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REGULATING DYNAMIC RISK IN CHANGING MARKET CONDITIONS

SUSAN NAVARRO SMELCER, ANNE TUCKER, & YUSEN XIA*

ABSTRACT

How successful are the SEC’s attempts to regulate dynamic risk in financial markets? Using mutual fund disclosure data from two financial shocks—the Puerto Rican debt crisis and COVID-19—this Article finds evidence that SEC open-ended regulations, like the obligation to disclose changing market conditions, are largely successful in capturing dynamic, future risk. Funds engage in widespread and, often, detailed disclosures for new risks—although these disclosures vary widely in specificity. But not all funds disclose new risks. This creates perverse incentives for funds to opt out of disclosure or downplay threats with boilerplate language when new risks are emerging. This Article recommends several SEC interventions to improve dynamic risk disclosures including empirically monitoring disclosures, issuing guidance when problematic variation is observed, and enforcing disclosure standards.

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INTRODUCTION

How does the Securities and Exchange Commission (“SEC”) write dynamic regulations that protect markets and investors today in the face of tomorrow’s unknown risks? Disclosure is the dominant regulatory tool for both operating companies (“firms”), which issue securities, and mutual funds (“funds”), which pool money from many investors to purchase a portfolio of securities. Disclosures are designed to create transparency about past performance and address uncertainty about future outcomes.

The SEC’s disclosure regime obligates securities issuers to divulge sufficient information to facilitate the SEC’s regulatory oversight. Firms, for example, must file initial public offering (“IPO”) registration statements and comprehensive, ongoing reporting, like 10-Ks. Funds file a registration

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1 Dynamic regulation has been described as financial regulation defined by future events, moving beyond mere reaction and “increasingly utilizing institution-specific and decentralized information reflecting preceding events and attempting to anticipate succeeding future contingencies.” Wulf A. Kaal, Dynamic Regulation of the Financial Services Industry, 48 WAKE FOREST L. REV. 791, 818–19 (2013).


3 Securities are broadly defined by the Securities Act of 1933 and generally encompass a variety of investment products. See Securities Act of 1933, 15 U.S.C. § 77b(a)(1).


statement and update prospectuses at least annually, among other requirements.8

The SEC does not always prescribe precise actions or issue clear prohibitions.9 For example, the SEC requires disclosure of certain categorical information like statements about principal risks facing firms and funds.10 Firms and funds must satisfy these principles-based regulations by determining exactly what they must disclose at the time of filing.11 This determination changes over time depending on the social, political, and economic conditions. Responsive disclosures that change as circumstances and markets change are one piece of dynamic regulation.12

Within the flexibility of the SEC disclosure regime, however, some information is mandated.13 For example, funds must

regime regulating the merits of any particular investment (as the Food and Drug Administration (FDA) does with new medicines, for example), on the theory that “[p]ublicity is justly commended as a remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants; electric light the most efficient policeman.” LOUIS D. BRANDEIS, OTHER PEOPLE’S MONEY AND HOW THE BANKERS USE IT 92 (1914); see also Gregg J. Jarrell, The Economic Effects of Federal Regulation of the Market for New Security Issues, 24 J.L. & ECON. 613, 622 (1981) (“Its legislated purpose is to protect investors from insufficient or misleading information, rather than to protect or to prevent them from choosing risky securities.”).


9 See, e.g., S-K Final Rules, supra note 6, at 6 (“Many of the amendments reflect our long-standing commitment to a principles-based, registrant-specific approach to disclosure. Our disclosure requirements, while prescriptive in some respects, are rooted in materiality and facilitate an understanding of a registrant’s business, financial condition and prospects ....”).

10 See, e.g., SEC Form N-1A, supra note 8.

11 See, e.g., S-K Final Rules, supra note 6, at 6 (noting “principles-based” nature of amendments to Regulation S-K).

12 See Kaal, supra note 1.

clearly state that investing entails the risk of losing money. The SEC also sets parameters like page limits, plain English mandates, and formatting standards to make disclosures more accessible to ordinary investors. Once again, hard rules are balanced with flexibility. Funds, for instance, must disclose “essential information about the Fund in a way that will help investors to make informed decisions about whether to purchase the Fund’s shares described in the prospectus.” Taken together, the SEC’s disclosure regulations create a flexible framework within which firms and funds comply with clear rules while also exercising discretion about what information is disclosed and how.

But regulation by disclosure is, by its nature, incomplete. The SEC can require disclosure of known or ongoing risks, but what of new and emerging risks? To address ex ante uncertainty, the SEC adds open-ended features that extend disclosure obligations to future, unknown events. In particular, the SEC requires funds to provide information on changing market conditions that present new and undisclosed risks to the funds’ investments. Changing market conditions identify unusual, imminent, or unfolding events that could adversely impact the fund by introducing additional risk. These events include political developments like a change in power, economic conditions like a recession, or legal events such as new legislation or court rulings that may affect the markets broadly, a sector such as oil and gas, or a specific locale.

14 See, e.g., SEC Form N-1A, supra note 8 (requiring all non-Money Market funds “disclose that loss of money is a risk of investing in the Fund”).

15 Presentation of Information in Prospectuses, 17 C.F.R. § 230.421 (“To enhance the readability of the prospectus, you must use plain English principles in the organization, language, and design of the front and back cover pages, the summary, and the risk factors section.”).

16 SEC Form N-1A, supra note 8.

17 Business and Financial Disclosure Required by Regulation S-K, supra note 5.

18 S-K Final Rules, supra note 6.


20 See id.

21 See id.
Open-ended requirements, such as the requirement to disclose changing market conditions, regulate dynamic risk. Such prescriptions act as a gap-filler or a bridge between what the SEC knows to regulate today and what the SEC may need to regulate tomorrow. For example, the SEC cannot know when, where, and to what extent the next hurricane will disrupt the economy of Florida or Puerto Rico. Nor can the SEC predict when and how the next pandemic will impact the global economy. A mandate to proactively disclose emergent market conditions addresses the shortcomings of more traditional, static regulations.

The ability to regulate dynamic risk in a cost-effective and responsive way is both difficult and necessary. This Article argues that the SEC’s attempt to regulate dynamic risk through requiring funds to disclose emerging market conditions is largely successful (with a few caveats). Using a dataset of all open-end mutual fund principal risk disclosures from 2010 through 2020, this Article examines how funds disclosed the risk associated with two major changing market conditions that occurred in the

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24 See Current Market Conditions, supra note 19.
25 Louis Kaplow, Rules versus Standards: An Economic Analysis, 42 DUKE L.J. 557, 621 (1992) (stating that standards are less costly than rules when the “behavior subject to the law is infrequent”); see also RONALD DWORKIN, TAKING RIGHTS SERIOUSLY 22-28, 71-80 (1977) (using different language but exploring standards versus hard rules in litigation).
past decade: the Puerto Rican debt crisis and the emergence and effect of the COVID-19 global pandemic. This Article finds that, in general, funds respond to the SEC’s mandate to disclose changing market conditions. In other words, many funds disclose their exposure to COVID-19 or Puerto Rico’s deteriorating economic condition and describe how these events may affect the fund’s value. However, not all funds disclose changed or changing market conditions. These funds’ disclosures read like ‘business as usual,’ even when it is not. And within the funds that do disclose changing market conditions, descriptions of a serious emerging risk can vary wildly from disclosure to disclosure, even among similarly invested funds talking about similar events.

Such widespread but incomplete participation coupled with disclosure variation raises questions about the efficacy of SEC dynamic risk regulation and presents opportunities to improve it.

The disparity in funds’ descriptions of current market condition risk also hinders the SEC’s goal of keeping ordinary investors informed. Variation likely creates confusion for investors by signaling differences in funds’ risk exposures where none may exist. Assume two similar funds are both invested in Puerto Rican debt in 2015. Fund A provides a detailed description of the Puerto Rican debt crisis and how it may affect the fund’s net asset value (NAV). At the same time, Fund B provides some generic language about the fund’s exposure to municipal bond markets, including Puerto Rico’s.

This example is not hypothetical: it exists in the data. Does the disparity between Fund A’s and Fund B’s disclosure affect how consumers compare the funds? Probably. The specificity provided by Fund A suggests that it is more exposed to and will suffer more

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28 See infra Section II.B.1; Section III.A.
29 See infra Section II.B.2; Section III.A.
30 See infra Section II.B.3; Section III.A.
31 See infra Section II.B.2; Section III.A.
32 See infra Section III.B (describing the effect of boilerplate language that “state hypothetical risks without a clear signal to investors that they are, in fact, exposed to specific risks from the investment in Puerto Rican securities”).
33 See infra Section II.B.4.b.
34 See infra Part IV.
35 See infra Part IV.
36 See infra Part IV.
negative consequences from Puerto Rico’s debt crisis than Fund B. Fund B’s use of generic language obscures the serious nature of the risk in more neutered language that communicates a common, benign risk. Disclosure variation, in this case, is not necessarily a reflection of parties’ unvarnished predictions about future legal, economic, and political conditions. The funds make strategic choices about how to disclose certain risks both to maximize share sales to investors and minimize regulatory scrutiny and legal liability. Variation may mislead investors into underestimating the current market conditions’ impact on the fund.\textsuperscript{37}

This lack of consistency is not limited to the Puerto Rican debt crisis.\textsuperscript{38} COVID-19 disclosures in 2020 show the same disparity in disclosure participation and specificity.\textsuperscript{39}

This Article argues that the SEC can ameliorate this shortcoming by providing targeted guidance once new market risks are in play. In 2016, the SEC issued guidance on how to describe the Puerto Rico debt crisis.\textsuperscript{40} In that year, more funds disclosed the Puerto Rican risk and more did so using specific language about the crisis and the risk.\textsuperscript{41} The SEC’s necessary intervention helped investors by standardizing disclosure and funds’ description of this emerging risk.\textsuperscript{42} SEC guidance normalized disclosing the risk and minimized the threat that fulsome disclosure will scare off investors.\textsuperscript{43}

At this point, the careful reader may be asking themselves, “Why focus on funds?” First, funds as regulated entities are understudied compared to firms.\textsuperscript{44} Few scholars have examined how funds communicate with regulators and investors. Yet key differences between firms and funds increase the importance of fund disclosures from a regulatory perspective.\textsuperscript{45} First, mutual fund

\textsuperscript{37} See infra Part IV.
\textsuperscript{38} See infra Section III.A.
\textsuperscript{39} See infra Sections II.B.2–4.
\textsuperscript{40} See \textit{Current Market Conditions}, supra note 19.
\textsuperscript{41} See infra text accompanying notes 354–63.
\textsuperscript{42} See infra text accompanying notes 386–88.
\textsuperscript{43} See infra text accompanying notes 529–31.
\textsuperscript{44} A Westlaw search for secondary sources with “mutual fund/s”, “institutional investor”, or “fund” in the title produces 388 articles, whereas the same search for articles with “corporation”, “corporate” or “firm” in the title produces nearly 2,000 responses.
\textsuperscript{45} See infra text accompanying notes 46–50.
boards of directors are virtually powerless.\textsuperscript{46} Second, unlike firm-issued securities, a fund’s NAV is not subject to any indirect price control mechanisms, such as price arbitrage.\textsuperscript{47} In the absence of other points of formal or informal control, SEC disclosure emerges as the primary pillar of mutual fund oversight.\textsuperscript{48} Reliable oversight matters to the over 102 million Americans who are invested in funds, saving for long-term goals like education and retirement.\textsuperscript{49} Further, mutual funds are the largest shareholder in public companies.\textsuperscript{50}

This Article proceeds as follows: Part I provides some necessary background by outlining funds’ disclosure requirements, with a focus on the obligation to disclose changing market conditions.\textsuperscript{51} It also describes how open-ended regulations cover unforeseen risks extending today’s regulations to tomorrow’s crisis.\textsuperscript{52}

Part II examines the concept of dynamic risk through the lens of the COVID-19 pandemic.\textsuperscript{53} Using funds’ disclosures of COVID-19 related investment risk provides a case study to explore the efficacy of the SEC’s open-ended regulations for regulating dynamic risk.\textsuperscript{54} From the data, this Article concludes that such regulations are largely successful in bringing changing market conditions to light.\textsuperscript{55} However, many funds do not disclose changing market conditions, and even among those that do, there is a great deal of variation in the specificity with which funds describe these risks.\textsuperscript{56}

\textsuperscript{46} See John Morley & Quinn Curtis, Taking Exit Rights Seriously: Why Governance and Fee Litigation Don’t Work in Mutual Funds, 120 YALE L.J. 84, 118 (2010) (“There is very little evidence of [mutual fund] boards challenging fund managers over any significant issue.”).

\textsuperscript{47} Holger Spamann, Indirect Investor Protection: The Investment Ecosystem and Its Legal Underpinnings, 1046 HARV. JOHN M. OLIN CTR. FOR LAW, ECON., & BUS. 14 (June 20, 2021).

\textsuperscript{48} Id. at 14–23 (discussing indirect investor protections).

\textsuperscript{49} Id. at 80.


\textsuperscript{51} See supra notes 19–21 and accompanying text.

\textsuperscript{52} See infra notes 79–82 and accompanying text.

\textsuperscript{53} See infra Part II.

\textsuperscript{54} See infra notes 214–30 and accompanying text.

\textsuperscript{55} See infra notes 323–24 and accompanying text.

\textsuperscript{56} See infra notes 268–81 and accompanying text.
Part III examines disclosures dealing with a past changed market condition: the Puerto Rican debt crisis. Again, the data show variation in both disclosure and specificity. This Article finds that after the SEC issued specific guidance about the impact of Puerto Rico's default on municipal bond debt, funds responded with more disclosures and more specificity. Additionally, this Article also traces fund disclosure differences to portfolio differences. Funds that made specific disclosures about the Puerto Rican debt crisis were more heavily invested in the island than those that issued only boilerplate.

Part IV draws from a rich contracts literature to construct a three-tiered typology of disclosure specificity when describing dynamic risk. This Article argues that the SEC can improve compliance with its open-ended requirement to disclose changing market conditions by applying this framework and empirically evaluating the content and distribution of disclosure type. In particular, this Article offers specific strategies that would allow the SEC to better monitor compliance with both the letter and the spirit of the regulation. Finally, this Article outlines conditions when SEC intervention, such as providing additional guidance to funds, would be especially useful.

I. Mutual Fund Disclosures

The SEC regulates funds much like it regulates firms: through disclosure requirements. This Part first reviews the SEC's regulatory framework for mutual fund disclosures. Section I.A provides an overview of the regulatory framework governing mutual fund disclosures. Section I.B examines statutory and regulatory disclosure rules requirements designed to increase

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57 See infra Part III.
58 See infra Part III.
59 See infra notes 358–63 and accompanying text.
60 See infra notes 396–97 and accompanying text.
61 See infra notes 396–97 and accompanying text.
62 See infra Part IV.
63 See infra notes 557–58 and accompanying text.
64 See infra notes 557–58 and accompanying text.
65 See infra notes 527–44 and accompanying text.
66 See infra notes 73–82 and accompanying text.
67 See infra notes 73–74 and accompanying text.
68 See infra Section I.A.
fund transparency. Section I.C discusses *principles-based regulations*, which set the standards by which funds determine whether to discuss a principal investment risk. Section I.D introduces the SEC’s *open-ended regulations* to address dynamic risk through a requirement to disclose changing market conditions. Here, SEC guidance on changing market conditions is reviewed, including examples of past events that triggered the disclosure obligation, and examples of SEC enforcement.

A. Regulated Disclosures

Both funds and firms are covered by the Securities Act of 1933 and the Securities Exchange Act of 1934. In addition, funds are governed by the Investment Company Act of 1940. Mutual funds must comply with a suite of regulations. At the

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69 *See infra* Section I.B.
70 *See infra* Section I.C.
71 *See infra* Section I.D.
72 *See infra* Section I.D.
75 *Downstream Securities*, supra note 74, at 1591. The word “governed” is used loosely here. Funds face less onerous disclosure requirements than firms and even fewer affirmative regulations on their internal operation. Wolf A. Kaal and Bentley J. Anderson summarized the regulatory landscape for mutual funds as follows:

[T]he Company Act commits the mutual fund to: (1) register as an investment company under the Company Act; (2) comply with detailed periodic governmental reporting and investor disclosure
heart of this regulatory scheme lies requirements for mandatory disclosure. Disclosure serves the SEC’s goals of informing investors, facilitating capital formation through asset pricing and allocation, and preventing fraudulent and abusive practices.

Disclosures also offer regulators an elegant solution to ex-ante prescriptions for complex industries and actors—rather than dictating what funds can or cannot do, such regulation emphasizes procedural transparency as a moderating force. The SEC’s disclosure framework contains clear mandates or rules, principles-based regulations with room for discretion, and open-ended standards to accommodate future events.

Unconstrained Mutual Funds and Retail Investor Protection, 36 REV. BANKING & FIN. L. 817, 830 (2017) (citing to 15 U.S.C. §§ 80a-1(b)(1)-(3), (5), (7); 80a-8(b)(1)(E)).

Robert A. Robertson, In Search of the Perfect Mutual Fund Prospectus, 54 BUS. LAW. 461, 466 (1999) (citing to FRANCIS WHEAT, DISCLOSURE TO INVESTORS: A REAPPRAISAL OF FEDERAL ADMINISTRATIVE POLICIES UNDER THE ’33 AND ’34 ACTS 10 (1969)). The mutual fund disclosure system is built on the corporate disclosure system and incorporates many of the objectives served by the 1933 and 1934 Acts. Id. at 465; see also Joseph A. Franco, A Consumer Protection Approach to Mutual Fund Disclosure and the Limits of Simplification, 15 STAN. J.L. BUS. & FIN. 1, 10 (2009) (characterizing SEC disclosure laws as eliminating abusive forms of marketing and ensuring access to increasingly simplified disclosures aimed at an unsophisticated investor).

Ian Ayres, Preliminary Thoughts on Optimal Tailoring of Contractual Rules, 3 S. CAL. INTERDISC. L.J. 1, 18 (1993) (arguing for the need to have both rules and principles-based disclosures).


Id.
The current configuration of dynamic financial regulation emerged in the wake of the 2008 financial crisis. Analysts and regulators realized that additional flexible and future-looking regulations were necessary to avoid future similar crises. Dynamic regulation “attempt[s] to anticipate succeeding future contingencies.” In other words, dynamic regulations seek not only to fix the broken gate that allowed the dog to escape but also to build a better gate.

The flexibility characterizing principles-based, dynamic regulation stands in stark contrast to more traditional rules-based regulations. Rules-based regulations are prescriptive, top-down, and formulaic. In other words, such regulations can devolve into a “check-the-box” exercise. The SEC itself describes rules-based regulations as employing “bright-line, quantitative or other thresholds to identify when disclosure is required.” These bright lines

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83 Kaal, supra note 1, at 800. Reactionary legislative approaches write regulations based on yesterday’s problems, often failing to anticipate tomorrow’s problems. See Coffee, supra note 27, at 1022–27, 1078–79 (describing the shortcomings of reactionary legislation). Many scholars have pointed out the shortcomings of this approach. See id; Kaal, supra note 1, at 800 (discussing the problems with rules-based regulation); Cristie L. Ford, Principles-Based Securities Regulation in the Wake of the Global Financial Crisis, 55 McGill L.J. 257, 298 (2010) [hereinafter Principles-Based Securities Regulation] (making the argument for dynamic regulation after the financial crisis in 2007); Fenwick et al., supra note 23, at 590 (arguing for dynamic regulation to deal with innovation); Hilary J. Allen, Regulatory Sandboxes, 87 Geo. Wash. L. Rev. 579, 582–83 (2019) (arguing that “the regulatory sandbox is a form of principles-based regulation because firms participating in the sandbox will be given flexibility and discretion in adapting their innovation to comply with the enumerated goals of the sandbox regime”).

84 Id. at 269–70.

85 Principles-Based Securities Regulation, supra note 83, at 273.

86 S-K Final Rules, supra note 6, at 63747.
can lead to creative efforts to evade the regulation.\textsuperscript{89} \textit{Principles-based} regulations, on the other hand, are flexible, responsive and can be individualized based on the context of the regulated party.\textsuperscript{90}

Unlike rules-based regulations, principles-based regulations prescribe certain actions and anticipate evolution.\textsuperscript{91} They establish the floor, or minimum, while providing flexibility to grow with new circumstances.\textsuperscript{92} Materiality standards are a good example of such regulations.\textsuperscript{93} The SEC requires regulated entities to disclose the material risks of investment.\textsuperscript{94} For funds, this translates into the \textit{principal risks} to which the fund is exposed.\textsuperscript{95} The framework allows registrants to “determine (I) whether certain information is material [or principal], and (II) how to disclose such information.”\textsuperscript{96} SEC guidance around principles often focuses on non-exhaustive, illustrative lists of the types of information that should be considered material and therefore disclosed.\textsuperscript{97} Open-ended regulations that mandate disclosure \textit{if} something happens in the future are a particularly dynamic form of principles-based regulations.\textsuperscript{98}

Such flexibility is not without its drawbacks, however.\textsuperscript{99} Without hard and fast disclosure rules, funds may be uncertain about exactly what to disclose and when.\textsuperscript{100} This can lead to variation in the content or specificity of disclosures.\textsuperscript{101} The SEC may also struggle to uniformly police compliance.\textsuperscript{102} The bright-line nature of rules-based regulations, on the other hand, make

\begin{footnotes}
\footnote{\textit{Id.}}
\footnote{Ojo, supra note 81, at 13, 26--27.}
\footnote{Kaal, supra note 1, at 819.}
\footnote{\textit{Id.} (arguing that dynamic regulation helps regulators adapt to new circumstances).}
\footnote{S-K Final Rules, supra note 6, at 22.}
\footnote{\textit{Id.} at 20.}
\footnote{See, \textit{e.g.}, S-K Final Rules, supra note 6, at 17 (discussing materiality for firms); see SEC Form N-1A, supra note 8 (illustrating materiality for funds).}
\footnote{S-K Final Rules, supra note 6, at 81.}
\footnote{\textit{Id.} at 81--85.}
\footnote{\textit{Current Market Conditions}, supra note 19, at 2.}
\footnote{See Ojo, supra note 81, at 27.}
\footnote{\textit{Id.} at 11.}
\footnote{\textit{infra} Part II (discussing the variation in funds’ disclosure of COVID-19-associated risks).}
\footnote{See Ojo, supra note 81, at 13, 20--21 (discussing the trade-offs of principles-based approaches like lack of certainty and lack of transparency for the public).}
\end{footnotes}
it easier to comply and enforce. But funds still may engage in creative non-compliance or evasion. Moreover, ease of enforcement comes at the expense of completeness and responsiveness. Rules can become obsolete, whereas dynamic regulations can extend to the future. The trade-offs are significant between the two approaches and thus why the SEC uses both.

B. Rules-Based Disclosures: Fund Registration and Annual Disclosures

Funds must provide information to the SEC and the public in an initial registration, which must be updated at least annually. Funds disclose this information in Form N-1A. This form serves as both the initial registration statement, which is necessary to offer shares for sale to the public, and the annual update (i.e., the prospectus). In the prospectus, funds disclose the principal fund’s investment strategy, resulting risks, fees charged, past returns, management information, minimum investment, tax information, and a description of intermediary payments.

Funds file the disclosures with the SEC for review, but the intended audience is the average investor without sophisticated legal or financial knowledge. Information provided by a

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103 Id. at 15.
104 Id. at 23.
105 Id. at 15.
106 Id.
107 AYRES & BRAITHWAITE, supra note 13, at 4.
108 Both initial filings and prospectus updates are done through the SEC form N-1A. W. John McGuire, Registering Investment Companies under Form N-1A, Mutual Funds Today: Current Issues and Developments, CW009 ALI-CLE (2014).
109 Id.
110 Both initial filings and prospectus updates are done through the SEC form N-1A. McGuire, supra note 108.
111 See SEC Form N-1A, supra note 8 (establishing the requirements of the fund prospectus).
112 Id.

The prospectus disclosure requirements in Form N-1A are intended to elicit information for an average or typical investor who may not be sophisticated in legal or financial matters. The prospectus should help investors to evaluate the risks of an investment and to decide whether to invest in a Fund by providing
fund should (1) “help investors to evaluate the risks of an investment,” (2) “decide whether to invest in a Fund by providing a balanced disclosure of positive and negative factors,” and (3) “assist an investor in comparing and contrasting the Fund with other funds.”

Another prescriptive and rules-based element is the tiered disclosure structure. Form N-1A has three distinct components: the Summary Prospectus (Items 2–8), the Prospectus (Items 1, 9–13), and the Statement of Additional Information or SAI (Items 14–27). The three-tier structure shields investors from information overload by automatically providing only the summary prospectus, while making the other tiers available on request and through publicly hosted websites.

Within the prescribed disclosure framework, however, funds exercise discretion about what information to disclose and how to disclose it. For example, empirical work on mutual fund disclosures found that disclosures routinely vary in length, readability, and sentiment between funds. Further, funds exercise

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a balanced disclosure of positive and negative factors. Disclosure in the prospectus should be designed to assist an investor in comparing and contrasting the Fund with other funds.

Id. at ii–iii.

113 Id. at ii–iii.

114 Id. at 6.

115 Id.; see also McGuire, supra note 108. Mutual funds are subject to additional SEC filing requirements as well as annual and semi-annual financial statements, which are beyond the scope of this Article. See, e.g., SEC, INV. MGMT. Div., Letter to Karrie McMillan, Esq., General Counsel of the Investment Company Institute, 5–6 (July 30, 2010), https://www.sec.gov/divisions/investment/guidance/ici073010.pdf (discussing disclosure obligations beyond the prospectus) [https://perma.cc/5PY6-38L6].

116 See OMRI BEN-SHARAR & CARL E. SCHNEIDER, MORE THAN YOU WANTED TO KNOW: THE FAILURE OF MANDATED DISCLOSURE 1–2 (2014) (describing the limitations of mandatory disclosure for consumers confronting information from many different sources competing for their attention).

117 SEC Form N-1A, supra note 8, at 30.

118 Id. at 1.

discretion when providing categorical information like principal risks and investment strategies and when complying with open-ended regulations like changing market conditions. Each is discussed in more detail below.

C. Principles-Based Regulations: Disclosing the Fund’s Principal Risks

Mutual fund investors need to know about the risks of investing in a fund, but the precise information necessary will vary between different funds. Acknowledging this variation, the SEC employs a principles-based standard requiring funds to summarize the principal strategies, risks, and returns of investing in a given fund (Item 4(a)). Item 4(a) provides a summary of how the fund invests money pooled from the investors. In Item 4(a), funds identify the types of securities and assets it buys for the portfolio. Funds also describe important investment policies like limits on how much the fund can invest in a certain region, type of asset (e.g., growth stock or emerging market stock), industry (e.g., energy), or sector (e.g., commodities). This information helps investors distinguish one fund’s investment opportunity from another.
another’s. The SEC sets the parameters, and funds must provide information that meets the stated intent of informing ordinary investors about the major risks of investing in the fund.

Investment risk flows from a given investment strategy. Funds must summarize the principal risks associated with a fund’s investment strategy in Item 4(b) (“Principal Risks of Investing in the Fund”). The Item requires funds to disclose known risks associated with the portfolio and “the circumstances reasonably likely to adversely affect the fund’s net asset value, yield, and total return.” In this principles-based disclosure, the SEC shapes but does not dictate the precise disclosure requirements. Instead, the SEC places the responsibility on funds to describe the principal risks for investors.

To comply with principles-based disclosures, funds exercise discretion about what information to disclose and how to do it. Discretion produces a range in the quantity and quality of the information disclosed. In 2019, the SEC provided additional guidance to improve the quality of principal risk disclosures. The SEC encouraged (but did not mandate) funds to warn that

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128 Id.
129 Presentation of Information in Prospectuses, supra note 15.
130 SEC Form N-1A, supra note 8, at 9.
131 Hinman, supra note 122.
132 SEC Form N-1A, supra note 8, at 6. Item 4 “Risk/Return Summary: Investments, Risks, and Performance” focuses on investment strategies and risks of funds.
133 Id.; see also McGuire, supra note 108, at 1–2.
134 SEC Form N-1A, supra note 8, at 9.
135 There is a growing acknowledgment that the regulators do not have the best or most current information and instead rely on the regulated actors to share the information necessary to facilitate regulation in the face of changing conditions. Dynamic regulation “accept[s] that state regulators do not always have the same access to or quality of information as regulated actors” and tries to “regulate at a distance.” Financial Innovation, supra note 87; see also Principles-Based Securities Regulation, supra note 83, at 261 (making similar arguments).
137 Id.
138 Id.
some investments are not appropriate for certain investment objectives.\textsuperscript{139} The SEC also encouraged funds to order risks by importance, tailor the risk disclosures for each fund in a fund family rather than rely on boilerplate, and provide a concise summary of risks.\textsuperscript{140} Notably, the SEC emphasized these changes should be made with an eye towards individual investors.\textsuperscript{141}

D. Open-Ended Regulations: Changing Market Conditions

Even with rules—and principles—based regulations, funds’ disclosure of risk is incomplete.\textsuperscript{142} The approaches discussed above require substantive disclosures of known risks.\textsuperscript{143} But these regulations are silent on unknowable future risks.\textsuperscript{144}

The SEC supplements its rules—and principles—based regulation with open-ended regulations, such as a requirement to disclose changing market conditions.\textsuperscript{145} Funds must disclose new risks created by previously undisclosed changing market conditions that may negatively and seriously impact a funds’ investments.\textsuperscript{146} Changing market condition obligations amplify existing requirements that dictate funds should already monitor disclosed investment risks\textsuperscript{147} to determine if they “remain adequate in light of current conditions.”\textsuperscript{148} Monitoring market conditions is a part of prudent portfolio management by the adviser, so funds are expected to routinely engage in that practice as a “normal part of day-to-day operations.”\textsuperscript{149} Funds should disclose new risks discovered through market monitoring in the next scheduled filing

\textsuperscript{139} Id.
\textsuperscript{140} Id.
\textsuperscript{141} Id.
\textsuperscript{142} Current Market Conditions, supra note 19, at 2.
\textsuperscript{143} Id. at 1.
\textsuperscript{144} Id. at 2.
\textsuperscript{145} Id.
\textsuperscript{146} Id. at 2.
\textsuperscript{147} Cf. John L. Campbell et al., The Information Content of Mandatory Risk Factor Disclosures in Corporate Filings, 19 REV. ACCT. STUD. 396, 403–04 (2010) (arguing that because the SEC does not require a likelihood estimate, firms should disclose all possible risks and uncertainties to avoid any potential liability or enforcement action from omission).
\textsuperscript{148} Current Market Conditions, supra note 19, at 2.
\textsuperscript{149} Id. Funds may disclose the new risks with the next prospectus or file an amended prospectus if the current one would be “materially misleading.” Id. at 3.
or an amendment if its omission would be “materially misleading.” By keeping disclosures tied to current market realities, the SEC seeks to encourage “more timely, more meaningful, and more complete” risk disclosures.

Clear obligations to extend principles-based risk disclosure to future events creates the regulatory flexibility necessary for the regulated entity and the regulator to adapt to new circumstances. The open-ended feature invites a primary critique—that such regulations are so vague as to be meaningless to the regulated entity and impossible to enforce by the regulator.

Periodic guidance from the SEC can help funds determine whether specific social, political, or economic events constitute a changing market condition. The SEC’s Division of Investment Management issued guidance on changing market conditions (for funds) in 2016. The guidance addresses future risks and funds’ responsibility to identify and interpret the effects of emerging or changing market forces as well as assess conditions that continue to change. The SEC justifies funds’ obligations to disclose changing market conditions based on investors’ informational needs.

SEC staff also provide guidance on changing market conditions through comments to filed registration statements and

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150 Id.
151 Id. at 3.
152 Fenwick et al., supra note 23, at 590.
153 Ojo, supra note 81, at 13, 20–21.
154 Current Market Conditions, supra note 19, at 3. Note that there is no scholarship on the empirical parameters defining a changing market condition. This reflects the relatively small amount of academic attention paid to mutual fund disclosures as compared to operating company disclosures, more than it reflects the insignificance of changing market conditions. Henry Hu, The New Portfolio Society, SEC Mutual Fund Disclosure, and the Public Corporation Model, 60 BUS. L. 1303, 1305–06 (2005).
155 The SEC staff issued guidance on “the importance to investors of full and accurate information about fund risks, including risks that arise as a result of changing market conditions.” Current Market Conditions, supra note 19, at 1.
156 Current Market Conditions, supra note 19, at 2.
157 In the 2016 guidance, the SEC reminded funds of the “importance to investors of full and accurate information about fund risks, including risks that arise as a result of changing market conditions.” Id. at 1.
Unsurprisingly, staff identified the 2008 financial crisis as a changing market condition warranting disclosure. In other years, several staff comments also identified new market or economic forces that resulted in changes to portfolio valuations and price estimates as a changing market conditions requiring disclosure. SEC staff further defined issues related to portfolio liquidity, defensive positions, and debt/equity ratios as changing conditions that required disclosure. Finally, staff advised

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158 SEC Form N-1A, supra note 8, at 1.
159 "Please include a section titled ‘Municipal Bond Market Risk’ to include the current market conditions and risks that issuers are facing, given recent financial hardships and losses of tax revenue." Eaton Vance Municipal Income Trust, SEC Staff Comment (Form N-2) (Apr. 24, 2009); see also Crossroads Liquidating Trust, SEC Staff Comment (Form N-2) (Mar. 13, 2009).
161 Brinker Capital Destinations Trust, SEC Staff Comment (Form N-1A) (Nov. 30, 2016).
162 Avenue Mutual Funds Trust, SEC Staff Comment (Form N-1A) (Apr. 3, 2012).
163 Western Asset Middle Market Income Fund, Inc., Registration Statement (Form N-2) (July 13, 2011).
funds to disclose significant investments in the natural resource sector experiencing fluctuations because of natural disasters and climate change as changing market conditions.164

In addition to wider portfolio risks, SEC staff identified several specific events that constituted a changing market condition.165 One example is the Puerto Rican debt crisis,166 which is empirically investigated in Part III.167 Beginning in the early 2010s, Puerto Rico became insolvent and began defaulting on municipal bond debt.168 Puerto Rico’s debt crisis created significant risk for fixed income funds invested in the island.169

The SEC also has identified government policy as a changing market condition.170 For example, following the economic recovery from the 2008 financial crisis,171 the government ended quantitative easing in 2015 and exposed fixed income funds to new liquidity and interest rate risks, especially pertaining to long-duration securities.172 The end of the quantitative easing policy, which kept


The disclosure on page 6 sets forth a “Natural Resources Investment Risk”. Please add appropriate disclosure to the risk factor to reflect how current market conditions in the natural resources sector (e.g., downward trend in oil and gas prices) may impact the Fund’s investments. See IM Guidance Update 2016-02 (March 2016).

Id.

165 See, e.g., Current Market Conditions, supra note 19, at 5.

166 When Puerto Rico failed to make debt payments in 2015 and 2016, funds investing in tax-exempt securities faced new risks. Id. Funds were required to update their disclosures to specifically name Puerto Rico as an investment location and some disclosed heightened risks of the investment such as downgrades in debt, negative market values, and illiquidity of fund securities. Id.

167 See infra Part III.

168 Current Market Conditions, supra note 19, at 5.

169 See infra Part IV. This event is discussed in more detail using funds’ evolving disclosures as a case study in that Part.

170 Current Market Conditions, supra note 19, at 4.


172 Current Market Conditions, supra note 19, at 4.
interest rates near zero, changed market conditions, and required disclosure.\textsuperscript{173} The SEC enforced the disclosure requirements in staff comments to form N-1A asking fixed income funds to include a risk discussion focused on “interest rate risk, liquidity risk, and duration risk … in light of changing market conditions.”\textsuperscript{174}

In the following Parts (II and III), this Article examines how funds responded to open-ended regulations in their disclosure of two changing market conditions: COVID-19 and the Puerto Rico debt crisis.\textsuperscript{175}

\section*{II. Regulating Dynamic Risk: Disclosing Changing Market Conditions}

The SEC successfully regulates dynamic risk within a disclosure-based regulation scheme when funds reliably identify and appropriately discuss realized or emerging investment risks. This standard for regulatory success suggests a more fundamental question: when do events create new risk to funds that warrant disclosure as a changing market condition? The ongoing COVID-19 pandemic provides a case study.\textsuperscript{176} Section II.A discusses the events surrounding the emergence of COVID-19 and its impact on financial markets.\textsuperscript{177} This Article argues that the COVID-19 global pandemic meets the requirements of a changing market condition.\textsuperscript{178} Section II.B presents data on the explosion of public health disclosures in 2020, exploring the disclosure content using hand labeling and topic model results.\textsuperscript{179}

\begin{thebibliography}{100}
\bibitem{note1} \textit{Id.}
\bibitem{note2} \textit{Id.} at 3; Gabelli Healthcare and WellnessRX Trust, Registration Statement (Form N-2) (Apr. 5, 2017). Interest rate changes similarly affected real estate funds. Citing the 2016 IM guidance, SEC staff directed USQ Core Real Estate Fund to “disclose that rising interest rates can negatively impact the value of real estate securities. Also, please disclose a separate interest rate risk factor that sets forth the risks of changing interest rates on the Fund’s portfolio.” USQ Core Real Estate Fund File Nos. 333-217181 and 811-23219, SEC Staff Comment 3 (2017).
\bibitem{note3} \textit{See infra} Parts II and III.
\bibitem{note4} \textit{See infra} Sections II.A and II.B.
\bibitem{note5} \textit{See infra} Section II.A.
\bibitem{note6} \textit{See infra} Section II.A.
\bibitem{note7} \textit{See infra} Section II.B.
\bibitem{note8} \textit{See infra} Section II.B.
\end{thebibliography}
A. COVID-19 Market Conditions

In January 2020, the World Health Organization (WHO) first declared COVID-19 a world health emergency, and in March, elevated it to a global pandemic. The word “unprecedented” became a cliché tagline for anything associated with the pandemic. But heavy reliance of this word by the media, government officials, and other organizations reflects the difficulty of conveying the breadth and depths of COVID-19’s disruptive effects in 2020.

Little of modern life, the economy, or work remained the same once the pandemic hit. Stock markets crashed immediately following its emergence. Markets later rebounded with stimulus packages and vaccine news, only to slump again as new variants arrived.

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182 See, e.g., notes 184–95 and accompanying text.

183 See, e.g., notes 184–95 and accompanying text.


185 The Dow Jones Industrial Average Index (DJIA), along with other market indices, rose nearly three percentage points on Monday, November 9, 2020, reportedly on news that a COVID-19 vaccine had been developed. CRS COVID-19, supra note 180, at 14. During the period from November 3, 2020, through November 24, 2020, the DJIA rose over nine percent. Id. On November 24, 2020, the DJIA, along with global equities markets, increased by 1.5 percent, and reached an index milestone of 30,000. Id.

Unemployment soared early in the pandemic.\textsuperscript{187} Borders closed.\textsuperscript{188} Government lockdowns ensued.\textsuperscript{189} Schools went virtual\textsuperscript{190} and entertainment shuttered.\textsuperscript{191} Major pillars of the economy like

\begin{itemize}
  \item [187] From mid-March 2020 to early July 2021, nearly ninety million Americans filed for unemployment. CRS COVID-19, supra note 180, at 10, 12, 13.
  \item [189] The World Health Organization estimated that 230 million Europeans were living under lockdown restrictions in January 2021. CRS COVID-19, supra note 180, at 82. To view global data on lockdowns and stay-at-home orders, see Hannah Ritchie et al., \textit{COVID-19: Stay-At-Home Restrictions}, OUR WORLD DATA, https://ourworldindata.org/covid-stay-home-restrictions [https://perma.cc/5D5G-YPQQ].
\end{itemize}
workforces, supply chains, and consumers were stressed as over 184 million people globally fell ill and over four million died. No industry was unaffected.

Using the framework laid out in the 2016 guidance, COVID-19 clearly satisfied the elements of a changing market condition. Disclosures that failed to inform investors of an investment affected by COVID would certainly be incomplete. The novelty of the pandemic declaration, the global reach, and the duration all suggest the pandemic created a changing market condition warranting disclosure for many, but not all, funds.

But the SEC never required funds to disclose COVID-19 risks, despite doing so for firms and recognizing that funds were

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192 In April 2020, twenty million Americans lost their jobs because of business lockdowns creating the highest unemployment rate (fourteen percent) since the Great Depression. CRS COVID-19, supra note 180, at 13. The International Labor Organization (ILO) estimated that ninety-three percent of the world’s workers in January 2021 were living under some form of pandemic-related workplace restrictions, and that the pandemic cut working time by an equivalent of 255 million full-time jobs. Id. at 9.


194 CRS COVID-19, supra note 180, at 1 (showing infection and death rates as of July 2021).


196 See infra Section I.D.

197 See Current Market Conditions, supra note 19, at 2, 3.

198 Id.

not immune to the effects of COVID-19.\textsuperscript{200} For example, the SEC relaxed its rules on in-person fund board management meetings, allowed for between fund-borrowing,\textsuperscript{201} delayed delivery of fund prospectus\textsuperscript{202} and other information, issued investor fraud alerts around the pandemic,\textsuperscript{203} and published a COVID-19 response page for funds on the SEC website.\textsuperscript{204}

This Article examines which funds disclosed COVID-19 risks and how funds discussed the risks associated with the pandemic. In general, the data show a dramatic increase in public health-related disclosures in 2020.\textsuperscript{205} Some funds focused on COVID-19 specifically; others merely mentioned public health-related risks more generally.\textsuperscript{206} But some funds chose not to disclose any public health risks, despite the pandemic’s ubiquitous effects.\textsuperscript{207} Using both hand-coded labels and topic models, this Article systematically evaluates patterns in disclosure variation.\textsuperscript{208} This Part concludes by considering the implications of disclosure variation in participation and specificity.\textsuperscript{209}

B. COVID-19 Risk Disclosures

This Part analyzes an original dataset of 7,998 mutual fund disclosures scraped from 497K filings to assess how funds disclosed

\textsuperscript{200} Id.
\textsuperscript{201} SEC, RELEASE NO. 33821, ORDER UNDER SECTION 6(C), 12(D)(1)(J), 17(B), 17(D) AND 38(A) OF THE INVESTMENT COMPANY ACT OF 1940 AND RULE 17-D1 THEREUNDER GRANTING EXEMPTIONS FROM SPECIFIED PROVISIONS OF THE INVESTMENT COMPANY ACT AND CERTAIN RULES THEREUNDER (2020).
\textsuperscript{205} See infra Figure 1.
\textsuperscript{206} See infra Figure 2.
\textsuperscript{207} See infra Figure 2.
\textsuperscript{208} See infra Table 12.
\textsuperscript{209} See infra Figure 2.
the rapidly occurring COVID-19 pandemic. The data document the onset of COVID-19 disclosures in 2020 and the overall growth of public health disclosures in 2020. This Article assess the specificity of these disclosures using hand-coded labels and examine whether funds discussed COVID-19 or made generic disclosures. Finally, a structural topic model (STM) further explores the contents of COVID-19 disclosures.

1. Building a Public Health-Specific Dataset of Mutual Fund Disclosures

The data set is built by scrapping htm files of all registered investment company 497K summary prospectuses filed between 2010 and 2020 from the SEC (EDGAR). This produced a total of 213,861 filings. Filings without principal risk sections and small files (under 8 KB) were dropped, leaving a total of 164,602 filings. Funds may file more than one disclosure each year, however. To correct for this, duplicate filings for the same fund are dropped, and only the latest filed disclosure is retained in the data set. See Table 8 for additional information on how the data was compiled.

To start, a wide-ranging list of keywords was built to reliably identify a public health risk (see Table 1 below), including variations on COVID-19. The terms capture general public health

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210 See infra Table 8.
211 See infra Table 2.
212 See infra Table 12.
213 See infra Table 4.
214 See infra Table 8. When a fund files a supplement to the prospectus and the fund is not updating the principal risk section, the keywords would be omitted from the filing and dropped from our sample.
215 See infra Table 8. Files under 8 KB in size suggest a supplement to a filing. Small file sizes are also dropped from the sample, unless the text contains the principal risk keywords.
216 See infra Table 8.
217 See infra Table 8.
218 See infra Table 8.
219 The word list was validated first by using word2vec relationships and reviewing the most frequent word lists from the corpus. Reading through countless disclosure texts confirmed the keyword lists. Iteratively applying the word list to random samples of principal risk disclosure text further validated the final word list.
phrases and references to past health events (i.e., MERS). The data track the arrival of COVID-19 disclosures with unique keywords related to the pandemic.\textsuperscript{220} Examining all public health disclosures for the nine years before the pandemic, provides a better sense of how risk disclosures changed, if at all, in response to COVID-19.\textsuperscript{221}

\begin{table}
\centering
\caption{Public Health Disclosure Keywords}
\begin{tabular}{|l|}
\hline
communicable disease * \\
contagion \\
coronavirus \\
covid/covid 19 \\
disease \\
epidemic \\
global health / global health crisis \\
global pandemic \\
health crisis / health crises \\
health risk \\
health screenings \\
hiv \\
influenza/h1n1 \\
ilness \\
outbreak \\
pandemic/epidemic \\
pathogen \\
prevention \\
public health \\
quarantine \\
respiratory illness \\
sanitation \\
sars / sars cov 2 / mers \\
travel restriction \\
virus \\
\hline
\end{tabular}
\textsuperscript{*All keywords were used in a case-insensitive search that included singular and plural variants.}
\end{table}

\textsuperscript{220} See infra Table 8.
\textsuperscript{221} See infra Figure 2.
Second, each principal risk disclosure sentence containing a public health keyword was extracted.\textsuperscript{222} This produced 16,204 sentences\textsuperscript{223} in 7,998 filings\textsuperscript{224} containing at least one public health-related term across eleven years of data.\textsuperscript{225} The vast majority (86.6% of all sentences and 73.7% of all filings) occur in 2020.\textsuperscript{226} These data are displayed in Table 2 and Figure 1.

\footnotesize
\begin{itemize}
\item \textsuperscript{222} See infra Table 2. Note that standard text preprocessing procedures like removing capitalization and removing most punctuation was used.
\item \textsuperscript{223} See infra Table 2. Recall that this study only examines the text of a disclosure’s principal risks section.
\item \textsuperscript{224} See infra Table 2. Each filing has its own unique accession number with three components that creates a unique identifier for the filing. The first component is a 10-digit central index key (CIK) which identifies the fund family. The next two digits are the year in which it was filed. For example, if the 11th and 12th digits of an accession number were “12,” you would know that the filing was made in 2012. Finally, the last six digits indicate the numerical order in which the filing was made by the fund. The 330th filing for a particular fund would have the last five digits “00330.”
\item \textsuperscript{225} See infra Table 2.
\item \textsuperscript{226} See infra Table 2; see also infra Table 10 and Table 11. Located in the Appendix, they list the count and proportion of public health sentences and disclosures by year and fund type.
\end{itemize}
Table 2 suggests that, not only does the volume of public health filings increase, but so does the depth of treatment of public health issues. In addition to sentence and filing counts, Table 2 additionally provides the average number of public health sentences per disclosure. This statistic helps put in context the amount of attention given to public health topics.227 A higher number of public health sentences per disclosure indicate higher levels of...

227 See supra Table 2.
attention and discussion in a disclosure. But in 2020, each fund that mentions public health writes, on average, 2.38 sentences. This suggests funds are doing more than mentioning a public health risk in passing. Rather, funds may be discussing this risk with some specificity.

2. Widespread Public Health Disclosure Across Fund Type and Filing Year

After years of infrequent public health disclosures, in 2020, the number of public health risk disclosures skyrocketed, jumping to over 5,800. As shown in Table 3, no more than five percent for any fund type disclosed public health risks between 2010 and 2015. Gradually more funds, particularly money market funds, included public health risks in the principal risk disclosures likely because of global health events like MERS and a resulting lawyerly inclination to disclose all categories of risk.

Roughly fifty percent or more of all fund groups included public health disclosures in 2020. Index funds disclosed public health risks the most frequently at sixty-three percent. Index disclosures are likely driven by investment strategy because Index funds are a highly diversified “basket of securities ... meant to

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228 See supra Table 2.
229 See supra Table 2.
230 See supra Table 2.
231 See supra Figure 1.
233 See infra Table 3.
234 See infra Table 3. Note that table percentages report the proportion of funds that disclosed public health risks within the CRSP category. For example, in 2020, fifty-five percent of all fixed income funds disclosed public health risks.
represent a sector of a stock market or of an economy."235 Widespread market-impacting events like the COVID-19 pandemic would also impact Index funds.236

Within the first year of the pandemic, public health disclosures increased dramatically and became widespread among all fund types. A majority of funds disclosed public health risks during 2020, a time when COVID-19 clearly constituted a changing market condition requiring disclosure. The data suggests some success of the SEC’s open-ended approach to regulating dynamic risk.237

But disclosure was far from universal. Funds’ failures to disclose public health risk suggests room for regulatory improvement.238 COVID-19 affected all areas of social and economic life, yet the number of funds disclosing a public health risk in most fund categories was between fifty percent and sixty percent.239 Domestic equity funds, which are funds invested in U.S. stocks, saw a disclosure rate of approximately fifty-two percent.240 Foreign equity funds disclosed at a fifty-four percent rate.241 Both rates seem low given COVID-19’s pervasive social and economic effects.242 Index funds were the most likely to disclose a public health risk, a fact driven by their investment strategy.243 Funds designed to capture broad economic trends would certainly be impacted by COVID. But only sixty-three percent of all Index fund disclosures included any discussion of public health risks.244 Open-ended regulations work, but imperfectly.

237 See infra Table 3.
238 See infra Table 3.
239 See infra Table 3.
240 See infra Table 3.
241 See infra Table 3.
242 See infra Table 3; CRS COVID-19, supra note 180, at 1.
243 See infra Table 3 (showing that Index funds had the highest rate of disclosures of public health risks at sixty-three percent).
244 See infra Table 3.
Although a majority of funds disclosed COVID-related risk, not all public health disclosures are equal. This section analyzes public health disclosures by sorting public health-related disclosure content into broad categories to gain a more nuanced view of principles-based (i.e., public health risks) and open-ended regulations to disclose changing market conditions (i.e., COVID-19). From reading countless disclosures, three distinct categories of public health disclosures are apparent, with different degrees of specificity about the risks facing a fund. Using a combination of hand coding and rules-based coding, each public health disclosure was tagged with one of the three resulting labels: (1) COVID-19, (2) General Public Health, or (3) Boilerplate: General Laundry List. This Article finds that funds split between general and boilerplate disclosures until 2020, when there is an explosion of

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245 See infra Table 4.
246 See infra Section II.B.2.
247 See infra Table 12 (listing additional information on labeling methodology).
248 See infra Table 12.
COVID-19 disclosures (fifty-three percent). Yet many funds continued to use boilerplate (forty-five percent) and general statements (two percent) of public health risks during the pandemic.

Disclosures that directly discussed COVID-19 or the pandemic were labeled as “COVID-19,” the most specific category. These tailored, event-specific disclosures are bespoke disclosures because they are crafted to provide useful information about a specific and active risk. Like a bespoke suit is tailor-made, these disclosures are drafted to fit the current crisis of a global pandemic. For example, one disclosure coded as “COVID-19” stated “An outbreak of an infectious respiratory illness, COVID-19, 

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249 See infra Table 2, Table 4.
250 See infra Table 4.
251 See infra Table 12. If a disclosure contained any of the following keywords, it was tagged as a bespoke, COVID-specific disclosure: covid, coronavirus, this pandemic, the pandemic, this global pandemic, the global pandemic, this outbreak, this virus.
caused by a novel coronavirus has resulted in travel restrictions, disruption of healthcare systems, prolonged quarantines, cancellations, supply chain disruptions, lower consumer demand, layoffs, ratings downgrades, defaults and other significant economic impacts.” Out of the over 5,895 public health disclosures in 2020, fifty-three percent included COVID-19 specific language.

But some disclosures discussed public health only in a laundry list of hypothetical catastrophic events. These disclosures are labeled as “Boilerplate: General Laundry List” disclosures. For example, one fund’s general laundry list disclosure stated “Local, regional, or global events such as war, acts of terrorism, the spread of infectious illness or other public health issues, recessions, or other events could have a significant impact on the market generally and on specific securities.” This disclosure, which was filed in November 2020, warns an investor about a generalized public health risk but fails to include context suggesting that at least one of those threats—a global pandemic—is

252 iShares, 2020 Summary Prospectus (Form 497K) S-5 (Aug. 17, 2020). See also Weitz Investment Management, Core Plus Income Fund Summary Prospectus (Form 497K) (stating “market risk includes political, regulatory, economic, social and health risks (including the risks presented by the spread of infectious diseases such as the COVID-19 pandemic) which can lead to increased market volatility and negative impacts on local and global financial markets, and the duration and severity of the impact of these risks on markets cannot be reasonably estimated”).

253 See infra Table 4.

254 See infra Table 12.

255 Id. Additional rules for this label include: (1) no COVID-specific language, and (2) must include a public health keyword and a general laundry list keyword. The general laundry list keywords included: political upheaval, social unrest, war, terrorism, terror attack, financial trouble, financial market, natural disaster, environmental disaster, country instability, political event, civil unrest, national election, exchange controls, social event, economic event, economic development, labor strike, inflation, geopolitical, economic, political, panic, environmental, social, regional, recession, regulatory development, interest rate, currency rate, military confrontation, corporate earnings, corporate revenue, security concern, international relation, cybersecurity, technological, weather, pollution, cyber, hack, hacking, and attack. General laundry list keywords were searched in the singular and plural. See infra Table 12.

256 AdvisorShares, AdvisorShares Dorsey Wright FSM US Core ETF Summary Prospectus (Form 497K) (Nov. 1, 2020).
currently underway. These provisions read as a catchall to shield a fund from the greatest range of liability for future risks. In other words, these are examples of boilerplate disclosures.

Between these two opposite ends of the disclosure spectrum, funds made general statements about public-health-related investment risk. For example, one fund disclosed that “[t]he securities markets may also decline because of factors that affect a particular industry or due to impacts from the spread of infectious illness, public health threats or similar issues.” Others in this category disclosed the risk of hypothetical pandemics but opted not to name the current one underway. For example, one fund disclosed that “[p]reventative or protective actions that governments may take in respect of pandemic or epidemic diseases may result in periods of business disruption, business closures, inability to obtain raw materials, supplies and component parts, and reduced or disrupted operations for the issuers in which the Fund invests.”

Table 4 displays the count of filings containing at least one of these labels, as well as the percentage of all filings containing a public health label and proportion of public health labels by year. Between 2010 and 2019, almost all public health disclosures can be categorized as “boilerplate.” The intermediate category, general public health disclosures, comprises two percent or less of all public health risk disclosures in each year throughout this period.

The onset of COVID-19, however, generates major changes in funds’ disclosure of public health risk. First, the number of funds making any public health-related disclosure increases almost eighteen-fold. Whereas only 259 funds disclosed a public health

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257 See id.
258 See id.
259 See infra Table 12.
261 See Prudential Investment Portfolios 5, Prudential Day One 2035 Fund Summary Prospectus (Form 497K) (Sept. 29, 2020).
262 Id. (emphasis added).
263 See infra Table 4.
264 See infra Table 4.
265 See infra Table 4.
266 See infra Table 4.
risk in 2019, 2,680 did so in 2020. By this metric, the SEC’s open-ended requirement to disclose dynamic risk caused by changing market conditions looks relatively successful. Funds that may not have previously mentioned public health investment risk are now disclosing a particularized and previously unforeseeable risk.

But forty-five percent of funds still relied on boilerplate disclosures during the pandemic in 2020. Why would boilerplate be preferable? Both boilerplate laundry list disclosures and general public health disclosures can be thought of as satisfying a principles-based requirement to disclose material investment risk—though to different degrees. With both, however, the fund indicates that the risk is present, but does little more than alert an investor to its existence.

These findings also highlight how funds may be constrained by other, more rigid (i.e., rules-based) regulations when disclosing risk. Recall that a fund’s summary prospectus is constrained by an SEC-recommended page limit and the requirement to summarize principal risks. To the extent funds follow such guidelines, these constraints force funds to choose between a general shield and a more nuanced discussion of risk. If funds opt for a more nuanced discussion, they may have to forego in depth discussions of other types of risk.

More broadly though, one can interpret the data in light of the SEC regulatory framework. The SEC’s open-ended framework facilitated a swift change in 2020: Boilerplate decreased from

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267 See infra Table 4.
268 See infra Table 4.
269 See infra Table 4. Compare the 2020 data with the 2019 data where ninety-eight percent of all public health disclosures were boilerplate. Id.
270 See supra Section I.C; infra Table 12.
271 See infra notes 373–83 and accompanying text (discussing the lack of specificity in certain boilerplate and general public health disclosures).
272 See infra Table 4; Tucker & Xia, supra note 119, at 13–14 (discussing difficulty of complying with the SEC page limit).
273 See supra notes 13–17 and accompanying text; supra Section I.C.
274 Despite the SEC guidance on recommended page limits, see supra notes 13–17 and accompanying text, the average length of principal risks sections monotonically and dramatically increased over time. Tucker & Xia, supra note 119, at 13–15.
275 See Tucker & Xia, supra note 119, at 13–15 (discussing the trend of funds already exceeding the current page limits set by the SEC).
ninety-eight percent in 2019 to forty-five percent in 2020.\textsuperscript{276} Switching from satisfying principles-based disclosures with tepid accounts of public health risks to providing bespoke disclosures reflects this hydraulic relationship where new risks can quickly be incorporated into the disclosure landscape.\textsuperscript{277}

When funds make bespoke public health disclosures, what do they disclose? The next section introduces a topic model to explore the content of disclosures and to evaluate whether open-ended regulations produced more informative disclosures of risk related to COVID-19.\textsuperscript{278}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|}
\hline
\hline
Bespoke: COVID-specific & & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 3103 & \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{n/a} \textbf{53}\% \\
\hline
General Public Health & & 1 & 0 & 0 & 0 & 4 & 0 & 4 & 6 & 4 & 6 & 112 & 2\% 2\% 2\% 2\% 2\% 2\% 2\% 2\% 2\% 2\% 2\% 2\% \\
\hline
\hline
\end{tabular}
\caption{Count and Percentage of Public Health Labels by Year}
\end{table}

4. Topic Variation and Distribution

Content, not just frequency, of public health risk disclosures inform the success of open-ended requirements to disclose changing market conditions. Using a structural topic model estimated on 3,103 COVID-specific disclosures examines variation in the ways that funds specifically disclose public health risks.\textsuperscript{279}

\textsuperscript{276} See infra Table 4.
\textsuperscript{277} See infra Section II.B.4.b.
\textsuperscript{278} See infra Section II.B.4.
\textsuperscript{279} See supra Table 4.
Results show that funds generally addressed four different topics: onset and scope of the pandemic, market disruption, government responses, and catastrophic events.\textsuperscript{280}

Some funds are more likely to talk about certain aspects of the COVID-19 risk than others.\textsuperscript{281} Index funds, for example, are much more likely to talk about the market disruption caused by the pandemic than other types of funds.\textsuperscript{282} Money market and fixed income funds are more likely to discuss government responses to the pandemic, whereas funds categorized as “other” are significantly more likely to discuss COVID-19 as a catastrophic event like a natural disaster.\textsuperscript{283}

The data and the structural topic model (STM) are described below.\textsuperscript{284} Findings from the model are discussed in more depth, examining variation in specific public health disclosures across all fund types and then examining the divergent disclosure approaches taken by different funds.\textsuperscript{285}

\textit{a. Estimating COVID-Specific Topics}

The analysis begins with the 3,103 COVID-specific disclosures discussed in the previous section.\textsuperscript{286} These statements are analyzed at the disclosure level, meaning that each disclosure is represented once in the data.\textsuperscript{287}

A topic model approach helps analyze the data at hand.\textsuperscript{288} Topic models are “probabilistic models for uncovering the underlying semantic structure of a document collection based on hierarchical Bayesian analysis of the original text.”\textsuperscript{289} This automated approach identifies latent patterns in the text that may be invisible to a human observer.

\begin{footnotesize}
\begin{itemize}
  \item[\textsuperscript{280}]See infra Table 5.
  \item[\textsuperscript{281}]See infra Figure 4.
  \item[\textsuperscript{282}]See infra Figure 4.
  \item[\textsuperscript{283}]See infra Figure 4.
  \item[\textsuperscript{284}]See infra Section II.B.4.a.
  \item[\textsuperscript{285}]See infra Section II.B.4.b.
  \item[\textsuperscript{286}]See supra Section II.B.4.
  \item[\textsuperscript{287}]See supra Table 4.
  \item[\textsuperscript{288}]See supra Table 5.
  \item[\textsuperscript{289}]David M. Blei & John D. Lafferty, \textit{Topic Models, in Text Mining: Classification, Clustering and Applications} 71 (Chapman and Hall/CRC 2009).
\end{itemize}
\end{footnotesize}
In particular, a structural topic model uses metadata (i.e., characteristics of the data external to the text) to sort texts into topics. The CRSP class (i.e., fund type) is a prevalence covariate, meaning simply that they structure the model estimation. In other words, fund type may be related to topic prevalence—that is, “how much of a document is associated with a topic.”

Jointly maximizing measures of semantic coherence and exclusivity (FREX) help to determine the optimal number of topics. Based on these figures, funds’ COVID-specific disclosures could be categorized into four different topics: (1) onset and scope of the pandemic, (2) market disruption, (3) government responses, and (4) framing the pandemic as a catastrophic event.

Each topic is characterized by a unique set of “high probability” words—that is, words that are most likely to appear in a topic—which aids in interpreting topic content. Words with high FREX are also an indicator of topic content. These words are included in Table 5.

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290 Margaret E. Roberts et al., STM: An R Package for Structural Topic Models, 91 J. STAT. SOFTWARE 1, 2 (2019).
291 See id. at 3.
292 Id. at 2.
293 Roberts defines semantic coherence as a method “closely related to pointwise mutual information” which is “maximized when the most probable words in a given topic frequently co-occur together.” Id. at 11. In other words, if every instance of the word “duck” in a document was accompanied by the word “yellow,” then the topic containing the phrase “yellow duck” would have a high semantic coherence score.
294 In particular, the STM package uses the FREX metric, which is “the weighted harmonic mean of the word’s rank in terms of exclusivity [i.e., how unique a word is to a topic] and frequency [i.e., how often a word appears in a topic].” Id.
295 See infra Table 5.
296 See infra Table 5.
297 See infra Table 5; Roberts et al., supra note 290, at 2.
298 Note that the words in Table 5 are word stems, a process that reduces variations of the same word into a common stem. For example, treating the words “happy,” “happier,” and “happily” as a single stem reduces the computation burden and can, but does not always, increase interpretability. See Alexandra Schofield & David Mimno, Comparing Apples to Apple: The Effects of Stemmers on Topic Models, 4 COMPUTATIONAL LINGUISTICS, 287, 287 (2016). As with any tool that reduces complexity, there is a trade off with some nuanced and important meaning being lost. For a full discussion of stemming in topic models, see id at 287–89, 291–93.
### Table 5
**Top 15 High Probability and FREX Words, by Topic**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Probability</strong></td>
<td>disrupt, outbreak, impact, infecti, coronavirus, econom, default, signific, rate, result, system, consum, demand, caus, healthcar</td>
<td>market, impact, includ, mani, covid, may, pandem, global, fund, financi, negat, econom, restrict, respons, secur</td>
<td>market, coronavirus, natur, novel, volatil, covid, pandem, widespread, increas, diseas, sever, can, disrupt, general, high</td>
</tr>
<tr>
<td><strong>FREX</strong></td>
<td>lower, downgrad, layoff, cancellationsuppli, system, demand, consum, default, healthcar, instabl, rate, infecti, geopolit, ebola</td>
<td>chang, polit, issu'er, aggress, industri, terror, taken, issu, domest, social, varieti, addit, particular, municip, fall</td>
<td>high, environment, fire, hurrican, earthquak, flood, tsunami, phenomena, weatherrel, lead, disaster-epidem, constraint, cost, instanc, illnessinclud</td>
</tr>
</tbody>
</table>

Note that each word has been “stemmed,” meaning that it has been reduced to an approximation of its stem to better capture variations in form.
b. Distribution of Specific COVID-19 Disclosures

COVID-specific disclosures exhibit statistically significant variation in topics across the entire sample and fund type.\(^{300}\) Note that each disclosure may contain a mixture of topics.\(^{301}\) The tokens (i.e., unique words or phrases) in each disclosure estimates the proportion of the disclosure devoted to a particular topic.\(^{302}\) Recall that the “Catastrophic Event” topic is characterized by the high probability token “natur” and the high FREX token “earthquak.”\(^{303}\) The following COVID-specific disclosure would be highly likely to be associated with this topic:

\[
\text{natural or environmental disasters such as earthquakes fires}
\]
\[
floods hurricanes tsunamis and other severe weather-related phenomena generally and widespread disease and illness—
\]
\[
including pandemics and epidemics such as the novel coronavirus have been and can be highly disruptive to economies and markets.\(^{304}\)

Funds disclosing a COVID-specific risk are most likely to disclose information about the onset of the pandemic.\(^{305}\) On average, roughly 33.9% of all COVID-specific disclosures discussed this subject.\(^{306}\) Government response to the pandemic is the next most common topic (28.4% of all public health disclosures).\(^{307}\) Finally, disclosures were equally likely to discuss the pandemic in the same breath as a catastrophic event (19.6%) or as a force of market disruption (18.1%).\(^{308}\)

\(^{300}\) See infra Figure 4.

\(^{301}\) See supra Table 5.

\(^{302}\) See Roberts et al., supra note 290, at 9. Formally, \(\theta\) (theta) is defined as the estimate of the proportion of a document devoted to a particular topic.

\(^{303}\) See supra Table 5.

\(^{304}\) Lincoln Variable Ins. Prod. Tr., Summary Prospectus (Form 497K) (May 1, 2020).

\(^{305}\) See infra Figure 4.

\(^{306}\) See infra Figure 4.

\(^{307}\) See infra Figure 4. The difference between the mean theta for onset and government response is statistically significant at \(p < 0.001\).

\(^{308}\) See infra Figure 4. The mean market disruption theta was statistically indistinguishable from the mean catastrophic event theta.
The success of open-ended regulations, such as requirements to disclose changing market conditions, depends on funds complying not just with the letter of the regulation, but also with the spirit.\textsuperscript{309} Investors are best informed when funds provide an informative statement about the changing market condition at issue, as well as the specific investment risk it poses.\textsuperscript{310}

This Article argues that an optimally functioning open-ended regulation should produce disclosures that are both universal and relatively uniform within fund type. One may expect some variation between fund type, however, due to differences in risk exposure.\textsuperscript{311}

First, risk disclosure was not universal: just over half (5,895) of all fund disclosures in 2020 mentioned any public health risks,
and fifty-two percent (3,103) of those disclosures made bespoke COVID-19 disclosures.\footnote{See supra Table 4.}

However, a fair amount of statistically significant variation occurs across fund type.\footnote{See infra Figure 4.} The difference between index funds and all other fund types is the most striking. COVID-specific disclosures made by index funds were significantly more likely to discuss \textit{market disruption} than any other fund type.\footnote{See infra Figure 4. All difference-in-means tests were statistically significant at $p < 0.001$.} Index funds devoted over forty-nine percent of public health disclosure text to discussing COVID-19’s market disruption compared to other fund types that addressed this topic between five percent and fifteen percent of their public health disclosures.\footnote{See infra Figure 4.} This tendency makes sense given that index funds represent a broad segment of public markets, so they are exposed to market-level risks more than other fund categories.\footnote{See infra note 235 and accompanying text.}

Similarly, Money Market (M) and Fixed Income (FI) funds were significantly more likely to discuss \textit{government response} (47.0\% and 46.2\%, respectively) than all other fund types.\footnote{See infra Figure 4. These differences-in-means were all statistically significant at $p < 0.001$.} Attention to this risk likely reflects the fact that both fund types are affected by interest rates, governmental monetary policy, and the fiscal stability of governments.\footnote{See, e.g., \textit{Bonds}, INVESTOR.GOV, https://www.investor.gov/introduction-investing/investing-basics/investment-products/bonds-or-fixed-income-products/bonds [https://perma.cc/5GTF-QS9G] (describing fixed income products and risk exposure); \textit{Money Market Funds}, INVESTOR.GOV, https://www.investor.gov/introduction-investing/investing-basics/investment-products/mutual-funds-and-exchange-traded-5 [https://perma.cc/2JM6-EZYM] (describing money market fund and key risk exposure).}

Patterns of disclosure among Domestic Equity (DE) and Foreign Equity (FE) funds provide some additional evidence that indicates success in open-ended regulation. DE and FE funds discuss \textit{onset, market disruption, government response}, and the pandemic as a \textit{catastrophic event} at nearly identical rates.\footnote{See infra Figure 4.} This is exactly what one would hope. Both types of funds are invested in...
equities—DE in American firms and FE in foreign firms. COVID-19 affected both types of funds. In other words, the pandemic’s global reach suggests that similarly situated funds should report similar risks—which is precisely what the data show.

![Figure 4. Distribution of Topics Across Fund Type](image)

These findings indicate that the SEC’s open-ended regulation of changing market conditions was largely successful but could be improved. Many funds’ failure to disclose any public health investment risk puts both funds and investors in a difficult position.

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320 See supra note 240–41 and accompanying text.
321 See supra note 240–41 and accompanying text.
322 See supra notes 180–95 and accompanying text.
323 See supra Section II.B.4.b. The difference between the average DE and FE thetas for all topics failed to reach statistical significance.
misdress investors into believing that some firms face little to no risk based on their portfolio and others face substantial risk.\textsuperscript{325} Yet, the pervasive nature of COVID-19 suggests this is not the case.\textsuperscript{326} Funds that disclose a public health risk may be placed at a disadvantage with investors, particularly those funds that disclose risks in detail.\textsuperscript{327} Part IV returns to the threat of punishing fulsome disclosures and discusses possible interventions.\textsuperscript{328}

However, among those funds that disclosed COVID-19 risks, differences between funds suggest these funds take seriously the SEC’s mandate to disclose specific risks.\textsuperscript{329} The next Part continues to explore fund compliance with SEC open-ended regulations to disclose changing market conditions by examining a slowly unfolding event: the Puerto Rican debt crisis.\textsuperscript{330}

III. CHANGED MARKET CONDITIONS: PUERTO RICO DISCLOSURES

Puerto Rico became insolvent in June 2014.\textsuperscript{331} To restructure its debt, the Puerto Rican government passed the Public Corporation Debt Enforcement and Recovery Act.\textsuperscript{332} The Act signaled that the island was on the brink of a destabilizing financial crisis.\textsuperscript{333} Fixed income funds investing in the island faced new and serious risks.\textsuperscript{334} If Puerto Rico couldn’t pay its debt, the funds would not get paid the principal due.\textsuperscript{335} Puerto Rican assets would be considered “junk bonds” that would be hard to sell except at a

\textsuperscript{325} See Tucker & Xia, supra note 119, at 1–2.
\textsuperscript{326} See supra notes 180–95 and accompanying text.
\textsuperscript{327} See supra Table 4.
\textsuperscript{328} See infra notes 529–35 and accompanying text.
\textsuperscript{329} See supra Figure 4.
\textsuperscript{330} Current Market Conditions, supra note 19.
\textsuperscript{331} Stephen J. Lubben, Puerto Rico and the Bankruptcy Clause, 88 AM. BANKR. L.J. 553, 568–78 (2014). Municipalities become insolvent when they have more debt than assets. See, e.g., Prod. Res. Grp., L.L.C. v. NCT Grp., Inc., 863 A.2d 772, 782 (Del. Ch. 2004) (defining insolvency as “a deficiency of assets below liabilities” or “an inability to meet maturing obligations as they fall due in the ordinary course of business”).
\textsuperscript{332} 2014 P.R. Laws 71.
\textsuperscript{334} Id. at 1129–30.
\textsuperscript{335} Id. at 1139.
very steep loss. This development seriously jeopardized portfolio returns.

Puerto Rico first defaulted on its debt service payments on municipal bonds in August 2015. After several more defaults, the U.S. government intervened in 2016 with a bill extending federal bankruptcy-like debt restructuring protections to Puerto Rico. This provided funds invested in Puerto Rico debt with more protection, but these investments were still subject to serious and evolving risks including legal uncertainty and continued financial strain.

In 2016, the SEC issued guidance on changing market conditions. The agency instructed affected funds to update their disclosures. This guidance required funds to name Puerto Rico as an investment location and identify the heightened risks of the investment such as downgrades in debt ratings (junk bonds), negative market values, and illiquidity of fund securities.

SEC staff enforced this new guidance when reviewing funds’ principal investment strategies and risk disclosures in Form N-1A.


On May 1, 2016, Governor Garcia Padilla ordered the government’s fiscal agent not to make payments on 423 million dollars in debt. Id.


CRS Puerto Rico, supra note 338, at 32. President Barack Obama signed the bill into law the day before the island made a two billion dollar default. Odinet, supra note 333, at 1117.

Odinet, supra note 333, at 1142.

Current Market Conditions, supra note 19, at 1.

Id.

Id. at 5.

Id. at 6.
For example, the SEC rejected a disclosure by Nuveen California Municipal Value Fund, Inc. stating that “the municipal securities in which the Fund invests may be issued by United States territories such as Puerto Rico.” The SEC directed Nuveen to disclose if it has “significant exposure to Puerto Rico debt” and if so, the principal risks associated with investments in the commonwealth. With the guidance, the SEC moved from principles-based and open-ended regulation into a more formalistic, rules-based approach. Once the crisis materialized and posed prolonged threats, funds had to disclose the new risks. This new guidance made clear that investments in Puerto Rican debt should be disclosed differently than other forms of territorial or municipal debt, such as debt issued by the Virgin Islands or Guam.

Unlike the COVID-19 public health crisis, the Puerto Rican debt crisis slowly unfolded over several years. The gap between the first serious sign in 2014 that the Puerto Rican economy was collapsing and the SEC’s guidance in 2016 that funds should be disclosing municipal bond investments creates an opportunity to evaluate funds’ voluntary inclusion of changing marketing conditions and the impact of SEC guidance on the specificity of funds’ disclosure of this risk.

A. Puerto Rican Disclosure Data

Using the same dataset of mutual fund disclosures from 2010 to 2020, as previously described, this Article studied funds’ response to the unfolding Puerto Rican debt crisis. Keywords, found by searching for “Puerto Rico” and “Puerto Rican,” narrowed the data set to relevant disclosures. Keywords identified 1332 Puerto Rico disclosures (see Table 8 in the Appendix). Instead

348 Id.
349 See Current Market Conditions, supra note 19, at 5.
350 See id. at 1, 6.
351 Id. at 5.
352 Id. at 5.
353 See supra Part III.
354 See supra notes 358–63 and accompanying text.
355 See infra note 559 and accompanying text.
of extracting a single sentence for each keyword, a five-sentence window was used. All extracted text from a single fund’s disclosure was combined into one entry, and this disclosure-level data is reported, but not sentence-level data.

Here, the data show additional evidence of funds disclosing emerging risks consistent with open-ended regulations. Funds dramatically increased the number of Puerto Rico risk statements in 2013. These statements peak in 2016. The numbers decline but remain elevated through 2020 as compared with pre-2013 data. Table 6 shows the disclosure counts by year, first for all funds and then for fixed income funds only. The remainder of this discussion focuses on fixed income funds, like bond funds, which are the most heavily invested in Puerto Rican assets and comprise the bulk of all Puerto Rico–specific risk disclosures.

<table>
<thead>
<tr>
<th>Year</th>
<th>All Funds</th>
<th>Fixed Income Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>26</td>
<td>22 (4.65%)</td>
</tr>
<tr>
<td>2011</td>
<td>29</td>
<td>25 (4.36%)</td>
</tr>
<tr>
<td>2012</td>
<td>31</td>
<td>29 (4.68%)</td>
</tr>
<tr>
<td>2013</td>
<td>122</td>
<td>110 (16.87%)</td>
</tr>
<tr>
<td>2014</td>
<td>166</td>
<td>150 (22.83%)</td>
</tr>
<tr>
<td>2015</td>
<td>163</td>
<td>154 (22.25%)</td>
</tr>
</tbody>
</table>

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356 See supra notes 358–63 and accompanying text.
357 See supra notes 358–63 and accompanying text. Sentence level data is not reported.
358 See supra notes 358–63 and accompanying text.
359 See supra notes 358–63 and accompanying text.
360 See infra Table 8.
361 See infra Table 8.
362 See, e.g., Bonds, supra note 318.
363 See Emily Leblanc, What Happens When an Island Starts to Drown Under Its Own Weight? The Debt Crisis of Puerto Rico, 20 OR. R. INT’L. L. 306, 310–11 (2019). Fixed income funds disclosed around ninety percent of all Puerto Rican risk and were the most exposed asset class to the crisis. See infra Table 6. The SEC also specifically identified fixed income funds in the 2016 guidance. Current Market Conditions, supra note 19, at 2–4.
Puerto Rico Disclosures

<table>
<thead>
<tr>
<th>Year</th>
<th>All Funds</th>
<th>Fixed Income Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>162</td>
<td>152 (21.29%)</td>
</tr>
<tr>
<td>2017</td>
<td>153</td>
<td>139 (19.02%)</td>
</tr>
<tr>
<td>2018</td>
<td>151</td>
<td>133 (18.32%)</td>
</tr>
<tr>
<td>2019</td>
<td>167</td>
<td>142 (19.48%)</td>
</tr>
<tr>
<td>2020</td>
<td>162</td>
<td>137 (19.27%)</td>
</tr>
<tr>
<td>Total</td>
<td>1332</td>
<td>1193 (16.39%)</td>
</tr>
</tbody>
</table>

B. Puerto Rican Disclosure Labels

Funds’ disclosures of Puerto Rico-specific risk increased over this period, but this reveals little about the success of the open-ended requirement to disclose the Puerto Rican debt crisis as a changing market condition. Examining the quality and specificity of those disclosures helps assess the success of open-ended disclosure requirements. Territorial investment risk disclosures, like public health disclosures, can be categorized into one of three categories: (1) a bespoke disclosure that provides a warning to investors of the risk that Puerto Rico will default on its debt (or has already); (2) a general statement that investing in Puerto Rico entails some risk; and (3) a boilerplate statement that investing in U.S. territories like Puerto Rico carries a risk.

Bespoke disclosures identified the specific risks unique to Puerto Rico: first the looming credit crisis and later Puerto Rico’s defaults. For example, warning language appearing before the first defaults included “[i]nvesting a significant portion of its assets in the municipal securities of U.S. territories and possessions also makes the fund more sensitive to risks specific to such territories.”

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364 See id. at 1–2.
365 See id.
366 The Appendix contains additional information on Puerto Rico Labeling procedures. See infra Table 13.
367 See infra Table 13. Disclosures are labeled as either warning/watch or as a default statement to track more granular disclosure information. Both labels are reported as Bespoke: Puerto Rico Specific Disclosures here. Id.; see James Chen, Bespoke CDO, INVESTOPEDIA (Oct. 6, 2020), https://www.investopedia.com/terms/b/bespoke-cdo.asp [https://perma.cc/8CGG-WK54]; What is Bespoke? Definitions and Examples, MARKET BUSINESS NEWS (2021), https://marketbusinessnews.com/financial-glossary/bespoke-definition/ [https://perma.cc/Z2MP-SFS7].
U.S. territories and possessions. Certain municipal bond issuers in Puerto Rico have recently been experiencing financial difficulties and rating agency downgrades. After Puerto Rico defaulted, one fund disclosed the following:

Some Puerto Rico issuers are in default on principal and interest payments. If there are additional defaults and the general economic situation in Puerto Rico persist or worsen, the volatility and credit quality of Puerto Rican municipal securities could be adversely affected, and the market for such securities may experience continued volatility. Municipal securities issued by Puerto Rico issuers have extremely low credit ratings and are on “negative watch” by credit rating organizations. In addition, Puerto Rico’s difficulties have resulted in increased volatility in portions of the broader municipal securities market from time to time, and this may recur in the future. This default casts doubts on the ability of Puerto Rico and its government agencies to make future payments. The government development bank, which provides liquidity to Puerto Rico’s government agencies, defaulted on a $400 million debt payment.

Figure 5 shows that funds first offered bespoke Puerto Rico disclosures in 2013. Raw counts peaked in 2016 and 2017 with seventy-nine bespoke disclosures each year. The proportion of bespoke disclosures peaked in 2018, when bespoke disclosures comprised fifty-two percent of all Puerto Rico disclosures. As the crisis lessened, fewer funds issued bespoke disclosures about Puerto Rico.

General boilerplate disclosures, on the other hand, merely mentioned Puerto Rico as a territory in which the fund invests, or in which it may invest. An example of generic boilerplate disclosure follows: “the fund may be more sensitive to these events and conditions if it invests a substantial portion of its assets in the municipal securities ... in the securities of issuers located within a single state, municipality, territory (such as Puerto Rico), or

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368 Integrity Managed Portfolios, Kansas Municipal Fund (Form 497K) (Dec. 7, 2010); Integrity Managed Portfolios, Kansas Municipal Fund 4 (2010).
370 Id.
371 Id.
372 See id.
373 See infra Table 13; James Chen, Boilerplate, INVESTOPEDIA (Feb. 2, 2021), https://www.investopedia.com/terms/b/boilerplate.asp [https://perma.cc/7AD4-QSZT].
geographic area.”374 Boilerplate disclosures state hypothetical risks without a clear signal to investors that they in fact are exposed to specific risks from the investment in Puerto Rican securities.375

Despite their lack of specificity, boilerplate disclosures were the most common Puerto Rican disclosure in the beginning and end of the sample period, holding steady between fifty-five percent and sixty percent.376 During the debt crisis however, bespoke disclosures displaced boilerplate disclosures: boilerplate disclosures dropped to around thirty percent from 2014 to 2016.377 Boilerplate disclosures grew in 2017, when they increased to forty-four percent and rose to precrisis levels in 2018 and beyond.378 As the crisis faded in severity and novelty, boilerplate statements again dominated Puerto Rican disclosures.379

The third label—general PR territory risks—sits in between bespoke and boilerplate disclosures.380 General PR territory disclosures described risks associated with Puerto Rico without identifying specific facts about the current situation.381 Other disclosures in this category hedged stated risks with contingent language.382 These funds signaled specific problems in Puerto Rico, but they did not state if investors were exposed to these risks.383

375 See id.
376 See infra Table 14.
377 See infra Table 14.
378 See infra Table 14.
379 See infra Table 14.
380 See infra Table 13.
381 For example, one fund disclosed the following:
   In recent years, Puerto Rico has experienced a recession and
difficult economic conditions. Adverse economic, market, political,
or other conditions within Puerto Rico may negatively affect
the value of the fund’s holdings in Puerto Rican municipal ob-
ligations. The fund may invest in municipal obligations issued
by the commonwealth of Puerto Rico and its agencies, or other
U.S. territories, which generally are tax-exempt.
382 See, e.g., Lord Abbett Multi-Asset Global Opportunity Fund, Summary
Prospectus 10 (2019).
In recent years, certain municipal bond issuers in Puerto Rico
have been experiencing financial difficulties and rating agency
downgrades. To the extent it invests a significant portion of
General PR territory risk disclosures increased between 2010 and 2014.384 In 2014, funds most frequently disclosed the risk associated with Puerto Rican debt using this type of language, comprising forty-three percent of all Puerto Rican disclosures.385 General disclosures became less common in the depths of the debt crisis through 2015.386 Following the SEC’s guidance about properly disclosing Puerto Rico risks, general language became less common than both bespoke and boilerplate disclosures.387 Few funds choose to make general territory risk disclosures following the debt crisis in 2018 and later.388

**Figure 5. Puerto Rico Disclosures by Label and Year**

Figure 6 shows the trade-off between precrisis disclosures, where general and boilerplate disclosures dominated, and

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384 See supra Figure 5.
385 See infra Table 14.
386 See infra Table 14.
387 See infra Table 14.
388 See infra Table 14.
postcrisis disclosures, where bespoke disclosures dominated and replaced general disclosures. General Puerto Rican risk disclosure comprised thirty-seven percent of all labels in 2013 but only four percent in 2017. Bespoke disclosures increased from seven percent to fifty-two percent over this same period.

The data provide some evidence that the SEC’s open-ended regulations performed their function—after all, disclosures did increase over this period, and at the height of the crisis, these disclosures became more specific about the risks associated with investing in Puerto Rico.

But funds’ continued reliance on boilerplate disclosures about generic risk associated with investing in U.S. territories creates some concern. Is a regulation successful if roughly half of the disclosures that mentioned Puerto Rico failed to provide any specific information about the island’s ongoing debt crisis?

Moreover, the methodology likely under-sampled disclosures by funds exposed to Puerto Rican investment risk. By selecting the sample on the variants of the phrase “Puerto Rico,” the data are likely missing some of the worst offenders: funds invested in Puerto Rican bonds but fail to disclose any exposure even in passing.

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389 See infra Figure 6.
390 See infra Figure 6.
391 See infra Figure 5, Figure 6, Table 14.
392 See infra Figure 6.
As noted above, many funds disclosed the Puerto Rican debt crisis risks with specificity, but others did not. But it is possible that some of this variation is due to differences in the extent of funds’ exposure to Puerto Rican debt. In other words, gradations in disclosure language may match differences in the actual portfolio holdings.

Using portfolio holding data from 2015 and 2016, there is evidence that portfolio differences appear to be related to disclosure specificity. Funds that made boilerplate disclosures held...
fewer Puerto Rican assets (4.2 securities on average) compared to funds that made bespoke disclosures (15.3 securities on average). In addition, funds making bespoke disclosures invested a larger percentage of the fund’s assets in Puerto Rico: six percent for bespoke disclosures compared to one percent for boilerplate. Table 7 reports the results.

Matching portfolio risk to disclosure specificity is encouraging for those who believe that disclosure is the best disinfectant. The results suggest open-ended regulations mostly work. This Article cautions the enthusiastic reader: the matching is imperfect. Some funds with Puerto Rican investments did not disclose at all or relied on mere boilerplate. For example, two funds that made boilerplate disclosures, did so in 2016 after clear defaults by Puerto Rico and after guidance by the SEC urging clear risk disclosures. At the time of the boilerplate disclosure, those funds also held forty or more different Puerto Rican assets and invested over five percent of the fund’s assets in the island’s debt. Yet, the funds provided investors with no clear indication of the specific risks the funds faced.

shares, and percentage invested from the Center for Research in Security Prices (CRSP) that is offered by Wharton Research Database Service. See Appendix A, Section A. The methodology matches the Puerto Rico disclosure sample based on the fund number in the Form 497K and the CRSP data with the common key CIK series number, between the two data sets. See Table 8. Thereafter, portfolio holdings of the over three hundred funds in the sample are reviewed. See Appendix A, Section A. Using the keywords “Puerto Rico,” “Puerto Rican,” and “F D PR” identifies Puerto Rican securities. See id. The number of Puerto Rican securities are counted and report as the sum of the investment exposure of each Puerto Rican security held by the fund. See Table 15. Using the number of securities and the investment percentage, one can compare the investment exposure of the funds to Puerto Rican securities. See Table 16.

See Table 7.

See supra Section III.B.

See supra Section III.C.

See Konish, supra note 394.


Id.
TABLE 7
PUERTO RICAN INVESTMENTS (NUMBER AND PERCENTAGE) BY FUNDS DISCLOSING PUERTO RICO RISKS

<table>
<thead>
<tr>
<th></th>
<th>Bespoke Disclosures</th>
<th>Boilerplate Disclosures</th>
</tr>
</thead>
<tbody>
<tr>
<td># Funds making PR disclosures</td>
<td>130</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>2015: 54</td>
<td>2015: 50</td>
</tr>
<tr>
<td></td>
<td>2016: 76</td>
<td>2016: 47</td>
</tr>
<tr>
<td>Average # of PR securities per disclosing fund</td>
<td>15.13</td>
<td>4.20</td>
</tr>
<tr>
<td></td>
<td>2015: 6.00</td>
<td>2015: 3.53</td>
</tr>
<tr>
<td></td>
<td>2016: 21.61</td>
<td>2016: 4.9</td>
</tr>
<tr>
<td></td>
<td>Range: 0–154</td>
<td>Range: 0–45</td>
</tr>
<tr>
<td># of 0 values:</td>
<td>24</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>2015: 11</td>
<td>2015: 24</td>
</tr>
<tr>
<td></td>
<td>2016: 13</td>
<td>2016: 24</td>
</tr>
<tr>
<td>Average % of disclosure fund assets invested in PR</td>
<td>6.28%</td>
<td>1.13%</td>
</tr>
<tr>
<td></td>
<td>2015: 2.55%</td>
<td>2015: 1.31%</td>
</tr>
<tr>
<td></td>
<td>2016: 6.94%</td>
<td>2016: 0.95%</td>
</tr>
<tr>
<td></td>
<td>Range: 0–42.59%</td>
<td>Range: 0–8.77%</td>
</tr>
</tbody>
</table>

IV. DISCUSSION & RECOMMENDATIONS TO BOLSTER DYNAMIC REGULATION

Funds’ disclosures of investment risk stemming from both the Puerto Rican debt crisis and the COVID-19 pandemic provide some support for the conclusion that open-ended requirements to disclose dynamic risk are working.403 But the variation observed in these disclosures gives one pause.404 Even considering differences in investment strategies and portfolio risk, funds’ disclosures of these risks yielded a large degree of variation in participation and content.405 Some funds provided specific information about the onset and scope of the

403 See supra Sections II.B.3, III.B.
404 See supra Figure 4.
405 See infra Appendix A.B.
pandemic or a discussion about the risk generated by the virus’s disruption of the market. Other funds failed to disclose any public health risk. Similarly, some Fixed Income funds disclosed specific information about the Puerto Rican government’s defaults; others mentioned only a general risk arising from investing in U.S. territories.

This Article’s findings lead to the conclusion that the SEC’s open-ended requirements to disclose changing market conditions work, but they could work better. The findings also suggest a few paths forward to improve how these open-ended regulations operate. This Part provides an analytical framework—a threetiered disclosure typology—that can be used to evaluate the completeness of disclosures. Drawing on individual reading of thousands of disclosures, this Article argues that disclosures can be sorted into three different buckets that should be familiar: (1) generic or boilerplate statements of risk; (2) bespoke disclosures of particularized risks; and (3) a middle category of general risk in a particular area that rises above boilerplate but falls below an informative discussion of specific risks. Theoretical support for the typology is based on contract theory and the existing literature.

The SEC should be monitoring for both the frequency and quality of disclosures. Universal disclosure of market risks both levels the playing field for funds and helps investors more accurately compare funds’ investment risk. But universal disclosure

406 See infra Appendix A.B.
407 See infra Appendix A.B.
408 See infra Appendix A.C.
409 See supra Section II.B.2.
410 See supra Figure 4.
411 See infra Section IV.A.
412 See infra Section IV.A.1.
414 See infra notes 498–507 and accompanying text.
of generic risk is not enough. Funds must also include additional detail about the nature of the risk. Evaluating the distribution of these three types across fund disclosures provides a way for the SEC to empirically evaluate fund compliance.

Empirically evaluating the quality of disclosures in this way can also inform when the SEC should intervene, as it did in the case of the Puerto Rican debt crisis, to ensure that funds are properly disclosing default risk. The SEC's intervention in the face of weak compliance is perhaps most important because it transitions an open-ended regulation to a highly tailored rules-based regime, in which funds are given clear guidance as to how they should disclose emerging and particularized risk. This prevents shirking by funds, better informs investors, and provides clearer benchmarks for the SEC to evaluate compliance.

This Part first develops a generalized three-part typology of disclosure specificity. Next, it discusses how this typology could be used by the SEC to better evaluate compliance with open-ended regulations generally and the changing market condition disclosure requirement specifically. Finally, it identifies the conditions under which SEC intervention is most required.

A. Introducing a Three-Tiered Disclosure Typology

The analysis to this point suggests that funds' disclosures of dynamic risk can take one of three general forms. Similarly situated funds facing the same risks may choose to disclose the risk with specificity, as seen with bespoke COVID-19 and Puerto Rico disclosures. Or a fund may rely on boilerplate statements of risk or general statements of categorical risk. Finally, a

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416 See id. at 196–97.
417 See infra Section IV.B.2.
418 See Current Market Conditions, supra note 19, at 5.
419 See Ojo, supra note 81, at 26–27.
420 See McClane, supra note 415, at 211, 271.
421 See infra Section IV.A.1.
422 See infra Section IV.B.2
423 See infra Section IV.B.3.
424 See supra Table 7.
425 See supra Table 7.
fund may choose a middle ground. In this situation, a fund expresses more specificity than a simple boilerplate statement of risk but provides investors little context or information on the extent of the risk.426

The following typology is drawn from the rich literature on contract terms. Both contracts and disclosures are legal artifacts that rely on nuanced language to address uncertainty, whether economic, regulatory, or legal.427 They are not, however, a perfect match: contracts and disclosures differ in key respects. Contracts define parties’ legally enforceable rights and obligations to each other.428 Disclosures, on the other hand, primarily serve to share information.429 Disclosures are also populated with terms determined by one party only—the disclosing party—based on guidance from a regulator.430 Contracts are a (presumably) mutually beneficial agreement between two parties.431 Disclosures, however, are a creature of regulation and must satisfy the regulator, among other audiences.432

426 See infra Table 12 and Table 13.
428 See, e.g., Restatement (Second) of Contracts § 1 (Am. L. Inst. 1981) ("A contract is a promise or a set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty."). The classical view of contracts conceptualizes utility maximization as the core motivator of contract terms. See, e.g., Patrick Bolton & Mathias Dewatripont, Contract Theory 5 (2005) (conceptualizing contracting parties as "rational individuals who aim to achieve the highest possible payoff"); see also Alan Schwartz & Robert E. Scott, Contract Theory and the Limits of Contract Law, 113 YALE L.J. 541, 545 (2003) ("Firms that maximize profits face the canonical 'contracting problem' of ensuring both efficient ex post trade and efficient ex ante investment in the subject matter of the contract. Parties trade efficiently when, and only when, the value of the exchanged performance to the buyer exceeds the cost of performance to the seller. Parties invest efficiently when their actions maximize a deal's expected surplus.").
430 See McClane, supra note 415, at 209.
431 See id. at 194.
432 See id. at 194–95.
These differences aside, both share common features. Dis-
closures have quasi-contract qualities in that untrue or incom-
plete statements trigger legal consequences: liability in courts
to defrauded investors and/or regulatory action. Furthermore,
while disclosures have a primary audience (investors), they are
also interpreted by regulators and courts much like the sophisti-
cated parties (and, potentially, courts) that interpret contracts.
Adequately disclosed risks may shield a fund from investor liabil-
ity, similar to the protection full disclosure in the representation
and warranty schedules provides in M&A deals.

1. Three General Types of Contract Term Specificity

The similarity between contracts and disclosures suggests
that contract theory may be able to demonstrate something about
when and why one is likely to observe variation in disclosure
language specificity. Contract language falls into three basic
tiers, similar to what was observed with the case studies: bespoke

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433 This Article is not the first to look to contract theory to understand disclosure patterns. See id. at 194–99.
434 Funds that fail to adequately describe risks may leave the fund open to liability for securities fraud under the Securities Exchange Act of 1934 if the “misstatement or omission concealed something from the market that, when disclosed, negatively affected the value of the security.” Youngers v. Virtus Inv. Partners, 195 F. Supp. 3d 499, 511 (S.D.N.Y. 2016) (citing Lentell v. Merrill Lynch & Co., 396 F.3d 161, 173 (2d Cir. 2005)).
435 Under the Securities Exchange Act of 1934 and Rule 10b-5, investor-plaintiffs can maintain a claim of securities fraud only if they can “prove (1) a material misrepresentation or omission by the defendant; (2) scienter; (3) a connection between the misrepresentation or omission and purchase or sale of a security; (4) reliance upon the misrepresentation or omission; (5) economic loss; and (6) loss causation.” Id. (citing Pac. Inv. Mgmt. Co. v. Mayer Brown LLP, 603 F.3d 144, 151 (2d Cir. 2010)).
436 See, e.g., McClane, supra note 415, at 197–98 (finding that more boiler-plate is associated with lower legal costs, but not with lower auditing fees or underwriting fees, time to completion, SEC scrutiny, or future amendments).
438 See McClane, supra note 415, at 202–04.
439 See, e.g., Sean J. Griffith, Deal Insurance: Representation & Warranty Insur-
440 See infra notes 469–73 and accompanying text.
terms, open-ended general standards,\textsuperscript{441} and generic boilerplate.\textsuperscript{442} Each tier serves a function in the contract.\textsuperscript{443} Bespoke terms telegraph unique and often important information.\textsuperscript{444} Open-ended standards\textsuperscript{445} facilitate bargains today despite uncertainty about tomorrow, thus conversing transaction costs and avoiding deadlock.\textsuperscript{446} Generic boilerplate, the least specific of the tiers, acts as a liability shield that increases predictability while minimizing transaction costs.\textsuperscript{447}

When entering a contract, parties may craft bespoke terms, such as a schedule of performance on the contract and damages in the event of default.\textsuperscript{448} While presumably well-tailored to the specific transaction at hand, such precisely negotiated terms may be costly to craft.\textsuperscript{449} For example, a contract between two manufacturing firms engaging in a joint venture may lay out a specific research and development ("R&D") schedule and require certain manufacturing or development milestones to be reached by a certain date. Such terms are unique to the parties, would be nonsensical in any other agreement, and speak directly to the parties' knowledge of the risks involved in the collaboration.

But the future may be difficult to predict—so difficult that negotiating efficient bespoke terms may appear to be a fool's errand.\textsuperscript{450} Parties can smooth over the rough edge of uncertainty

\textsuperscript{441} This section compares open-ended contract standards to the general, categorical disclosures observed in public health and Puerto Rico.


\textsuperscript{443} See infra notes 444, 446–47 and accompanying text.

\textsuperscript{444} Bespoke Contracts: Everything You Need to Know, supra note 442.

\textsuperscript{445} The previous section described the changing market condition disclosure requirement as an open-ended regulation. Changing market conditions, like best efforts, addresses future uncertainty that makes it too costly for the SEC to list everything today that may be required, given a changing and unknown set of events to occur, tomorrow.

\textsuperscript{446} Open-Ended Agreement Definition, DUHAIME’S L. DICTIONARY, https://www.duhaime.org/Legal-Dictionary/Term/OpenEndedAgreement [https://perma.cc/335C-KTAZ].

\textsuperscript{447} See Chen, supra note 373.


\textsuperscript{449} See Bespoke Contracts: Everything You Need to Know, supra note 442.

\textsuperscript{450} See id.
using open-ended terms, such as “reasonableness” or “good-faith effort” to govern uncertainty when the parties cannot reach an agreement on bespoke terms or bespoke terms are inappropriate given the parties’ assessment of economic or regulatory uncertainty.\textsuperscript{451} In other words, open-ended terms help reduce transaction costs. For example, the manufacturing joint venture described above may involve a great deal of uncertainty about when or even whether jointly undertaken R&D will be successful.\textsuperscript{452} In that case, specific schedules and drop-dead dates may be inappropriate. The firms in this example may be better served by open-ended standards that require “best efforts” to develop the product within a “reasonable” length of time.\textsuperscript{453}

Finally, parties may minimize costs and address uncertainty by including \textit{generic boilerplate}.\textsuperscript{454} Boilerplate terms are standardized, well-accepted, and frequently used terms and clauses, such as mandatory arbitration agreements, that carry an agreed-upon or shared meaning.\textsuperscript{455} Parties can be confident in their courts’ interpretations of these terms, as judges tend to “treat [boilerplate] as intentionally standardized and not harboring unusual meanings.”\textsuperscript{456}

Boilerplate is especially appropriate when parties are attempting to ameliorate risk common to all transactions.\textsuperscript{457} Want
to guard against the risk that a hurricane will destroy a plant or an earthquake will disrupt a production schedule? A standard “force majeure” clause is the parties’ best bet in this case.\textsuperscript{458} Need to ensure the contract is enforceable even if a single provision within the contract is deemed to be void? Add a standard severability clause.\textsuperscript{459}

Boilerplate language is useful in these types of situations because the standardized nature of the language entails low transaction costs.\textsuperscript{460} These terms’ catchall nature provides a liability shield to the parties at a low cost, facilitating transactions at a mass scale.\textsuperscript{461} Boilerplate language in contracts have prompted a scholarly firestorm, garnering everything from praise (for facilitating contracts in the presence of asymmetric information and knowledge to enable the growth of mass consumer markets\textsuperscript{462}) to scorn (as the foundation for “contracts of adhesion” that “take advantage of consumers’ weaknesses”).\textsuperscript{463} This Article offers neither. This discussion notes only that these terms are common “gap-fillers” in contracts characterized by deep informational asymmetry.\textsuperscript{464}

\textsuperscript{458} See Smith, supra note 413, at 1191 (highlighting the value of boilerplate language in contracts).

\textsuperscript{459} Id. at 1194.


\textsuperscript{461} Kahan & Klausner, supra note 413, at 718.

\textsuperscript{462} See, e.g., Lucian A. Bebchuk & Richard A. Posner, One-Sided Contracts in Competitive Consumer Markets, 104 MICH. L. REV. 827 (2006) (arguing that one-sided contracts containing boilerplate language are necessary in facilitating the growth of mass consumer markets and can be balanced in execution if firms are motivated by reputational concerns).


\textsuperscript{464} See supra notes 22–23 and accompanying text. Such terms exist to facilitate the transaction and, by extension, the existence of the market itself.
Taken together, these three types of contract terms—bespoke, open-ended, and boilerplate—give parties a range of language to define rights and ameliorate risk within their limited ability to forecast future political, social, and economic events that may affect the parties’ relationship. Next, this Article superimposes this framework on mutual fund disclosure language to explain the variation observed in our changing market condition case studies.465

2. Rooting Disclosure Language in Contract Theory

Findings from the empirical analysis indicate that, like contract language, disclosure language falls into three basic tiers: bespoke, general standards, and generic boilerplate.466 Rooting disclosure language in contract theory can help demonstrate why and when funds deploy each of these categories of language.467 This, in turn, aids regulatory efforts to promote universal disclosure of new and emerging market risks, as well as providing some guidance to the SEC about when an intervention may be necessary.468

Bespoke terms telegraph unique information to investors pinpointing specific strategies and risks.469 Bespoke disclosures may be appropriate when a fund is heavily invested in a particular geographic area. For example, recall that funds with comparatively high Puerto Rico investments made bespoke disclosures, compared to funds with lower Puerto Rico investments and which made boilerplate disclosures.470 Parties to a contract are likely to employ bespoke terms when describing known risk or an obligation specific to a particular agreement.471 Funds too

Arguably, mass consumer markets wouldn’t exist (or would look very, very different) if buyers and sellers were forced to accrue transaction costs from negotiating a separate contract for each sale. Cf. Chen, supra note 373 (suggesting that few sellers would enter the markets if every contract had the possibility of unconstrained liability).

465 See infra Section IV.A.2.
466 See infra Table 12.
467 See infra notes 469–73 and accompanying text.
468 See infra notes 527–28 and accompanying text.
469 See supra notes 251–52 and accompanying text.
470 Bespoke Contracts: Everything You Need to Know, supra note 442; see infra Table 14.
471 See infra Table 13 and Table 14.
may choose to make bespoke disclosures when event-specific information is available to funds.\textsuperscript{472} Consider funds’ disclosure of the Puerto Rican debt crisis. The number of bespoke disclosures increased, and more generic disclosures decreased as the crisis slowly unfolded.\textsuperscript{473}

This trend is observable outside of the case studies as well.\textsuperscript{474} For example, one fund heavily invested in the software/hardware sector noted that “[c]ompetitive pressures may have a significant effect on the financial condition of companies in the software and hardware sectors .... [M]any of the products and services offered by software and hardware companies are subject to the risks of short product cycles and rapid obsolescence.”\textsuperscript{475}

But not every fund chooses to make bespoke disclosures.\textsuperscript{476} Some instead choose general statements or boilerplate disclosure language.\textsuperscript{477} Here again, understanding how parties to a contract employ such terms is useful. Recall that parties use general statement and open-ended terms to describe obligations that are difficult to define using specific language.\textsuperscript{478} For example, instead of including a schedule of performance in the contract, parties instead may require “reasonable best efforts.”\textsuperscript{479} Similarly, funds may not know enough about a changing market condition and its effects to compose a highly specific statement of risk.\textsuperscript{480} They simply may not have sufficient information to make a tailored disclosure.\textsuperscript{481}

Funds may also attempt to adapt general, well-accepted language to describe a new and emerging risk.\textsuperscript{482} This may act

\textsuperscript{472} See infra Table 13 and Table 14.
\textsuperscript{473} See infra Table 14. The COVID-19 case study is limited by one year of data, but one could imagine more bespoke disclosures, more topic variation, and more detail in the disclosures over time.
\textsuperscript{474} See, e.g., Claymore ETF Trust (EDGAR) (Oct. 3, 2008).
\textsuperscript{475} Id.
\textsuperscript{476} See infra Figure 2; supra notes 249–50 and accompanying text.
\textsuperscript{477} See infra Figure 2; supra notes 249–50 and accompanying text.
\textsuperscript{478} See supra notes 450–51 and accompanying text.
\textsuperscript{479} See supra notes 450–51 and accompanying text.
\textsuperscript{480} See Kenneth Kiesnoski, These Are the Changes and Challenges Keeping Advisors Up at Night, CNBC (Oct. 17, 2019, 8:11 AM), https://www.cnbc.com/2019/10/17/these-are-the-changes-and-challenges-keeping-top-advisors-up-at-night.html [https://perma.cc/Z2N8-F2C9].
\textsuperscript{481} See id.
\textsuperscript{482} See Kahan & Klausner, supra note 413, at 718–21. For example, a fund may disclose a general “investment style risk” by explaining that it uses a
to normalize the risk and blunt investor concern over the investment risk caused by the changing market condition. These terms may be attractive to firms because general, open-ended statements of investment risk or strategy fill in the gaps and smooth over the rough edge of uncertainty about the scope of a risk or how it will unfold. Like in contracts, general statements of risk offer low-cost liability shields. Examples of general disclosure statements include the risk of losing money, exposure to markets, and for foreign investments the exposure to political and economic conditions abroad.

But firms don’t universally comply with the SEC’s requirement to disclose changing market conditions. Using general language reflects an attempt to shield a fund from liability for undisclosed risks. General risk statements balance regulator and investor concerns. If the needle is thread accurately, a fund can disclose a risk to shield it from liability without scaring off potential investors.

growth style. Investment Risks, BAIRD, https://content.rwbaird.com/RWB/Content/PDF/Help/Baird-Investment-Risks-Summary.pdf. This means that a fund seeks to increase investor capital, usually by investing in stocks expected to grow above market averages. See, e.g., Glossary, SEC, https://www.sec.gov/Archives/edgar/data/910180/00010688000000231/0001068800-00-000231-0001.htm. To hedge that specific risk, however, the fund cautions investors that “[t]hose styles may be out of favor or may not produce the best results over shorter or longer time periods.” AXA Premier VIP Trust (Form 497K) (May 2, 2008). The fund notes a specific risk—investment style risk—but uses categorical and generalized terms to describe the nature of the risk (“may be out of style” and “may not produce results over short or longer time periods”). Id.

483 See Kahan & Klausner, supra note 413, at 718–21.

484 See id.

485 Id. at 718.

486 See Investment Risks, supra note 482.


488 See Virginia Harper Ho, Disclosure Overload? Lessons for Risk Disclosure & ESG Reporting Reform From the Regulation S-K Concept Release, 65 VILL. L. REV. 67, 110 (2020) (surveying SEC filed comments and reporting that over-disclosure of risk factors and generic or boilerplate disclosures are “due to fear of liability, and certain investors and other respondents agreed that these same concerns also lead companies to under-disclose firm-specific risks”).

489 See id.

490 See id.
Funds’ use of generic or boilerplate language may serve a similar purpose. Boilerplate disclosure language, like boilerplate in contracts, reduces transaction costs. Transaction costs for disclosures entail the cost of market monitoring, drafting and updating disclosures in response to changing market conditions, and filing disclosures with the SEC. Generic or general language simply requires less updating and refiling. Stability in the language of a disclosure also reflects stability in the funds’ investments and minimizes the perception that the fund may lose money.

Disclosures must simultaneously woo prospective participants (investors) while disclosing enough risk to create a liability shield and satisfy regulators. This creates a tension in disclosures. Funds seek to increase fund share sales—an activity that requires optimism by investors about returns—while satisfying the SEC’s requirements that funds “should clearly disclose the fundamental characteristics and investment risks of the Fund, using concise, straightforward, and easy to understand language.” In balancing these two opposing forces, disclosures must also be complete enough in their descriptions of risk to forestall an investor lawsuit following a drop in NAV or other metrics of the security’s value.

491 See Chen, supra note 373.
493 See Chen, supra note 373.
494 See id.
496 SEC Form N-1A, supra note 8, at item 1(a): Administration of the Form N-1A requirements.
497 See id. Note that the fund’s NAV (i.e., the share price) and the value of the fund are two different things. In Youngers v. Virtus Inv. Partners, the Court explained:

In situations where a change in value is not necessarily represented by a corresponding change in price, a court must shift its focus to something other than price in determining whether a misstatement “negatively affected the value of a security.” ... Such a valuation process is neither onerous nor exceptional; investors make an independent determination of value each time they purchase a mutual fund share. Indeed, it is an axiom of
Funds satisfy these competing audiences\(^\text{498}\) by engaging in a form of constrained optimization when writing disclosures.\(^\text{499}\) Bespoke terms describing risk may be inefficient given these opposing audiences, even when the risk is well known, as with COVID-19.\(^\text{500}\) Specific descriptions of risk may create a red flag for investors, prompting questions about why a particular fund is plagued by risks unlike those of its peers.\(^\text{501}\)

Consider the fixed income funds holding forty or more Puerto Rican assets in 2016 that only made boilerplate disclosure about Puerto Rico risk.\(^\text{502}\) An investor reading that disclosure, compared to the bespoke disclosures made by funds with similar Puerto Rican investors, could estimate very different risks for microeconomics that a party will not purchase an item if its value does not exceed its price. With securities, investors consider the expected future value of an investment and purchase securities when the discounted present value exceeds the price. To make this assessment, investors look to a myriad of factors, which, for example, can include risk and performance history. A material misrepresentation of any of these factors could lead to an inflated valuation of security.


\(^{500}\) See supra Part II.

\(^{501}\) Cf. McClane, supra note 415, at 195–96; see also Edward A. Morse et al., SEC Cybersecurity Guidelines: Insights into the Utility of Risk Factor Disclosures for Investors, 73 BUS. L. 1, 34 (2018) (presenting evidence that investors punished firm that added new cybersecurity risk statements to disclosures).

\(^{502}\) See supra Part IV.
the otherwise similarly situated funds. From this lens, funds have little incentive to raise investor fears and scare off the wary or uninformed. Cautious funds might opt for a more general and open-ended statement of risk.

From the fund’s perspective, boilerplate language best exploits the information asymmetry between the fund and its investors. Regulators and courts—the most sophisticated interpreters of the disclosure—may see boilerplate as “a type of modular language—a settled formulation of a set of ideas or information—that can be easily recognized and understood by its intended audience.” Common understandings can shield a fund from regulatory and judicial scrutiny. But relatively unsophisticated investors may not interpret these decidedly milquetoast phrases as containing any particularly worrisome risk.

B. Improving the Regulation of Dynamic Risk

The cost and benefits of various disclosure types suggest that the SEC’s open-ended requirement to disclose changing market conditions could be improved by assessing regulatory success based on the distribution of these disclosure types across funds. This Article makes three specific recommendations. First, the SEC should empirically assess fund disclosures for compliance by assessing whether funds have disclosed any risk of a changing market conditions. Next, the SEC should develop event-specific methods to evaluate the distribution of disclosure type. Finally, if funds have largely failed to inform investors of specific risks, the SEC should intervene and provide guidance that transforms the open-ended disclosure regime to a rules-based one.

503 See supra Part IV.

504 Other examples of boilerplate disclosures are observable outside of changing market conditions. For example, a fund may disclose a general “investment style risk” by explaining that it uses a growth style. See, e.g., Claymore ETF Trust, supra note 474.

505 McClane, supra note 415, at 195.

506 See id. at 232.


508 See supra Introduction.

509 See supra Part II.

510 See supra Part I.
1. Determine Universal Compliance

Determining whether funds have disclosed any risk related to changing market conditions is the first task. The two case studies in this Article indicate that some funds simply fail to disclose any risk that could be construed as disclosing changing market conditions.\footnote{See infra Table 12.} Failure to disclose changed or changing market conditions, once in play, is a clear violation of the SEC’s principles-based disclosures.\footnote{Current Market Conditions, supra note 19, at 2–3; see also Fenwick et al., supra note 23, at 590.}

The SEC should enforce disclosure through staff comments on filing reviews on an ad hoc basis. The SEC should also systematically evaluate disclosure keywords and topics to identify compliance outliers and statistically significant variation in disclosures.\footnote{See supra notes 262–90 and accompanying text describing the variation in COVID disclosure topics.} Leveraging keyword lists may create a check-the-box approach to nuanced disclosures.\footnote{See infra Tables 15, 16, and 17.} Adding in tools like cosine similarity\footnote{See infra Table 12.} to compare disclosure text before and after the changed condition may help the SEC identify outlier funds that are not (but should be) changing their disclosure text.\footnote{See infra Table 12.}

2. Evaluate Compliance Quality

Universal compliance, however, is only the first step to determining meaningful compliance—that is, compliance with both the letter and the spirit of the law.\footnote{See infra Table 12.} Disclosures of dynamic risk, like changing market conditions, should not just serve as a liability shield for the fund but also inform the average investor.\footnote{See infra Table 12.} Disclosures that offer only boilerplate language perform the former goal while failing to achieve the latter.\footnote{See infra Table 12.}

The SEC could further leverage any automated and/or keyword-based processes to sort disclosed dynamic risk into one
of three categories: bespoke, general, or boilerplate. The SEC could then determine what level of disclosure satisfied its requirements for any particular event. For example, the SEC could evaluate 2020 disclosure data to conclude that (1) funds had failed to universally comply with the mandate and (2) enough was known about the risk by the end of the year to merit a more particularized disclosure of COVID-specific risk by those funds providing only a boilerplate public health risk.

Applying this three-tiered typology of risk disclosure could have also led the SEC to intervene earlier in the Puerto Rican debt crisis. Recall that Puerto Rico had been overextended for years and showed the first serious signs that it may default on its debt in 2014. Yet, most funds issued general or boilerplate risk disclosures even when the risk was clear. In 2015, more funds began making bespoke disclosures, but this number barely exceeded the number of firms making general and boilerplate disclosures. Only after the SEC intervened in 2016 did the number of bespoke disclosures dramatically increase.

3. Intervene When Empirical Measures Indicate a Lack of Meaningful Compliance

Finally, the SEC should bolster gap-filling disclosure requirements like the changing market condition with timely and tailored guidance. SEC guidance elevates open-ended standards to principles-based requirements, or in the case with Puerto Rico, a clear rule. The SEC should leverage its disclosure framework and advance regulations from vague, hypothetical obligations to disclose risks if something bad happens, to clearer standards when the crisis has arrived. Moving into more formalistic, concrete guidance from the SEC makes clearer funds’ compliance obligations and lays a path for SEC enforcement.

520 See infra Table 12.
521 See infra Table 16.
522 See supra notes 268, 487.
523 Lubben, supra note 331, at 568–78.
524 See supra Figure 5.
525 See supra Figure 5.
526 See Current Market Conditions, supra note 19.
527 Id.
528 See, e.g., Ojo, supra note 81, at 13, 20–21.
As observed with the Puerto Rico data, more funds disclosed following SEC guidance, and more funds issued bespoke disclosures. While the number of funds disclosing COVID-19 and public health risks dramatically increased in 2020, with nearly fifty percent of funds not disclosing public health risks, disclosures likely underestimate the risks of the pandemic. Further, public health boilerplate and general statements may be sufficient liability shields, but they do little to extend the mission of SEC disclosures: informing ordinary investors. Despite the widespread personal experience with the pandemic, clear statements connecting public health risks to investment risks may still be necessary, or at least helpful. As demonstrated in the topic model, there is nuance to the financial risks brought on by the pandemic.

SEC guidance would also help free funds stuck in the disclosure disincentive. Economically speaking, a fund should disclose exactly the amount of risk necessary to satisfy regulators (i.e., boilerplate) but no more. This minimizes the possibility of scaring off investors. SEC guidance would help strike the right balance by tipping the scales in favor of fulsome disclosure. Clear rules-based guidance would also normalize disclosing the risk among funds and decrease investor stigma or fear for making the disclosure.

SEC guidance should be tailored by fund type. The analysis of COVID-specific disclosures provided evidence that disclosed risks tend to vary by fund type. This likely reflects

529 See supra note 41 and accompanying text.
530 See supra note 15.
531 See supra notes 288–99 and accompanying text.
532 See supra notes 134–35 and accompanying text.
533 See supra notes 489–90 and accompanying text.
534 See supra notes 489–90 and accompanying text.
535 See S-K Final Rules, supra note 6, at 8.
536 See supra note 311 and accompanying text. More specific disclosures may help investors better understand the likelihood of loss. Choi & Pritchard, supra note 499, at 12. Drawing generally from behavioral economics literature, a nudge by the SEC may help to appropriately balance investor biases such as over-optimism and anchoring. Id.; see also Manne, supra note 507, at 477 (arguing that investor reaction to risk disclosure is not necessarily rational and that investors interpret information through their own cognitive biases).
537 See supra Section II.B.4.
systematic variation in portfolio holdings: different types of funds are exposed to different types of risk. SEC guidance about COVID-19 and future events should be tailored to fund type, like commodity effects for Fixed Income funds, consumer demand and supply chain disruption on Domestic Equity and Index funds, and the global regulatory response for Foreign Equity funds. Topic modeling early disclosures could, as reported in Part II, identify areas of agreement among disclosing funds about the major risks to shape SEC guidance and enforcement efforts.

Furthermore, the SEC should continue to enforce disclosure compliance even after issuing guidance. Intervention without monitoring does not ensure compliance. For example, the data show that, even after the SEC issued guidance in 2016, some funds with Puerto Rico investments did not make the recommended disclosures, opting instead for the mildest boilerplate language. This variation is unmooted from economic reality. In this situation, the fund making boilerplate disclosures had the same significant risk as the funds making bespoke disclosures. This type of variation undermines the reliability of disclosures. Investors cannot depend on disclosures to accurately signal the risk associated with an investment in the face of calculated under-reporting. The call to SEC action is strong: mutual fund markets operate outside price arbitrage and takeover threats that could otherwise punish weak disclosures. In this environment, SEC intervention takes on greater importance.

CONCLUSION

This Article finds evidence that SEC open-ended regulations, like changing market conditions, are largely successful in regulating dynamic, future risk. These regulations fill a regulatory

538 See supra note 311 and accompanying text.
539 See supra note 536 and accompanying text.
540 See supra Section II.B.4.
541 See supra note 41 and accompanying text.
542 See supra notes 424–26 and accompanying text.
543 See supra notes 424–26 and accompanying text.
544 See supra notes 35–36 and accompanying text.
545 Spamann, supra note 47, at 14.
546 See Romano, supra note 22, at 27–28.
gap when unforeseen events, like COVID-19, occur.\textsuperscript{547} While imperfect, the evidence of both case studies suggests widespread compliance by funds.\textsuperscript{548} Further, the data show that funds use the disclosure channels to communicate important information to investors. Many funds provide tailored and fulsome accounts of investment risks, and for many funds, the choice to do so is tied to the portfolio investments.\textsuperscript{549} In this light, the SEC’s disclosure framework successfully promotes funds’ disclosure of dynamic risks.\textsuperscript{550}

But the data also tell another story. While many funds disclose changing market conditions, not all do.\textsuperscript{551} The open-ended regulations, by themselves, are incomplete.\textsuperscript{552} Not every fund participates, and even among those that do, there is wide variation in the specificity of the disclosure.\textsuperscript{553}

Variation undermines the SEC’s regulatory framework for funds, which hinges on disclosure.\textsuperscript{554} If some funds fail to meaningfully disclose dynamic risk, investors cannot rely on such disclosures to distinguish between two investment opportunities.\textsuperscript{555} When variation is allowed, perverse incentives creep in, discouraging funds to make fulsome disclosures for fear of scaring off investors.\textsuperscript{556} This Article recommends SEC interventions to mitigate variation: (1) monitor disclosures for universal compliance by affected funds, (2) categorically evaluate disclosure content, (3) issue tailored and timely guidance when there is variation in fund participation and disclosure content, and (4) enforce disclosure compliance following guidance.\textsuperscript{557} These four measures would elevate the open-ended regulations into more formalistic rules once a new crisis arises, making clear disclosure obligations for funds and enforcement opportunities for the SEC.\textsuperscript{558}

\footnotesize
\begin{itemize}
\item \textsuperscript{547} See id.
\item \textsuperscript{548} Supra Parts II and III.
\item \textsuperscript{549} See supra note 111 and accompanying text.
\item \textsuperscript{550} Supra notes 79–82 and accompanying text.
\item \textsuperscript{551} See supra Section II.B.4; Section III.B.
\item \textsuperscript{552} See supra Section II.B.4; Section III.B.
\item \textsuperscript{553} See supra notes 31–33.
\item \textsuperscript{554} See supra note 34 and accompanying text.
\item \textsuperscript{555} See supra note 36 and accompanying text.
\item \textsuperscript{556} See Current Market Conditions, supra note 19, at 1.
\item \textsuperscript{557} See supra note 36 and accompanying text.
\item \textsuperscript{558} Supra Section IV.B.
\end{itemize}
APPENDIX A: DATA AND METHODS

Additional details on the data collection, labeling and analysis procedures are provided below.

A. Data Sample Construction and Description

This Article uses mutual fund disclosures from 2010–2020 to study the SEC’s open-ended regulation of funds to disclose changing market conditions. Two case studies focus the review: COVID-19 and the Puerto Rican debt crisis.

Table 8 describes the beginning data sample, what filings were dropped and why (file size too small, no principal risk, or a duplicate filing), and the number of public health and Puerto Rico filings. Part II in the Article provides additional details. In preprocessing, all words were made lower case, and special characters such as: ?"\&\%^\$\#\*@() were removed and replaced with blank spaces. Punctuation contained in a standard set of abbreviations was also ignored.559

<table>
<thead>
<tr>
<th>TABLE 8</th>
<th>SAMPLE CONSTRUCTION &amp; DATA LOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total filings 2010–2020</td>
<td>213,861</td>
</tr>
<tr>
<td>Filings after dropping for missing principal risk and small file sale</td>
<td>164,602</td>
</tr>
<tr>
<td>De-duplicate filings (keeping the last filing per year)</td>
<td>98,290</td>
</tr>
<tr>
<td>Number of public health filings in sample</td>
<td>7,998</td>
</tr>
<tr>
<td>Number of Puerto Rico filings in sample</td>
<td>1,332</td>
</tr>
</tbody>
</table>

559 These abbreviations include the following terms: i.e., U.S., e.g., etc., J.P., Inc., LLC., Co., i.p., ltd., S.E.C., Inv. Co. Act, months (such as Sept., Dec., Jan., Nov., Oct., Aug., Feb., etc.), vs., dr., mr., mrs., and ms. For example, the abbreviation U.S. to describe investment in U.S. companies would be changed to “us”
Open-ended filing funds were categorized by merging scraped prospectus data with the CRSP Survivor Bias Free U.S. Mutual Fund Database investment objective codes to categorize open-ended filing funds. Six broad CRSP categories were used to group funds in like-asset classes: domestic equity (DE), foreign equity (FE), fixed income (FI), money market (M), index (I), and other. Funds with no CRSP codes were grouped in the “missing” category. Within the sample, Domestic Equity funds and Index funds together make up forty-seven percent of the sample. See the distribution of fund types in Table 9 for additional sample data.

**Table 9**  
**Disclosure Counts by Year and Fund Type 2010–2020**

<table>
<thead>
<tr>
<th>Year</th>
<th>Fund Type</th>
<th>'10</th>
<th>'11</th>
<th>'12</th>
<th>'13</th>
<th>'14</th>
<th>'15</th>
<th>'16</th>
<th>'17</th>
<th>'18</th>
<th>'19</th>
<th>'20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic Equity</td>
<td>1308</td>
<td>1745</td>
<td>1939</td>
<td>2195</td>
<td>2370</td>
<td>2524</td>
<td>2697</td>
<td>2796</td>
<td>2765</td>
<td>2745</td>
<td>2617</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34%</td>
<td>32%</td>
<td>31%</td>
<td>31%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>29%</td>
<td>29%</td>
<td>29%</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td>Foreign Equity</td>
<td>561</td>
<td>722</td>
<td>830</td>
<td>965</td>
<td>1070</td>
<td>1186</td>
<td>1279</td>
<td>1319</td>
<td>1328</td>
<td>1309</td>
<td>1225</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Fixed Income</td>
<td>473</td>
<td>574</td>
<td>619</td>
<td>652</td>
<td>657</td>
<td>692</td>
<td>714</td>
<td>731</td>
<td>726</td>
<td>729</td>
<td>711</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12%</td>
<td>11%</td>
<td>10%</td>
<td>9%</td>
<td>9%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Index</td>
<td>326</td>
<td>686</td>
<td>805</td>
<td>951</td>
<td>1070</td>
<td>1295</td>
<td>1498</td>
<td>1700</td>
<td>1909</td>
<td>1996</td>
<td>1958</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>20%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>Money Market</td>
<td>363</td>
<td>473</td>
<td>544</td>
<td>626</td>
<td>685</td>
<td>743</td>
<td>793</td>
<td>796</td>
<td>761</td>
<td>770</td>
<td>710</td>
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<tr>
<td></td>
<td></td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>865</td>
<td>1230</td>
<td>1440</td>
<td>1664</td>
<td>1833</td>
<td>1995</td>
<td>2104</td>
<td>2110</td>
<td>2076</td>
<td>2070</td>
<td>1925</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22%</td>
<td>23%</td>
<td>23%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>23%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>Missing CRSP Code</td>
<td>1576</td>
<td>1777</td>
<td>1677</td>
<td>1478</td>
<td>1332</td>
<td>1051</td>
<td>718</td>
<td>538</td>
<td>619</td>
<td>770</td>
<td>1211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

560 Note the CRSP database excludes closed end funds and other registered investment vehicles that are not mutual funds, bonds, international equities, or money market funds. See CENTER FOR RESEARCH IN SECURlTY PRICES, DATA DESCRIPTIONS GUIDE, CRSP US STOCK AND US INDEX DATABASES 4 (Feb. 2021).
FIGURE 7. DISTRIBUTION OF FUND TYPES IN DATA SAMPLE 2010–2020 EXCLUDING MISSING CRSP DATA

B. Public Health Disclosure Data, Labeling, and Description

Here the count of public health data across the sample by year and fund type is provided. Table 10 reports sentence level data. Table 11 reports disclosure data and provides proportions.

<table>
<thead>
<tr>
<th>Year</th>
<th>'10</th>
<th>'11</th>
<th>'12</th>
<th>'13</th>
<th>'14</th>
<th>'15</th>
<th>'16</th>
<th>'17</th>
<th>'18</th>
<th>'19</th>
<th>'20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equity</td>
<td>1</td>
<td>12</td>
<td>3</td>
<td>14</td>
<td>17</td>
<td>21</td>
<td>33</td>
<td>18</td>
<td>47</td>
<td>34</td>
<td>3068</td>
</tr>
<tr>
<td>Index</td>
<td>1</td>
<td>14</td>
<td>17</td>
<td>21</td>
<td>27</td>
<td>25</td>
<td>35</td>
<td>36</td>
<td>32</td>
<td>42</td>
<td>2849</td>
</tr>
<tr>
<td>Foreign Equity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>11</td>
<td>10</td>
<td>11</td>
<td>15</td>
<td>1493</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1073</td>
</tr>
<tr>
<td>Money</td>
<td>2</td>
<td>12</td>
<td>18</td>
<td>21</td>
<td>33</td>
<td>45</td>
<td>50</td>
<td>39</td>
<td>39</td>
<td>51</td>
<td>872</td>
</tr>
</tbody>
</table>
A combination of hand coding and computer coding generated the public health labels. Table 12 outlines the rules and conditions for the labels.

### TABLE 12
**PUBLIC HEALTH DISCLOSURE LABELING RULES**

<table>
<thead>
<tr>
<th>Label</th>
<th>Rule</th>
<th>Additional keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bespoke: COVID-specific</strong></td>
<td>If sentence contains covid-specific keywords, then sentence = “COVID-specific”</td>
<td>covid, coronavirus, this pandemic, the pandemic, this global pandemic, the global pandemic, this outbreak, this virus</td>
</tr>
</tbody>
</table>
### General Public Health

<table>
<thead>
<tr>
<th>Label</th>
<th>Rule</th>
<th>Additional keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If the sentence contains neither covid-specific keywords nor general laundry list terms and contains one or more public health keyword then sentence = “General PH”</td>
<td>illness, epidemic, communicable disease, sars, public health, health screening, quarantine, virus, hiv, respiratory, health crises, prevention, mers, health crisis, h1n1, global health, sanitation, pandemic, disease, influenza, pathogen, health risk, outbreak, travel restriction, contagion</td>
</tr>
</tbody>
</table>

### Boilerplate: General Laundry List

<table>
<thead>
<tr>
<th>Rule</th>
<th>Additional keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the sentence does not contain covid-specific keywords but does contain at least one public health keyword and contains more than one general laundry list keyword then sentence = “General Laundry List”</td>
<td>political upheaval, social unrest, war, terrorism, terror attack, financial trouble, financial market, natural disaster, environmental disaster, country instability, political event, civil unrest, national election, exchange controls, social event, economic event, economic development, labor strike, inflation, geopolitical, economic, political, panic, environmental, social, regional, recession, regulatory development, interest rate, currency rate, military confrontation, corporate earnings, corporate revenue, security concern, international relation, cybersecurity, technological, weather, pollution, cyber, hack, hacking, attack</td>
</tr>
</tbody>
</table>

### Disclosure Labels

<table>
<thead>
<tr>
<th>Label</th>
<th>Rule</th>
<th>Additional keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bespoke: COVID-specific</td>
<td>If any sentence in the disclosure is labeled Bespoke: COVID-Specific then the filing is labeled as Bespoke: COVID-Specific.</td>
<td>n/a</td>
</tr>
<tr>
<td>General Public Health</td>
<td>If no sentence is labeled Bespoke: COVID-Specific in a filing and 1 or more sentences are labeled General Public health then the filing is labeled General Public health.</td>
<td>n/a</td>
</tr>
</tbody>
</table>
C. Puerto Rico Data, Labeling, and Description

Hand coding was used to generate the Puerto Rico disclosure labels only because the sample size was smaller, but it spanned a longer range of time. Triggering conditions for one label versus another involved more judgment than the keyword conditions of the public health rules and thus were harder to reduce to programmable rules. The following table outlines the general coding guidelines for the Puerto Rico data. Table 14 reports the labeled data by year.

**TABLE 13**

**PUERTO RICAN DISCLOSURE LABELING RULES HERE**

<table>
<thead>
<tr>
<th>Label</th>
<th>Rule</th>
<th>Additional keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bespoke: PR warning/default</strong></td>
<td>Label is fund discloses specific facts of the PR financial crisis such as the negative watch, junk bonds and defaults.</td>
<td></td>
</tr>
<tr>
<td><strong>Boilerplate: General U.S. territory</strong></td>
<td>Label if fund only mentioned Puerto Rico as a part of a general U.S. territory risk statement, but provided no facts about the crisis or clear indication that the fund is invested in PR.</td>
<td></td>
</tr>
</tbody>
</table>

The commonwealth of Puerto Rico and its related issuers continue to experience financial difficulties and rating agency downgrades, and numerous issuers have entered title iii of the Puerto Rico oversight, management and economic stability act, which is similar to bankruptcy protection, through which the commonwealth of Puerto Rico can restructure its debt. Puerto Rico’s short-term financial difficulties were further impacted by a hurricane in 2017.

To the extent the fund holds any municipal securities of issuers in Guam, Puerto Rico, the U.S. virgin islands, or other U.S. territories, the fund may lose some or all of the value of those investments.
General PR territory
Label if fund identifies unique risks to investments in Puerto Rico without identifying the financial crisis, or without a clear indication that the fund is currently invested in PR.

Puerto Rico and U.S. territories because the fund focuses on the municipal securities of U.S. territories, and currently invests primarily in Puerto Rican municipal securities, events in Puerto Rico are likely to affect the fund’s investments and its performance. These events may include economic or political policy changes, tax base erosion, territory constitutional limits on tax increases, budget deficits and other financial difficulties, and changes in the credit ratings assigned to Puerto Rico’s municipal issuers. As with Puerto Rican municipal securities, events in any of the other territories where the fund is invested may affect the fund’s investments and its performance. Certain municipal issuers in Puerto Rico have recently experienced financial difficulties.

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>'10</th>
<th>'11</th>
<th>'12</th>
<th>'13</th>
<th>'14</th>
<th>'15</th>
<th>'16</th>
<th>'17</th>
<th>'18</th>
<th>'19</th>
<th>'20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General PR territory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Label</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bespoke: PR warning/default</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Count</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>42</td>
<td>59</td>
<td>79</td>
<td>79</td>
<td>68</td>
<td>59</td>
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<td>436</td>
</tr>
<tr>
<td>%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>7%</td>
<td>25%</td>
<td>36%</td>
<td>49%</td>
<td>52%</td>
<td>45%</td>
<td>35%</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Boilerplate: General U.S. Territory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>15</td>
<td>19</td>
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<td>49</td>
<td>47</td>
<td>68</td>
<td>82</td>
<td>94</td>
<td>106</td>
<td>616</td>
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<tr>
<td>%</td>
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<td>52%</td>
<td>61%</td>
<td>57%</td>
<td>31%</td>
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<td>29%</td>
<td>44%</td>
<td>54%</td>
<td>56%</td>
<td>65%</td>
<td>46%</td>
<td></td>
</tr>
<tr>
<td>General PR Territory</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
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<td>45</td>
<td>72</td>
<td>55</td>
<td>36</td>
<td>6</td>
<td>1</td>
<td>14</td>
<td>14</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>42%</td>
<td>48%</td>
<td>39%</td>
<td>37%</td>
<td>43%</td>
<td>34%</td>
<td>22%</td>
<td>4%</td>
<td>1%</td>
<td>8%</td>
<td>9%</td>
<td>21%</td>
<td></td>
</tr>
</tbody>
</table>
D. Additional Analysis: Cosine Similarity

Cosine similarity, a measure of text similarity,\(^{561}\) also investigates the degree of change between fund’s disclosures in both the public health and the Puerto Rico sample.

For Puerto Rico, this Article compares the year before and after the SEC issued guidance: 2014/2015 and 2015/2016. For public health, this Article compares the years 2019 and 2020. For both the case studies, the filings (based on a unique accession number) is used as the unit of analysis. This data allows for comparisons for the same fund, i.e., funds with the same CIK identification number. The following additional procedures are also used:

Step 1: From accession#, extract the CIK for the fund; for example, from accession# ‘0000866841-13-000029’, the CIK of ‘0000866841’ will be extracted;

Step 2: For the same fund, i.e., one CIK number, get all accession# for the comparison years, public health data between year 2019 and 2020, and Puerto Rico data is between year 2015 and 2016.

Step 3: For each fund, calculate the cosine similarity for texts by forming pairs with one CIK from the previous year (2019/2015) and one CIK from the current year (2020/2016);

Step 4: Find the number of units in previous year, number of units in current year, mean of cosine similarities, median, minimum, maximum, and standard deviation to list them in Table 15 and Table 16 for Puerto Rico and Table 17 for public health data.

For Puerto Rico data, there are 10 matched funds with CIK listed in the second column of Table 15 and Table 16. This Article

\(^{561}\) Cosine measurement estimates textual similarity by converting sample text into a numerical vector representing how many times each word appears in the text. Words are then weighted by their frequency across all documents in the sample using term frequency-inverse document frequency (“tf-idf”) method. Tf-IDF minimize the weight of common words and focuses on the less common language.

The similarity score is calculated as the dot product, or what can be conceptualized as the cosine of the angle between the vectors, which can then be interpreted as measures of similarity. Since the cosine yields a number between zero and one, the measure can be interpreted as a percentage of similarity or overlap between the compared texts.

McClane, supra note 415, at 223.
treats the 2016 SEC guidance as a natural event study. Disclosures peak in number and specificity (bespoke disclosures) following the release. Comparing the cosine similarity of Puerto Rico disclosures in 2014–2015 and again in 2015–2016 investigates if there is greater variation in disclosure content following SEC guidance. This is not what the data show (see Figure 8.) Cosine variation for Puerto Rico disclosing funds between years 2014–2015 was .87, and .91 between years 2015 and 2016. A score of 1 indicates that the text is the same and there is no change. A lower score indicates more change.
Puerto Rico cosine similarities for common funds between year 2015 and 2016

**FIGURE 8. PUERTO RICO DISCLOSURE COSINE COMPARISONS FOR 2014/2015 AND 2015/2016**

**TABLE 15**

*COSINE SIMILARITY BETWEEN 2014 AND 2015 FOR PUERTO RICO DATA*

<table>
<thead>
<tr>
<th>fund_CIK</th>
<th>#_2015</th>
<th>#_2016</th>
<th>mean</th>
<th>median</th>
<th>min</th>
<th>max</th>
<th>stddev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0000930413</td>
<td>8</td>
<td>9</td>
<td>0.73</td>
<td>0.71</td>
<td>0.70</td>
<td>0.77</td>
</tr>
<tr>
<td>2</td>
<td>0001193125</td>
<td>66</td>
<td>68</td>
<td>0.75</td>
<td>0.74</td>
<td>0.59</td>
<td>0.78</td>
</tr>
<tr>
<td>3</td>
<td>0000795384</td>
<td>5</td>
<td>6</td>
<td>0.94</td>
<td>0.95</td>
<td>0.89</td>
<td>0.96</td>
</tr>
<tr>
<td>4</td>
<td>0001398344</td>
<td>2</td>
<td>2</td>
<td>0.99</td>
<td>0.99</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>5</td>
<td>0000088653</td>
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<td>3</td>
<td>0.86</td>
<td>0.84</td>
<td>0.84</td>
<td>0.90</td>
</tr>
<tr>
<td>6</td>
<td>0001206774</td>
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<td>12</td>
<td>0.87</td>
<td>0.90</td>
<td>0.75</td>
<td>0.90</td>
</tr>
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<td>0.80</td>
<td>0.80</td>
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<tr>
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<td>0.98</td>
<td>0.98</td>
</tr>
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<td>0.68</td>
<td>0.72</td>
</tr>
<tr>
<td>10</td>
<td>0000940394</td>
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<td>22</td>
<td>0.90</td>
<td>0.90</td>
<td>0.84</td>
<td>0.91</td>
</tr>
</tbody>
</table>
TABLE 16
COSINE SIMILARITY BETWEEN 2015 AND 2016 FOR PUERTO RICO DATA

<table>
<thead>
<tr>
<th>fund_CIK</th>
<th>#_2015</th>
<th>#_2016</th>
<th>mean</th>
<th>median</th>
<th>min</th>
<th>max</th>
<th>std dev</th>
</tr>
</thead>
<tbody>
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<td>9</td>
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<td>0.81</td>
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</tr>
<tr>
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<td>69</td>
<td>0.75</td>
<td>0.77</td>
<td>0.66</td>
<td>0.78</td>
</tr>
<tr>
<td>3</td>
<td>0001398344</td>
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<td>3</td>
<td>0.82</td>
<td>0.77</td>
<td>0.69</td>
<td>0.99</td>
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<td>3</td>
<td>0.94</td>
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<td>0.96</td>
</tr>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
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<td>0.98</td>
<td>0.98</td>
</tr>
<tr>
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<td>0.91</td>
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<td>0.81</td>
<td>0.94</td>
</tr>
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<td>13.90</td>
<td>0.91</td>
<td>0.91</td>
<td>0.86</td>
</tr>
</tbody>
</table>

For public health data, there are twenty-six matching funds with CIK listed in the second column of Table 17. For these funds, the histogram is drawn for cosine similarities in Figure 9. The average cosine similarity score for public health disclosures is .49, much lower than observed with the Puerto Rico disclosures. The cosine scores mirror the changes in average sentences in public disclosures reported in Table 2.
### Table 17
**Cosine Similarity Between 2019 and 2020 for Public Health Disclosures**

<table>
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<th>fund_CIK</th>
<th>#_2019</th>
<th>#_2020</th>
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<th>median</th>
<th>min</th>
<th>max</th>
<th>stddev</th>
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</thead>
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<td>2924</td>
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</tr>
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</tr>
<tr>
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<td>0.36</td>
<td>0.32</td>
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</tr>
<tr>
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<td>0.96</td>
<td>0.96</td>
</tr>
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<td>178.04</td>
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</tbody>
</table>
FIGURE 9. PUBLIC HEALTH DISCLOSURE COSINE COMPARISONS FOR 2019/2020