news effectively extends a new "real option" to those issuers to expand their

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exculpation provisions to cover officers. Under this approach, the shock is common to all Delaware issuers, and not the byproduct of endogenous firm-level choices to promulgate charter amendments, when to propose such changes, and whether to bundle the proposal with other corporate matters.

Statutory reform shocks can be challenging to measure in practice, since the amendment of a statute is a long process, while an event study requires a "shock" that is plausibly a surprise to market participants (and thus not already capitalized into stock prices). In the case of reforms to the DGCL, this process is elongated by the traditional rendering of recommendations by the Delaware State Bar Association Corporations Council (the "Council"), a group of twenty-three practitioners who make legislative recommendations to the Delaware. It is rare that the Council's recommendations are changed considerably (if at all) in the legislative process, and they are usually signed into effectiveness verbatim by the Governor.[137] Consequently, once the Council has issued its recommendations, the dye is effectively cast for reform. To the extent that there is a "surprise" shock in the legislative reform process, it most logically coincides with the finalization of the Council's annual legislative recommendations. In the case of the § 102(b)(7) reforms, finalization took place on April 12, 2022. We therefore use this as the event date in the analysis that follows.

Consider first the population of all Delaware-incorporated firms. This subpopulation was uniformly affected by the news of officer exculpation reform (whether they eventually exercised that option or not). We therefore begin with an event study that classifies Delaware firms as the treatment group. There are some limitations to this approach: Delaware firms are an exceedingly large treatment group – comprising over half of the sample of US-incorporated public companies. Consequently, the "shock" that is being analyzed here is visited on a large portion of the market simultaneously, and thus for each treated firm, the market portfolio may be affected by the shock as well. Our conjecture is that the first order effect of this complication would be to attenuate the results we uncover, since the market portfolio fractionally smuggles in some of the underlying treatment effect.

Figure 8 below shows graphically the results of an event study of the Council's announcement on abnormal returns for all Delaware firms. As can be seen from the figure, abnormal returns trended upwards around the date of the announcement, with some activity beginning around a week before the announcement. The cumulative

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[137] *See* Leo E. Strine, Jr., *Delaware's Corporate-Law System: Is Corporate America Buying an Exquisite Jewel or a Diamond in the Rough? A Response to Kahan & Kamar's* Price Discrimination in the Market for Corporate Law, 86 CORNELL L. REV. 1257, 1268, 1270 (2001) (emphasizing the Council's influence on the Governor and that the "Council will generally draft and obtain swift passage of legislative amendments."); Jordan Howell, *Special Interests Pull Back on Delaware Corporate Law Changes After Wilson-Anton Amendment*, DEL. CALL (Jan. 22, 2024), https://delawarecall.com/2024/01/22/special-interests-pull-back-on-delaware-corporate-law-changes-after-wilson-anton-amendment/ ("Changes to the laws . . . are almost always drafted by [the Council] . . . . Lawmakers rarely write these bills.").

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abnormal return for the entire event window is meaningful (1.3%) and strongly statistically significant (t=4.02).

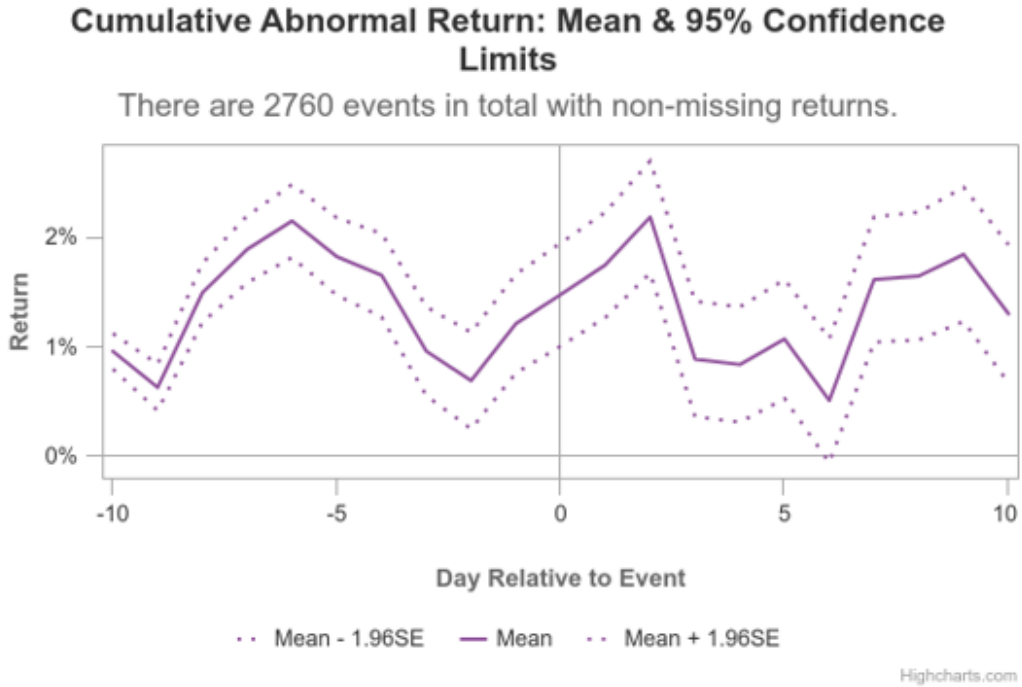


Figure 8: Mean Cumulative Abnormal Returns of DE Issuers (21-day event window around DE Council Announcement); CAPM Benchmark; Two-sided 95% Confidence Interval in dashed lines

Using a Fama-French three factor model as the benchmark, the qualitative result reverts again, as shown in Figure 9. Here once again, there is an uptick in abnormal returns about a week before the announcement date, but it quickly dissipates. The overall mean CAR for Delaware-incorporate firms is negative (-1.5%) and significant (t=-4.440).

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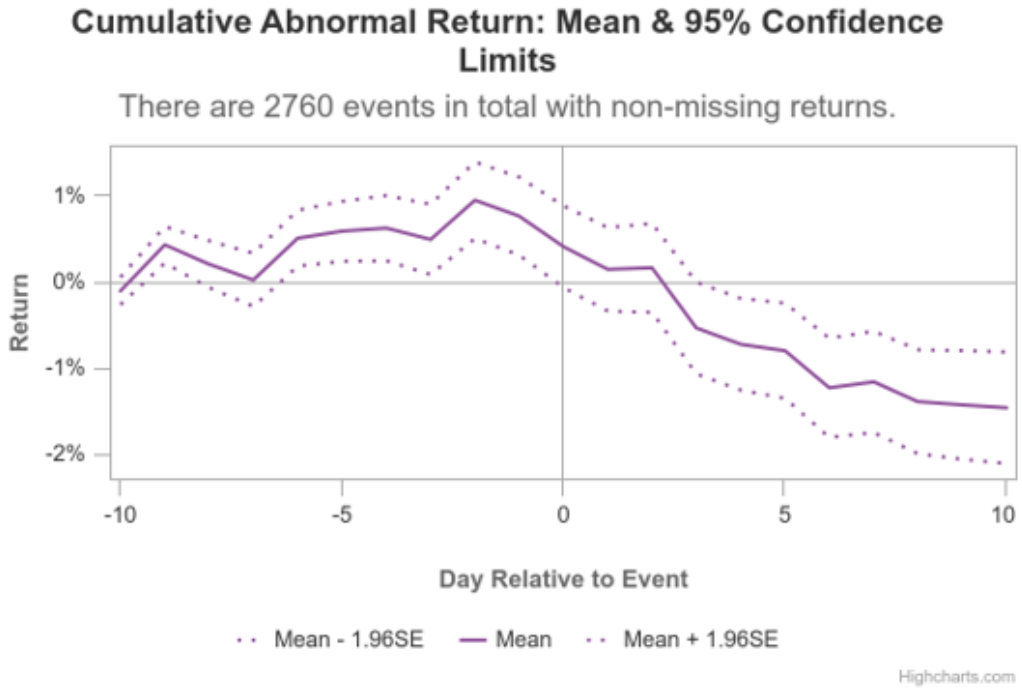


Figure 9: Mean Cumulative Abnormal Returns of DE Issuers (21-day event window around DE Council Announcement); Fama-French Benchmark Benchmark; Two-Siced 95% Confidence Interval in dashed lines

Given these starkly inconsistent findings using alternative asset pricing models, one can potentially get more traction on the state-wide shock by focusing on those firms that were *especially primed* to change their corporate governance regime. A particularly good candidate. For such firms are those who already had in place a "self-executing" exculpation provision that by its terms expanded to cover officers if and when Delaware expanded its statutory authorization—the news of which similarly arrived on April 12, 2022. In all, as we describe above, we were able to find 17 such issuers.

We once again flag the complication of an event study that has a heavy representation of Delaware incorporated issuers, even for this more focused inquiry that focuses on self-executing charters. Indeed, to the extent that the announced reform created an option for all Delaware-incorporated issuers, those who had self-executed were implicitly also given an option (to change back to directors-only). Consequently, the effect of the announcement—while arguably sharper for the self-executing issuers—is potentially attenuated by the market portfolio that contains a large fraction of semi-treated firms.

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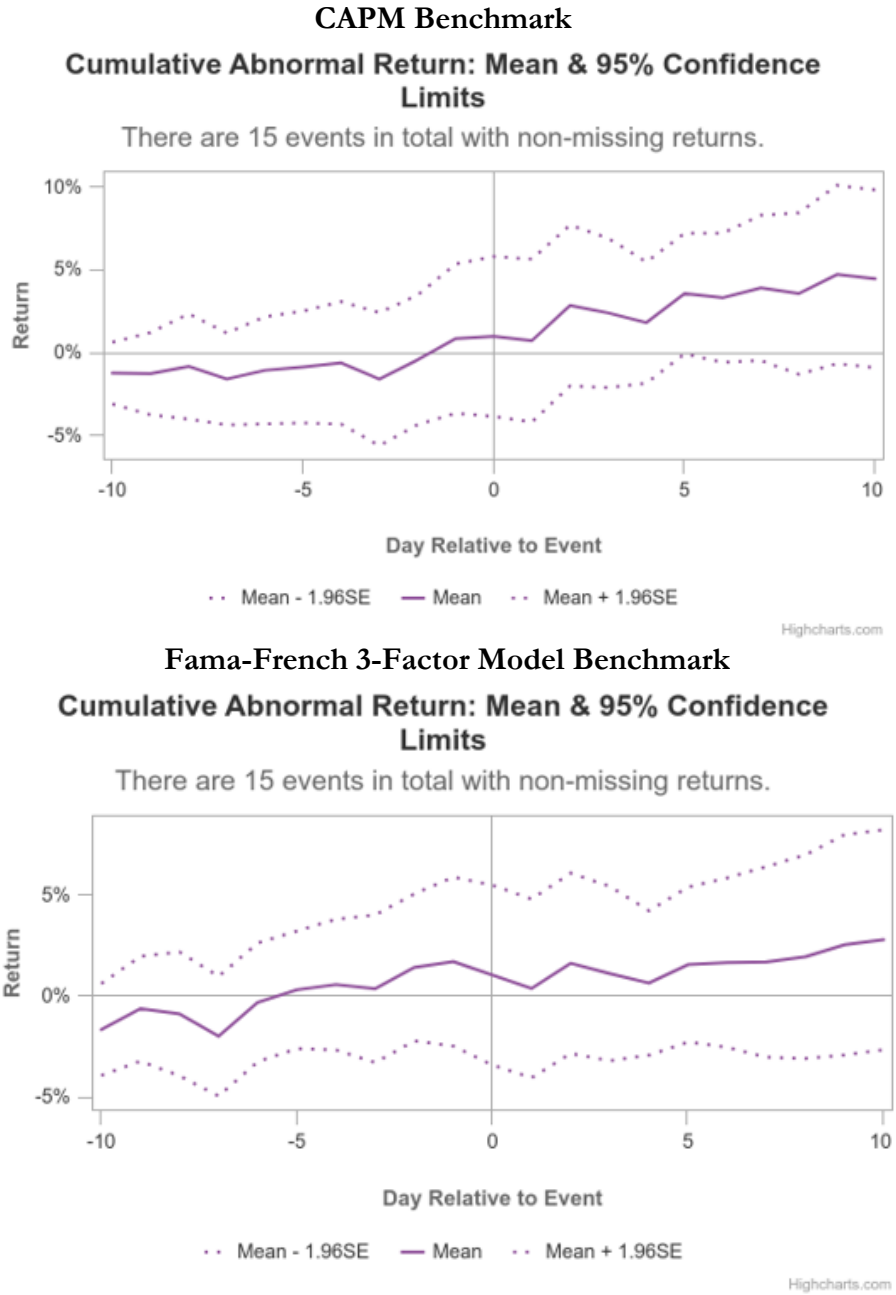


Figure 10: Mean Cumulative Abnormal Returns of DE Issuers with Self-Executing Charters (21-day event window around DE Council Announcement); Two-sided 95% Confidence Interval in dashed lines

The two panels of Figure 10 depict the graphical results of the event study using CAPM (top panel) and Fama French (bottom panel) as the benchmark asset pricing

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model. In both cases, the event window suggests an economically appreciable increase in mean cumulative abnormal returns (of 4.4% and 2.7%, respectively) that are not statistically significant (t=1.619 and t=.992, respectively).

Our event study analysis of the state-level shock following the Council's announcement of proposed reforms indicates that market participants perceived the news of Delaware's prospective changes as either neutral or mildly positive. Together with findings from earlier subsections, our analysis does not find evidence that the market viewed the increased flexibility offered to corporations, or their utilization of it, negatively in terms of corporate value or their future potential to create shareholder value.

VI. Other Possible Explanations

The previous sections demonstrated that the majority of companies did not exploit the opportunity to exempt their officers from liability for breaches of the duty of care, despite being legally permitted to do so. Insofar as this reluctance was driven by concerns about adverse reactions of the stock market, the results from our event study suggest that concern was largely unfounded. This raises questions: Did managers misinterpret market sentiment, or were there other underlying reasons for the limited uptake? We now turn to exploring potential factors contributing to this unexpected outcome.

A. Transaction Costs and Sticky Charters

First, the results might be partly explained by the transaction costs involved with changing a corporation's charter. Most importantly, a charter change needs to be ratified by shareholders,[138] and a shareholder meeting in which a charter change will be discussed entails heightened requirements for the organization of the meeting, particularly the submission of a preliminary proxy statement with the SEC before it can be distributed to shareholders.[139] In other words, charters might be sticky—stickier than other relevant documents such as bylaws and contracts. Here, we shed light on this question by adding two additional analyses to this study, a comparison of the charters in our dataset with those of companies which went public after the reform took effect, and an analysis of whether companies are more likely to adopt a 102(b)(7) waiver if they are changing their charter in other aspects as well.

1. Post-Amendment IPO Charters

The stickiness of charters might well explain their reluctance to change their charters midstream in order to adopt a modified 102(b)(7) waiver. However, this explanation does not convincingly apply to a specific group of companies: those that

[138] DEL. CODE ANN. tit. 8 § 242(b) (2022).
[139] 17 C.F.R. § 240.14a-6.

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have undergone an IPO after the reform was enacted. In contrast to companies already trading on stock exchanges, these newly public entities are not subjected to the same level of scrutiny from proxy rules and public attention when considering amendments to their charters prior to going public. Consequently, if an officer-exculpating 102(b)(7) provision is indeed attractive, we would expect to see a notably higher adoption rate in the charters of companies at their IPO. Indeed, recognizing the challenges of charter amendments post-IPO, transactional planners should be particularly motivated to include such beneficial provisions in the IPO charters, which might be difficult to add at a later stage. By contrast, if even newly public corporations avoid officer-protecting waivers, the transaction cost hypothesis loses traction.

To further explore these questions, we examine the charters of companies that went public after August 1, 2022. Using the CRSP/Compustat Merged Database, we identify 63 Delaware-incorporated companies debuting post this date. Following the protocol outlined earlier,[140] we successfully locate and download charters including at least one document with a full restatement for 40 of these companies. We then analyze these charters using the same coding routine previously applied to assess the incidence of officer-protecting waivers in the charters of established companies.[141]

An analysis of the resulting data does not strongly support the stickiness hypothesis as the primary reason for the patterns previously discussed. Among the newly public companies, a majority (36 out of 40) incorporated 102(b)(7) waivers into their charters, yet only 17 of these (42.5%) extended these waivers to their officers. This unexpectedly low adoption rate suggests that factors other than the transactional costs of amending charters are influencing the decision-making of these corporations. Given that transactional planners often start from a relatively blank slate when establishing governance frameworks for companies approaching an IPO, it appears that considerations other than the costs and complexities of charter amendments post-IPO might be at play in their reluctance to introduce new officer-protective waivers.

To illustrate how waivers in IPO charters fit within the wider array of waivers, we once again generate a two-dimensional visualization representing the vocabulary used in these documents. This visualization is presented in Figure 11. Waivers included in IPO charters appear to follow previously established patterns: Waivers limited to directors largely cluster within one of the earlier identified groups, whereas those extending protection to officers show less tendency to cluster in a similar fashion.

[140] *Supra* Section III.A.1.
[141] *Supra* Section III.B..

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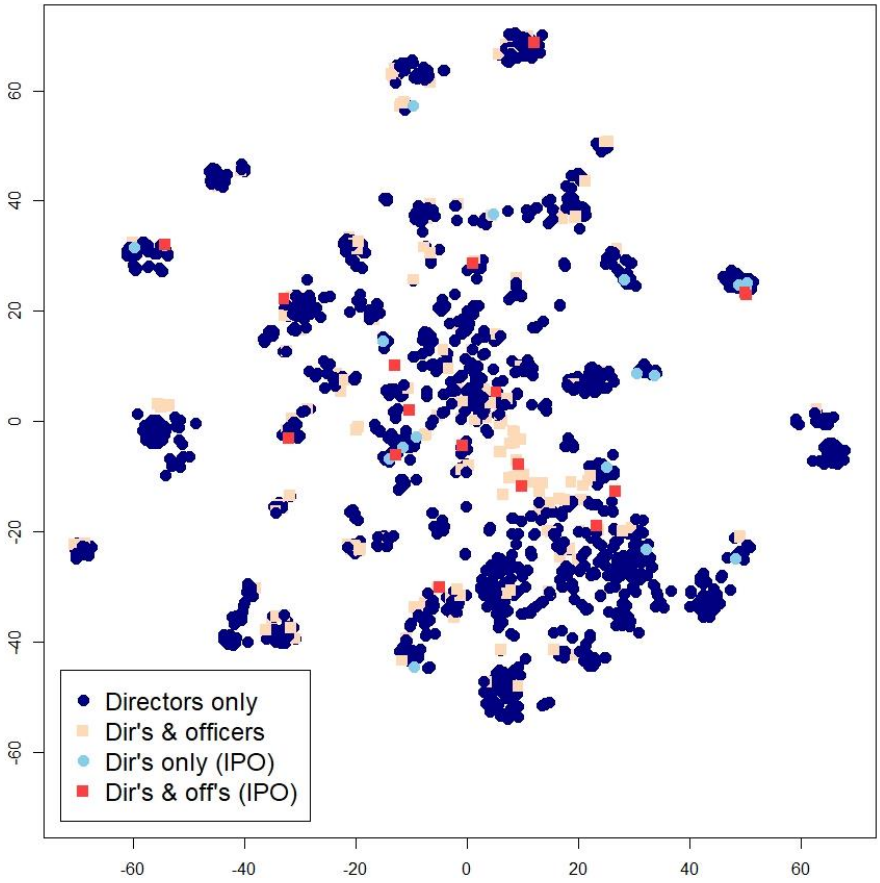


Figure 11: Two-dimensional representations of waiver vocabulary including IPO charters

Additionally, we reaffirm our earlier observation that waivers protecting officers rarely closely resemble others in the dataset: The average cosine similarity of officer-protecting waivers in IPO charters to the nearest waiver in our database is 0.7748, compared to 0.9165 for director-only waivers.[142]

2. Other Charter Changes

To further investigate the issue of charter stickiness, we examine if companies tend to revise their 102(b)(7) waivers more frequently when they are also considering other changes to their charters. If the major obstacle in updating the waiver is the organizational effort associated with convening a shareholder meeting for charter revisions, this challenge should be less of an issue if the company is already proposing

[142] The difference is statistically significant at the 1% level, as confirmed by both a Wilcoxon rank sum test and a t-test.

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other charter modifications for shareholder vote. However, if we find that companies undertaking significant charter revisions post-reform do not alter their waiver, it suggests that—at least for those companies—transaction costs stemming from the formalities surrounding the annual meeting cannot have been the reason for their reluctance to adopt a modified waiver.

To analyze this question further, we develop a metric to quantify the extent of changes made to a corporation's charter in amendments post the 2022 reform.[143] We then examine how companies that adopted waivers compared with those that did not, according to this metric.

Considering the entire group of non-adopters as a baseline for comparison, it is evident that adopters exhibit significantly more charter modifications. On average, adopters have altered 12.7% of their charter's text, whereas non-adopters' changes are considerably lower, averaging only 2.5%.[144] This substantial disparity is largely due to the fact that a majority of non-adopters, about 84.5%, have made no changes to their charter since the implementation of the reform.

When we narrow down our comparison to include only those companies that have also amended their charters post-reform—a group comprising 297 companies, approximately one and a half times the size of the adopters—a different picture emerges. As depicted in Figure 12, the distribution of charter changes between these two groups reveals that the average modifications among non-adopters amounted to 16.4%, surpassing those made by adopters.[145]

[143] The measure builds on comparing the distribution of trigrams in different documents. For the use of a similar measure in a different context, see Jens Frankenreiter, *Cost-Based California Effects*, 39 YALE J. ON REGUL. 1098 (2021). If a company amended their charter more than once, the changes for different charter revisions are added up, implying that there could be companies which changed their charter more than 100%.

[144] The measure is likely overstating a corporation's changes because many charter amendments include operative text that will not go into the text of the charter, but is likely counted here as new text. However, as our goal here is to compare changes between adopters and nonadopters and not to establish the absolute amount of charter text that changed in a given period, this issue should not impose a major limitation on our analysis.

[145] A likely explanation is that many adopters only changed the text of their 102(b)(7) waiver, while other companies implemented more fundamental changes.

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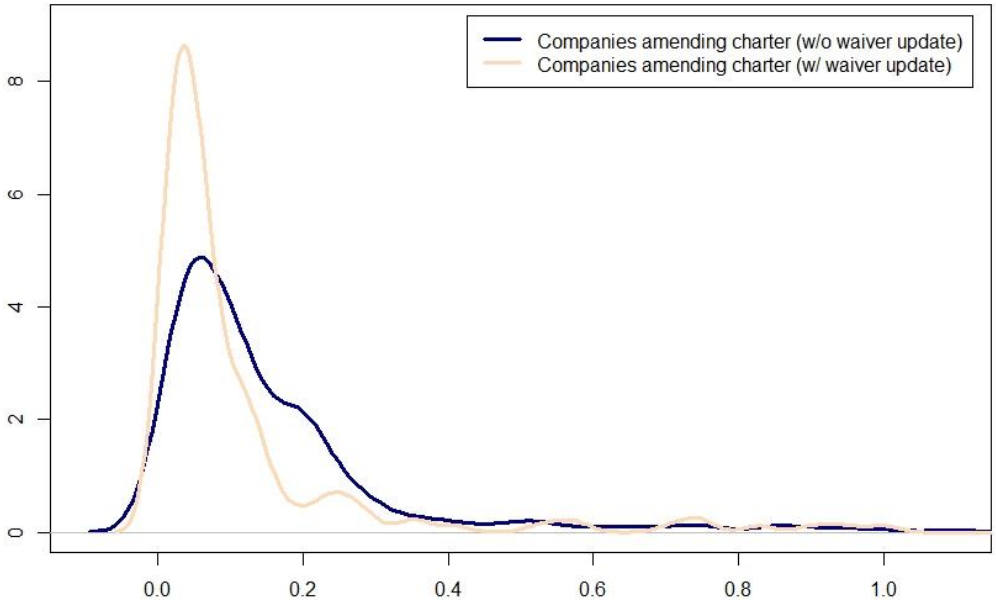


Figure 12: Amount of changes to charter text made by adopters and other companies implementing charter revisions

While it is noteworthy that a significant number of non-adopters implemented more extensive charter changes than adopters, the crucial insight from this analysis lies elsewhere. Many companies that enacted major charter revisions since the 2022 reform chose not to modify their 102(b)(7) waiver in the process. This observation further counters the hypothesis that the transaction costs and organizational challenges associated with shareholder voting are primary deterrents for companies updating their 102(b)(7) waivers.

B. Start Slow, Finish Strong?

Another potential explanation for our findings might be that we still have not allowed sufficient time for a trend to take hold. Corporate decision-makers might need time to assess whether to adopt an officer-exculpating waiver. They might wish to wait for more case law to develop on officer waivers, or for a reputable law firm to provide a template or observe how the market responds to other firms' attempts at adopting a modified waiver. Of course, only the passage of additional time (possibly years) will reveal if this is a genuine concern. That said, having monitored the adoption of such waivers over 14 months, we can at least analyze the initial trajectories (to the extent they exist) of adoption rates in the short- to medium-term..

A challenge for any undertaking such as ours is that corporate shareholder meetings do not occur at uniform frequencies throughout the year. Rather, most publicly traded firms hold stockholder meetings only once per year, usually during the spring, so as to comply with requirements to hold the annual meeting within a certain

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time after the end of the fiscal year, often timed to be the end of the calendar year.[146] We therefore compile information from companies' proxy statements filed with the SEC to determine when they held their annual meetings and compare the observed adoption of officer-exculpating waivers against the base line number of meetings held in a given month.[147]

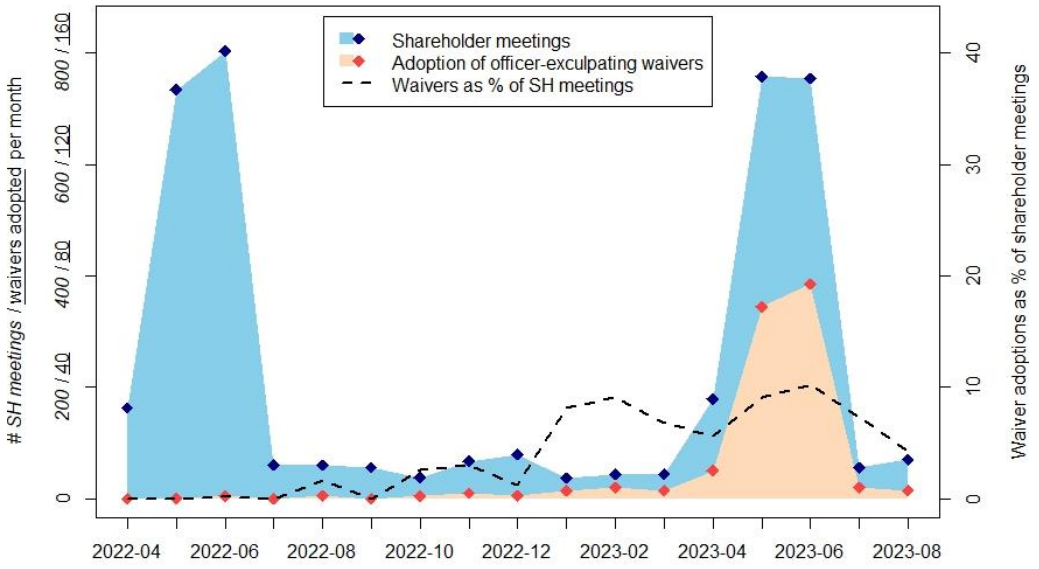


Figure 13: Timing of shareholder meetings (all companies) and adoptions of modified waiver provisions

While the number of waiver adoptions, depicted in Figure 13 with the scale enlarged to five times its original size for graphical clarity, generally reflects the frequency of shareholder meetings over time, some notable trends emerge from the data. Waiver adoptions were infrequent in the months leading up to and immediately following the reform, but witnessed a significant uptick in the first half of 2023. During the first eight months of this year, between four and ten percent of companies holding their annual shareholder meeting in any given month adopted a waiver. May and June 2023, the busiest months of this year's proxy season, also experienced the highest adoption rate of waivers. However, the slightly lower adoption rate for August 2023 might indicate that this trend might not hold after the first anniversary of the reform.

[146] Because of the high incidence of shareholder meetings in the spring, this period is known as "proxy season." https://www.investopedia.com/proxy-season-7370612.

[147] Proxy statements, filed using Form DEF 14A, along with preliminary proxy filings on Form PRE 14A, typically specify the date of the shareholders' meeting. Recent filings, however, do not consistently provide this information. Therefore, where necessary, we estimate the meeting dates based on the basis of the average time difference between the filing of the proxy statement and the meeting date.

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In summary, while the data offer some evidence that waiver adoptions are beginning to gain traction, the overall trend is too marginal to assert with certainty.

VII. Interpretation and Implications

Overall, our analysis delivers several important takeaways. Some concern the methods we employ in our analysis, while others pertain to our substantive findings.

A. Methods

Methodologically, our study provides a concrete illustration of how ChatGPT and similar AI tools can be used to assemble legally relevant textual information with unprecedented speed and scale. The extensive validation exercises we employ suggest that ChatGPT excels at the tasks for which we deploy it in this project, in particular the extraction of liability waivers from corporate charters and the assessment of whether these waivers cover officers as well as directors. Overall, our study illustrates how emerging AI tools, based on foundational models, can unlock exciting possibilities for legal researchers—even those who cannot underwrite armies of research assistants.

At the same time, it merits observing that our study barely begins to explore the potential of these tools in legal research. We have not, for example, compared ChatGPT's performance to other tools or different versions of our coding protocol. While our approach yields excellent results, it is conceivable that alternative methods could surpass it. These might involve utilizing ChatGPT (or alternative foundational models) with varied prompts or employing different models and tools entirely. Furthermore, although ChatGPT enabled us to gather the necessary information at a significantly reduced cost compared to traditional methods, other strategies could reduce expenses further still.

In addition, our use of ChatGPT is confined to a specific set of tasks, suggesting that further exploration may be needed to gauge its efficacy in other substantive domains. These scenarios might not only include different information extraction exercises—such as analyzing various types of charter provisions or employing distinct document sets—but also more complex analyses like assessing compliance with legal standards. Investigating ChatGPT's and other tools' performance in these diverse settings, along with developing best practices for legal researchers, represents a significant challenge and promising trajectory for future research.

B. Substantive Findings

Our first and most important substantive finding is that Delaware-incorporated firms have not collectively stormed the gates to extend liability waivers to officers. The pattern of adoption seems outright tepid, in fact, when compared to the faster pace of

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director-centered waiver adoption in 1986.[148] Rather, the officer-waiver party seems to be one that only a few have decided to crash—a pattern that is more emblematic of the early days of corporate opportunity waivers when Delaware first made them available in 2000.[149]

Second, the reason for the tepid rate of uptake does not appear to be due to existing director-waivers that had been "future proofed" by drafting tricks that would cause them to extend automatically to officers if/when Delaware law enabled such an extension. Indeed, we document that, while such future-proofed governance documents do indeed exist, only a small minority of issuers had adopted them prior to the reform.

Third, the tepid uptake does not seem clearly driven by concerns about market reception. Overall, our event study tests suggest that securities markets, by and large, took the reforms in stride, and that exculpation-relevant events do not suggest a huge market discount for adopting firms. While we cannot rule out the possibility that market reactions would have been worse for the majority of issuers who chose *not* to adopt officer-facing waivers, the ones who did faced only mild market sanctions at worst for making the move.

Fourth, the slow rate of uptake does not seem obviously related to lock-in effects born of transaction costs related to the mechanics of charter changes. Most significantly, we find that officer exculpation does not appear to be ubiquitous for companies where those transaction costs would have arguably been markedly reduced as compared to other firms, such as newly public firms and firms that changed their charters anyway during the time under observations.

All that said, our empirical analysis does not definitively resolve the question of why companies have been slow to adopt the new rule, particularly in contrast to their response to the enactment of DGCL §102(b)(7) in 1986. In this context, we propose what we consider to be the two most likely candidate reasons that could—either alone or in combination—account for this divergence. (It is important to note, however, that our data does not conclusively support either theory.) The first candidate explanation is that the extension of fiduciary waiver eligibility to officers may simply represent trivial incremental benefits for many corporations.[150] This perspective is particularly influenced by the fact that officer-exculpating waivers cannot cover derivative lawsuits, which are commonly used to address allegations of officer misconduct that appear outside of specific scenarios such as sell-side mergers and acquisitions. In contrast, waivers for directors apply to both direct and derivative actions, providing an added layer of protection that can often lead to the early dismissal of such proceedings.

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[148] Romano, *supra* note 39.
[149] Rauterberg & Talley, *supra* note 40.
[150] See also Lipton, *supra* note 24.

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Alternatively, the slower uptake of these governance changes might reflect shifts within the corporate governance landscape since the 1980s, which counsel for more of a "wait and see" approach to significant governance reforms. The influence of institutional shareholders has grown significantly in recent decades, with entities like Vanguard, BlackRock, and State Street now wielding considerable power due to their concentrated shareholdings.[151] This evolution in the corporate governance ecosystem could mean that corporations aspiring to introduce management-friendly provisions such as liability waivers into their charters now must engage in extended substantive dialogue with shareholders and other stakeholders to socialize them to a possible change. This is a departure from past practices, where such changes might have been easier to implement without extensive shareholder consultation. The cautious approach adopted by advisory firms like ISS and Glass Lewis towards waiver modifications, combined with the failure of many proposed waiver modifications to be adopted, helps to underscore this new reality.[152]

This last explanation, should it prove accurate, casts Delaware's trend towards increased customizability in corporate governance—even in domains previously viewed as immutable for alterations—in a somewhat positive light. It implies that the enhanced flexibility afforded by Delaware law, especially when it necessitates charter amendments for implementation, does not simply give managers carte blanche to negotiate terms that systematically fleece their shareholders.[153] Beyond their mechanical imposition of procedural hurdles, charter amendments appear to require careful consideration and dialogue and could therefore constitute a meaningful mechanism for aligning management actions with shareholder interests. Accordingly, they can help ensure that moves towards greater customizability serves the broader interests of the corporation and its shareholders.

Conclusion

The 2022 reform of Delaware's law embracing fiduciary duty waivers for officers has found few early takers to date, a finding that might seem surprising given the quick propagation of director-facing waivers when they became available and the legal community's initial enthusiasm about the present reform. Moreover, our analysis indicates that the transaction costs associated with amending corporate charters are unlikely to have been a principal culprit behind the languid rate of adoption for officer-facing waivers. We also find little evidence that the hesitation can be explained by concerns about adverse market reactions to adoption decisions.

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[151] *E.g.*, Dorothy S. Lund & Elizabeth Pollman, *The Corporate Governance Machine*, 121 COL. L. REV. 2564 (2021), at 2589-90.

[152] *See supra* Section III.C.

[153] *Cf.* Lucian Arye Bebchuk, *Limiting Contractual Freedom in Corporate Law: The Desirable Constraints on Charter Amendments*, 102 HARVARD L. REV. 1820 (1989).

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These empirical findings suggest that concerns other than procedural or financial hurdles are at the forefront of corporate decision-making in this area. The limited response may reflect a broader hesitation within the corporate sector to rapidly embrace legal innovations, particularly those relating to governance and fiduciary responsibilities and those that might put a firm in the position of a proverbial canary in the coal mine. In addition, the relatively tepid response might be explained by a perceived lesser importance of officer-facing waivers compared to director-facing ones, coupled with a transformed corporate governance environment. This environment increasingly demands that decision-makers engage in substantive dialogue with key stakeholders, such as institutional investors and their advisors, before introducing management-friendly terms into their charters.

Another contribution in this article is its innovative use of ChatGPT for transforming substantial volumes of legal text into data suitable for analysis in legal research. We detail the methodology behind this approach and validate the reliability of using AI tools in this novel context. Our work, therefore, not only sheds light on the corporate reaction to recent changes in Delaware's governance laws but also demonstrates the value of integrating large language models and similar AI tools into legal research that transcends corporate governance.

In sum, our study provides early insights into corporate responses to Delaware's fiduciary duty waiver reforms. In doing so, it illustrates the practical application of AI tools like ChatGPT in legal research, paving the way for future research that that combines traditional legal analysis with advanced computational tools.

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