

DIGITAL ACCESS TO SCHOLARSHIP AT HARVARD
DASH.HARVARD.EDU

HARVARD LIBRARY


Essays on enforcement and disclosure

Citation

Scherf, Alexandra. 2021. Essays on enforcement and disclosure. Doctoral dissertation, Harvard University Graduate School of Arts and Sciences.

Link

https://nrs.harvard.edu/URN-3:HUL.INSTREPOS:37368286

Terms of use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material (LAA), as set forth at

https://harvardwiki.atlassian.net/wiki/external/NGY5NDE4ZjgzNTc5NDQzMGIzZWZhMGFlOWI2M2EwYTg

Accessibility

https://accessibility.huit.harvard.edu/digital-accessibility-policy

Share Your Story

The Harvard community has made this article openly available.
Please share how this access benefits you. Submit a story

HARVARD UNIVERSITY
Graduate School of Arts and Sciences



DISSERTATION ACCEPTANCE CERTIFICATE

The undersigned, appointed by the Committee for the PhD in Business Administration have examined a dissertation entitled

Essays on enforcement and disclosure

Presented by Alexandra Scherf

candidate for the degree of Doctor of Philosophy and hereby certify that it is worthy of acceptance.

Signature _____

Eugene F. Soltes, Co-Chair

Signature _____

Suraj Srinivasan, Co-Chair

Signature _____

Charles C.Y. Wang

Date: _____4/12/2021_____

Essays on enforcement and disclosure

A dissertation presented by

Alexandra Scherf

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Harvard University

Cambridge, Massachusetts

April 2021

© 2021 Alexandra Scherf
All rights reserved.

Dissertation Advisors: Eugene F. Soltes, Suraj Srinivasan Alexandra Scherf

Essays on enforcement and disclosure

ABSTRACT

My dissertation examines public disclosure through two essays. In my first essay, "How do online conflict disclosures support enforcement? Evidence from personal financial disclosures and public corruption," I study the effect of online publication of public officials' financial disclosures on anti-corruption enforcement. I find that online publication of these disclosures increases detection and prosecution of local corruption. To understand the mechanism behind these results, I conduct field interviews of state ethics commissions, federal prosecutors, and journalists. I determine that these enforcement benefits are likely driven by reduced investigation costs and increased public awareness of financial conflicts. This work contributes to current disclosure research by showing how the medium of public disclosure can generate enforcement benefits by reducing information processing costs.

My second essay, "Creating firm disclosures" with Eugene F. Soltes and Amir Amel-Zadeh, seeks to uncover how firms create public disclosures. Our study is motivated by prior accounting literature which links variation in firms' disclosure style to investor perceptions of firms. However, firms' internal processes for creating disclosures – who is involved, how much effort is expended, when managers get involved – remains a black box. Our paper contributes to this literature by documenting significant variation in the ways firms prepare disclosures. We also find that these differences in preparation practices are associated with differences in the style and tone of corporate disclosures in 10-Ks and conference calls.

TABLE OF CONTENTS

1. How do online conflict disclosures support enforcement? Evidence from personal financial disclosures and public corruption 1
1.1 Introduction 1
1.2 Prior literature 7
1.3 Hypothesis development 9
1.4 Data and methodology 12
1.4.1 Defining the treatment: online PFD 12
1.4.2 Defining the outcome: detected corruption 16
1.4.3 Defining the monitoring environment: internal and external PFD oversight 18
1.4.4 Additional control variables 18
1.5 Empirical model 19
1.6 Results 21
1.6.1 Local adopter group 22
1.6.2 State adopter group 31
1.6.3 Additional tests 32
1.7 Robustness 33
1.8 Mechanism and discussion 36
1.9 Conclusion 40

2. Creating firm disclosures 42
2.1 Introduction 42
2.2 Managers and the corporate disclosure process 49
2.2.1 The regulatory and institutional environment surrounding corporate disclosure creation 50
2.2.2 The impact of disclosure structure and tone 51
2.2.3 Differential involvement of managers: two case studies 54
2.2.4 Investigating the disclosure creation process 57
2.3 Field data collection and description 59
2.4 Variation in management 63
2.4.1 Conference call data 63
2.4.2 10-K/MD&A data 68
2.4.3 Transparency and timing data 73
2.5 Disclosure variation as a function of preparation and effort 78
2.5.1 Conference call style 78
2.5.2 MD&A style 82
2.6 Conclusion 85

Bibliography 87
Appendix 95

LIST OF TABLES AND FIGURES

Table 1.1 Classification of online PFD adopters based on field interviews 15
Figure 1.1 Pre-adoption trends in public corruption media mentions for sample local adopters 16
Table 1.2 Variable descriptions 20
Table 1.3 Matched sample for local online PFD adopters 24
Table 1.4 Referral rate 26
Table 1.5 Prosecution rate 28
Table 1.6 Subsample tests 30
Table 1.7 Robustness: placebo outcome variable 34
Table 1.8 Robustness: placebo treatment year 35

Figure 2.1 Sample disclosure creation schedules 55
Table 2.1 Conference call field data summary 63
Table 2.2 10-K/MD&A field data summary 69
Table 2.3 Transparency data summary 74
Table 2.4 Timing of financial reports data summary 77
Table 2.5 Conference call presentation and managerial engagement 79
Table 2.6 Conference call Q&A and managerial engagement 81
Table 2.7 MD&A characteristics and managerial engagement 83

ACKNOWLEDGEMENTS

I am most thankful for the generous support of my committee, Eugene F. Soltes (co-chair), Suraj Srinivasan (co-chair), and Charles C.Y. Wang. Eugene has been an ideal advisor over the past five years, offering optimism and encouragement while pushing me to excel. Suraj believed in my research and helped me find opportunities to expand its impact while building my academic career. Charlie invested in improving the quality of my work, challenging me to engage with different methodologies and grow as a researcher. For their tireless dedication and guidance, I will be forever grateful.

I am fortunate to have spent my doctoral years in the accounting and management unit at HBS. I benefitted from constructive comments and conversations with Paul Healy, Krishna Palepu, and Tatiana Sandino which helped develop my ideas and structure my writing. I also heartily thank Jonas Heese, Trung Nguyen, and Ethan Rouen who read drafts, attended my workshops, and offered countless insights which both improved my papers and taught me a lot about research in the process. It has been an honor to work among these faculty and be a part of their department.

The trials of graduate school were lightened by the company of my former classmates: Jee-Eun Shin, Jody Grewal, Matt Shaffer, David Martin, and Jihwon Park. Their mentorship and kindness motivated me throughout the program. I am further grateful for the friendship of my officemate, Wei Cai, and classmates Liran Eliner and Chris Eaglin, who were always willing to lend an ear to listen to my ideas and practice presentations.

In addition, this dissertation would not have been possible without the help of Alex Caracuzzo and James Zeitler from Baker Library who patiently helped me track down data. For my field research, I am indebted to the many individuals and firms who agreed to speak with me

about their experiences—as managers, as reporters, lawyers, enforcement agents, public servants, and policymakers.

I also wish to recognize several figures from my past who have played key roles in my professional development. I appreciate Karthik Ramanna for hiring me as his research assistant and introducing me to accounting academia; Sven Beckert for advising my undergraduate thesis at Harvard College and sparking my interest in organizational ethics; and Tony Rotundo for fostering my love of writing as a history student at Phillips Academy Andover.

I reserve my deepest gratitude for my family – my parents, Habib and Sandra Rahman, and sister, Meredith Rahman – who have always supported me. My mother inspired me to become a professor and selflessly provided childcare during the current pandemic so that I could write this dissertation.

Finally, I dedicate this work to my husband, Robert Scherf, and our son, Frederick A. Scherf, who are a boundless source of joy in my life. They inspire me to never give up and never stop learning.

CHAPTER 1

How do online conflict disclosures support enforcement? Evidence from personal financial disclosures and public corruption

1.1 Introduction

In 2015 Sheldon Silver, former Speaker of the New York State Assembly, was convicted of corruption after nearly forty years of public service. Silver, who once commanded "viselike" control of the assembly, used his official role to funnel clients to multiple law firms which shared fees with him. According to the New York Times, Silver "stood out in financial disclosure reports that showed him to be one of the largest earners of outside income among New York State politicians" (Weiser and Craig 2015). In Silver's indictment, prosecutors highlighted his "fraudulent representations and omissions about his outside income" including on his personal financial disclosure (PFD) form.[1] Reporters also noted that misrepresentations about his outside income would become "focal points of the government's case" against Silver, who was ultimately sentenced to 78 months in prison.[2]

Across the country, governments grapple with managing official corruption which blurs the line between private business and public service.[3] In response to this issue, economic research has begun to explore the effectiveness of conflict-of-interest disclosures like PFD as a tool for managing discloser misconduct.[4] In their 2016 review, Leuz and Wysocki highlight the multitude

[1] Silver would publicly claim that "his outside legal work was not connected to his official position or to [s]tate government, and that none of his clients had any business before the state" (DOJ 2015, 4-5). Prosecutors discovered that Silver arranged for state grants to be awarded to a cancer researcher who, in return, directed clients to Silver's firm Weitz & Luxenberg. In addition, Silver persuaded two real estate developers to conduct business with another law firm, Goldberg & Iryami, which shared fees with Silver (Weiser and Craig 2015).
[2] See Weiser and Craig 2015 and Weiser and McKinley 2020. At the time of writing, Silver is headed to prison after losing a bid to serve his sentence at home due to COVID19.
[3] The Center of Public Integrity has an ongoing research project examining conflicted interests among state and local public officials in the U.S. (White 2017).
[4] For examples, see Loewenstein, Cain, and Sah 2011 and Fung, Graham, and Weil 2007.

of settings where mandated public disclosure may produce social benefits. "The widespread use of disclosure regulation in many different areas," the authors propose, "underscores the importance of disclosure and transparency as a research topic that goes beyond corporate reporting" (527). Though mandated PFD for federal officials has been publicly available for many years, states exhibit wide variation in the level and accessibility of PFD for state and local filers. For example, as of 2017, only 35 states offered online PFD for state filers and 17 states offered online PFD for local filers.[5] The staggered adoption of online PFD for state and local filers over the past two decades presents a unique setting to observe how disclosure transparency impacts corruption detection and prosecution.[6] In particular, it provides the opportunity to address the research question: how do online conflict disclosures support anti-corruption enforcement?

I investigate this question in three stages. First, I propose a stylized model to develop predictions about how online PFD will impact corruption detection and prosecution. In this model, I conceptualize PFD as an information source which can help investigators learn more about the value of a corruption lead. I consider differences between PFD access under an "online disclosure" regime where PFD is publicly and anonymously available online, and a "request disclosure" regime which imposes investigation frictions on investigators.[7] I show that online disclosure may be socially optimal compared to request-based regimes if investigation frictions are high and official privacy concerns are low. The model also helps develop two hypotheses: investigators will refer more cases for prosecution under online disclosure (**H1**), and, conditional on referral, online

[5] See Table 1 for an overview.
[6] There is no empirical evidence to suggest that online PFD would support enforcement, especially given that federal authorities hold subpoena power. Moreover, online PFD may deter officials from holding financial conflicts, diminishing the benefit of conflict disclosures for enforcement purposes.
[7] An example of these frictions are tipoff costs which are incurred by the investigator when they request PFD from the government which could lead to premature disclosure or information leakage about the investigation. Another example are evidentiary costs, which represent the forgone benefits to investigators of having online PFD accessible to the public and media. See additional discussion in section 1.3.

disclosure will lead to a higher probability of prosecution (**H2**). Based on prior literature, I extend these hypotheses to test whether the effects of H1 and H2 vary across different pre-existing monitoring mechanisms (i.e. internal monitoring by the state and external monitoring by the media) (**H3**).

Second, I test these predictions empirically using data on states which offered online PFD for state and local filers from 2004 to 2017. To understand state motivations for online PFD adoption, I conduct 33 field interviews of state ethics commissions and PFD oversight bodies.[8] I categorize states as "efficiency-motivated" if they adopted online PFD as part of office upgrade or modernization efforts, and "corruption-motivated" if adoption occurred in response to corruption outrage or anti-corruption legislation.[9] To mitigate concerns that detected corruption outcomes may be driven by contemporaneous corruption concerns or legislation, I limit my analyses to efficiency-motivated adopters. I use these data to test the impact of online PFD adoption on two measures of detected corruption: (1) referral rate and (2) prosecution rate.

Consistent with my hypotheses, I find that online PFD for local filers is associated with increased referral and prosecution rates for local corruption.[10] Using a matched sample of federal districts, I estimate that local online PFD raises the number of referrals detected in the median district-year from 3 to 7.2—an over twofold increase in referral volume. Local online PFD is also associated with an increase in the prosecution rate by .17, raising the median district-year prosecution rate from 33% to 50%. These results are robust to falsification tests using placebo treatment years and placebo outcome variables defined at the federal (rather than state or local) corruption level. I also observe that the main effects for **H1** (referral rate) and **H2** (prosecution

[8] This research was approved by my institution's Institutional Review Board (IRB 20-0251).
[9] This methodology follows the narrative approach pioneered by Romer and Romer 2010 and Giroud and Rauh 2019 in the tax literature to address endogeneity concerns linked to policy changes. See discussion in section 1.4.1.
[10] I do not find significant results for online PFD for state filers on state corruption. See discussion in section 1.6.

rate) are concentrated in districts with high levels of external monitoring (media coverage) and internal monitoring (state ethics budget per employee), respectively. This suggests that local online PFD may serve as a complement to existing monitoring mechanisms known to improve government oversight (**H3**).[11]

Third and finally, to understand the real-world mechanisms behind these results I conduct an additional 93 interviews of current and former federal prosecutors and journalists.[12] Overall, I learn that prosecutors see PFD as having both investigative and evidentiary value. As an investigative tool, PFD can help provide links to other evidence and third-party organizations (i.e. non-profits, private firms, etc.) while giving an early-stage picture of an official's self-reported assets. As evidence, PFD—and, in particular, omissions on PFD—can be crucial for establishing criminal intent or consciousness of guilt in hiding or obscuring illicit transactions. Respondents expected that online PFD would likely increase the number of corruption leads by enhancing public access to information about officials' financial conflicts. For investigators, an online system where PFD can be reviewed anonymously can also prevent premature disclosure about the investigation.[13] Thus, online PFD may support anti-corruption enforcement by (1) helping investigators maintain efficient and covert investigations and (2) increasing public awareness of official conflicts of interest which helps develop case leads.

This work contributes to the academic literature on disclosure and financial fraud, while responding to practitioner demand for greater understanding of PFD as an anti-corruption tool. Prior studies in financial accounting and political economy suggest the importance of disclosure transparency for monitoring firms, governments, and public officials (Leuz and Wysocki 2016,

[11] For prior research on these monitors, see Gao, Lee, and Murphy 2020, Crider and Milyo 2013, and Cordis and Milyo 2013.
[12] This research was approved by my institution's Institutional Review Board (IRB 20-1105).
[13] See Appendix G for an aggregated and anonymized summary of field interview results.

Healy and Palepu, 2001, Amiram et al. 2018, Cordis and Warren 2014). The current paper contributes to this scholarship by illustrating real effects of disclosure transparency on corruption detection and prosecution. The study does not argue whether or not online PFD is socially optimal, but rather provides a framework for considering the costs and benefits of online PFD as an anti-corruption policy. The paper also presents empirical estimates for the benefits of online PFD with regards to corruption detection and prosecution.[14] Finally, it offers institutional insights as to why PFD (and online PFD) would support anti-corruption enforcement, both directly as an investigative tool and indirectly as case evidence.

More broadly, this paper demonstrates how the *medium* of online disclosure supports these enforcement benefits in contrast to request-based disclosure systems. This extends current accounting research on information processing costs, which builds upon the idea that just because information is "public" does not mean that information is easily accessible. For example, investors seeking information from public firm disclosures must still invest time and energy into extracting this information and incorporating it into investment decisions. In their 2020 review, Blankespoor, deHaan, and Marinovic explain: "many studies assume that firms' disclosures are 'public' and, thus, that investors costlessly transform the information from disclosures into prices. A broad takeaway from our review is that this assumption is often unrealistic (…)" (1). Though the review focuses on information processing costs with respect to capital markets, the authors contend that "processing frictions and capacity constraints are likely relevant to many other information sources, stakeholders, and decision contexts" (4). This paper contributes to this literature by

[14] The paper further finds that enforcement benefits are concentrated in federal districts with high media coverage and state ethics commission budgets. These findings are in concert with financial accounting research suggesting that reducing monitoring costs may improve third-party monitoring. For example, Duro, Heese, and Ormazabal 2019 find that the online release of comment letters from the Securities and Exchange Commission led to increased capital-market responses to firm financial reporting. Similarly, Christensen et al. 2017 find that secondary disclosure of mine safety records in mining firm's financial disclosures decreases real mine-related safety issues.

showing that information processing costs can also impact enforcement. Specifically, I argue that online disclosures can support anti-corruption enforcement by reducing information processing costs among enforcement agents and the public.

A secondary contribution of this paper is to highlight the similarities between public corruption and financial fraud.[15] Corruption crimes involve bribery, theft, and misuse of public office for private economic gain.[16] More than half (64%) of the prosecutors interviewed for this paper cited experience with white-collar casework. Respondents from this group frequently pointed out that corruption crimes are often financial crimes at their core. Legal research further predicts that the boundaries between financial fraud and public corruption will continue to fade. As the Supreme Court continues to narrow public corruption statues, scholars suggest that prosecutors may have more success bringing traditional "public corruption" cases under financial crime provisions in the future (DiBiagio 2020).

Third, this work addresses practitioner demand for understanding PFD as an anti-corruption tool. The 2020 International Monetary Fund's Anti-Corruption Challenge solicited proposals on how to implement better financial disclosure systems for public officials. The challenge asserted that disclosures "have the potential of being a valuable instrument throughout the anti-corruption value chain as well as […] anti-money laundering and asset recovery." As such, "the potential uses of financial disclosure information deserves greater attention" (IMF 2019). While few studies in political science, journalism, as well as practitioner publications have studied

[15] See Amiram et al. 2018.

[16] The three main legal provisions which support public corruption cases are: the "honest services" provision of federal mail and wire fraud statute (18 USC 1346), the "corruptly influence" provision of the federal program funding statute (18 USC 666), and the "under the color of official right" provision of the federal extortion statute (18 USC 1951) (DiBiagio 2020).

official asset-disclosure requirements, this study is, to the best of my knowledge, the first to explore the impacts of online PFD.[17]

Lastly, state and local corruption in the U.S. offers a particularly ripe and underutilized setting for exploring this topic. Forty out of fifty states have governing bodies which qualify as less than full-time employers (NCSL 2017). The Center for Public Integrity found that 76% of state legislators reported outside income on their 2015 PFDs (White 2017). Anecdotal evidence suggests public officials are aware of the disclosure's importance—especially in the context of criminal cases.[18] To illustrate, a New York defense lawyer once testified to advising state representatives to hand-deliver their financial disclosure forms to avoid mail fraud charges over any false statements contained within them. The federal judge described the admission as "extraordinary" (Neil 2009).

1.2 Prior literature

Studies in accounting, finance, and law have examined financial misconduct by both private and public actors.[19] Though much of the existing scholarship focuses on firm-level reporting misconduct, a subset of this literature focuses on how firms may leverage political relationships to accrue economic benefits (Mehta, Srinivasan, and Zhao 2019, Tahoun and Vasvari 2017, Faccio 2006, Faccio, Masulis, and McConnell 2006). Evidence at both the federal and state level suggests that political connections can help firms win government contracts and incentive awards—without producing incremental economic benefits to the surrounding area (Aobdia, Koester, and Petacci 2019, Goldman, Rocholl, and So 2013).

[17] For related studies, see Wihbey and Beudet 2016, Szakonyi 2018, and Haberschon and Trapnell 2012.
[18] Unlike at the federal level (18 USC 1001), intentional misreporting on state PFD is rarely a criminal offense. However, as this paper demonstrates, PFD still play an important role in corruption cases at the state and local level.
[19] For an interdisciplinary review of this literature, see Amiram et al. 2018.

Given these findings, what can be done to promote fair governance and allocation of taxpayer resources? Analogous to the corporate setting, enhanced disclosure and monitoring of officials' business relationships offer potential solutions. However, research in this area remains scant and generalized in nature. Djankov et al. 2010 find that countries where parliament members' financial disclosures are public tend to have higher government quality and lower corruption. Likewise, Cordis and Warren 2014 demonstrate that strong state FOIA regimes facilitate the detection of public corruption, implying that public records are broadly informative for investigators. Their results are consistent with the theory that enhanced public records access may both increase detected corruption and reduce underlying corruption activity, as these detection effects dissipate over time.[20] Other related papers assess how external and internal monitoring by the media (Gao, Lee, and Murphy 2020) and state (Crider and Milyo 2013, Cordis and Milyo 2013) may impact official misconduct, with mixed results.

A smattering of studies across journalism and political science specifically address public official financial disclosure as an anti-corruption tool. Wihbey and Beudet 2016 develop a disclosure measurement score based on state governors' 2015 PFD, but do not find significant correlations between their measure and public corruption. Szakonyi 2018 finds that the adoption of PFD requirements in Russian cities is associated with fewer incumbents seeking re-election.

[20] The present paper differs from Cordis and Warren 2014 in several important ways. First, the mechanism through which transparency supports enforcement is different from the FOIA regime. In the PFD setting, access to disclosures is driven by the supply side (state) by making disclosures accessible online to the public. In the FOIA setting, access to disclosures is driven instead by the demand side (public) who must initiate or request specific records of which they were already aware. In addition, state-level FOIA laws generally apply to many types of public records not necessarily targeted at revealing public officials' economic relationships (i.e. birth records, health records, etc.). This paper is focused on the transparency effects of a specific disclosure (PFD) explicitly designed to expose financial conflicts and corruption.

These distinctions are especially critical in the public corruption context, where investigators requesting information from public agencies (i.e. via FOIA or subpoena request) could result in information leakage about the investigation. In this study, I would expect the effects of transparency to be even stronger as the public record of interest (PFD) is more closely related to the outcome phenomenon (corruption), and the detection mechanism does not require individuals to initiate the release of the record. Finally, this paper also offers unique institutional insights on *how* PFD support the investigative process through field interview evidence.

Institutions such as the World Bank have also published practitioner guides with practical advice for governments implementing financial disclosure policies as an anti-corruption measure (Habershon and Trapnell, 2012).

This paper builds upon the prior literature on official misconduct by examining how online PFD supports federal enforcement of public corruption at the state and local level.[21] In particular, I seek to understand how the medium of online disclosure matters for corruption detection and prosecution. This broadens existing scholarship on disclosure processing costs by considering the enforcement effects of reducing disclosure "processing frictions" for conflict disclosures.[22]

1.3 Hypothesis development

To develop hypotheses around how online PFD may help investigators evaluate corruption leads for prosecution, I propose the following stylized model. I provide intuition and predictions in this section, with the full model available in Appendix A.

In practice, federal investigators (e.g. FBI) and prosecutors from U.S. Attorney Offices (USAO) work together to prosecute public corruption cases on behalf of the Department of Justice (DOJ). Investigators filter through case leads and refer certain leads to prosecutors for prosecution. When deciding whether or not to make a referral, investigators weigh the potential benefit from referring leads which successfully result in prosecution—i.e. high-quality leads—against the potential cost from referring leads which prosecutors discard—i.e. low-quality leads. I propose

[21] I use measures of public corruption prosecuted at the federal level (rather than at the state or local level) as these appear to constitute the majority of recorded corruption cases. Crider and Milyo 2013 estimate that up to 94% of public corruption cases from 1986 to 2014 were ultimately handled by federal rather than state and local prosecutors (130). Not only are most public corruption cases handled by federal prosecutors, most federal corruption cases originate from referrals made by federal investigators rather than state or local authorities. Based on TRAC data from 1986 to 2017, the FBI originated approximately 75% of state corruption cases, 76% of local corruption cases, and 28% of federal corruption cases (by comparison, state and local authorities originated roughly 5%, 4%, and 1% of state, local, and federal corruption cases respectively).

[22] In separate but related studies on the information processing costs faced by capital market participants, Blankespoor 2019 and Blankespoor, deHaan, and Zhu 2018 find that increased digital salience of firm-level information (through XBRL disclosure tagging and robo-journalism) can enhance the dissemination of firm information in capital markets.

that investigators may seek additional information about the quality of a lead via PFD, which represents the probability that prosecutors will prosecute the lead after referral. PFD can thus inform the investigator's referral decision.

I consider two alternative information regimes by which a social planner can make PFD available to investigators. First, the social planner can decide to make PFD *publicly observable* online ("online disclosure") which imposes an official privacy cost on society. This privacy cost is nontrivial. In my interviews with federal prosecutors, the top concern with online PFD was the threat to official privacy (Appendix G, A-Q4). Second, the social planner can make PFD *privately observable* to the investigator through a formal request or subpoena ("request disclosure"). However, request disclosure imposes investigation frictions which reduce the probability that a given lead will result in prosecution. One example of such frictions are tipoff costs, whereby investigators compromise the secrecy of their investigation by formally requesting PFD from the government. This concern arose in several interviews with federal prosecutors (Appendix G, A-Q4). Another example of investigation frictions under request disclosure are evidentiary costs, whereby investigators forfeit additional support of the public and media in generating quality referrals. Put differently, these costs represent the forgone benefits to investigators of having online PFD accessible to the public and media for developing leads and collecting evidence. Prosecutors report that PFD are most helpful for connecting pieces of evidence to build a convincing case for prosecution, especially early in an investigation (Appendix G, A-Q2). Furthermore, prosecutors suggest that online PFD would most likely support corruption enforcement by facilitating the media and public's access to PFD, especially since prosecutors are resource-constrained (Appendix G, A-Q4). These investigation frictions may reduce a referral's attractiveness for prosecution under request disclosure.

I begin by observing that which regime is socially optimal will depend on the relative magnitude of investigation frictions incurred by investigators and privacy costs borne by society. More precisely, I anticipate that online disclosure is likely to be socially optimal when investigation frictions are relatively high and privacy costs are relatively low. Given these features, how might investigators' referral behavior differ between request and online disclosure regimes?

First, referral volume ought to be higher under online disclosure than request disclosure (**H1**). Intuitively, under request disclosure, investigation frictions incurred by requesting PFD *lower* a lead's probability of prosecution and therefore *raise* the threshold for the quality of leads that investigators will want to refer for prosecution. Second, leads referred under online disclosure ought to have a higher probability of prosecution than those referred under the request disclosure regime (**H2**). Investigators will refer more leads under online disclosure than request disclosure, but it is not obvious that—conditional on referral—these leads will have a higher probability of prosecution. Under request disclosure, investigators refer fewer and higher quality leads, however they also incur investigation frictions which lower the overall probability of prosecution. Although the optimal referral threshold under request disclosure is higher than under online disclosure, it does not fully compensate for these investigation frictions.[23] Thus, referrals under online disclosure are expected to have a higher probability of prosecution compared to referrals under request disclosure.

Through its empirical tests, this paper is able to address how referral and prosecutorial behavior changes in response to states shifting from request to online disclosure regimes by

[23] Consider the tradeoffs of the investigator under request disclosure. Investigation frictions push the investigator's referral threshold upward, so they become pickier about which leads to refer. However, as the threshold for referral increases, investigators refer fewer cases and thus realize fewer benefits from referring high-quality leads. The investigator must balance their "pickiness" with their desire to refer high-quality leads. In this model, the tradeoff leads the investigator to make referrals with lower expected prosecution probability under request disclosure than under online disclosure. See Appendix A.

making PFD available online. These results suggest that online PFD has positive impacts on referral volume and the probability of prosecution, in congruence with **H1** and **H2**. However, this paper is unable to resolve the question of whether online PFD is socially optimal. Such determination would require quantification and testing of official privacy costs and investigation frictions, which is beyond the scope of the current work.

1.4 Data and methodology

To test these hypotheses empirically, I collect data on the treatment variable (online PFD), outcome variables (detected corruption), and proxies for external and internal monitoring (media coverage and ethics budget).

1.4.1 Defining the treatment: online PFD

I begin by constructing an original dataset of state-level PFD policies, including which states offer online PFD and the earliest dates when online PFD became available. I obtain an initial listing of state code sections pertaining to financial disclosure requirements from the National Council of State Legislators (NCSL 2019). I then read state codes and histories available in Westlaw and NexisUni to verify code sections pertaining to state and/or local officials and record the code's earliest citation date.[24] I categorize states as having PFD requirements for state officials and local officials using the following decision rules. I define "state officials" as any official employed by and/or servicing a state agency. This includes positions such as state legislator, state judge, governor and executive branch official, and state employee. "Local officials" refer to any official employed by and/or servicing a sub-geography of the state. This includes municipal

[24] In cases where multiple code sections refer to public financial disclosure requirements, the earliest code date is recorded.

officials and employees, district or county officials and employees including local judges.[25]

Next, I identify which states make PFD available online and the earliest date when PFD was publicly accessible online using state websites and the Wayback Machine Internet Archive.[26] I also confirm whether this date differed for disclosures related to state officials and/or local officials. See Appendix B for PFD web-links, classification, and treatment dates.

Finally, I conduct field interviews of state offices which offer online PFD to understand the motivations behind online PFD adoption. A key identification concern in this paper is that online PFD may be adopted in conjunction with other anti-corruption policies, or in response to recent corruption scandals.[27] This raises endogeneity concerns for researchers seeking to identify the effect of a specific anti-corruption policy on detected corruption outcomes. To address this issue, I classify states into "efficiency-motivated adopters" (i.e. states which adopted online PFD to upgrade or modernize their workflow) and "corruption-motivated adopters" (i.e. states which adopted online PFD as part of a larger anti-corruption program). This methodology follows the narrative approach employed in recent tax literature for disentangling state policies (i.e. tax changes) motivated by "plausibly exogenous" long-term versus "plausibly endogenous" short-term economic concerns (Romer and Romer 2010, Giroud and Rauh 2019).[28] This process also responds to calls from the accounting literature to incorporate field data into empirical archival

[25] For details on the classification process, see Appendix C. A complete listing of official positions covered and PFD code sections is available upon request.

[26] If a representative from the state ethics commission offered an online disclosure date which differed from the Wayback Machine date, I deferred to the date offered by the ethics commission.

[27] This identification issue is common to corruption studies, see Cordis and Warren 2014 and Crider and Milyo 2013 for examples.

[28] Specifically, Giroud and Rauh 2019 gather motivations for tax changes from news articles surrounding tax changes and classify these motivations into endogenous versus exogenous categories. An example of an "endogenous" tax change would be motivated by "offsetting a change in government spending" and an "exogenous" tax change would be motivated by "achieving some long-run goal" (Giroud and Rauh 2019, 1285).

research, especially in contexts where researchers must gauge the underlying motivations behind policy changes (Soltes 2014).

In this spirit, I interviewed state offices responsible for online PFD to better understand the history and design of states' online PFD systems.[29] I spoke with 33 offices, representing 94% of the states which made PFD available online as of 2017. Appendix C summarizes the results in an aggregated and anonymized format to protect the confidentiality of participants.

Based on these interviews, I classify "efficiency-motivated" PFD adopters as states whose offices chose to make PFD available online due to efficiency rather than corruption motivations. Examples of efficiency motivations include: convenience and modernization, desire to model transparency, and cost savings. Corruption motivations include: PFD adoption as part of an omnibus anti-corruption legislation, major amendment to existing ethics laws, or response to recent corruption scandals.[30] In cases where I was unable to contact the state office or the interview produced an ambiguous response, I consulted historical office publications (available on office websites), legislative history notes (Westlaw), and historical office websites (WaybackMachine) to assist with classification.

Table 1.1 summarizes the resulting classification, and Appendix C offers additional details on the classification procedure. Within this framework, I define treated federal districts as districts in states with PFD requirements which adopted online PFD for efficiency-motivated reasons.[31]

[29] In the vast majority of states, this office was the state ethics commission, however in some cases this office was a sub-division of the secretary of state's office. Each office was contacted using information made publicly available on its website.

[30] I also observe that, in efficiency-driven states, online PFD policies tend to arise out of voluntary, office-led initiatives from the state ethics commission or filing office. Conversely, corruption-motivated states tend to have online PFD policies imposed involuntarily by a legislative or executive-led policy initiative.

[31] Put differently, treated districts are districts which had pre-existing PFD requirements when the state decided—for reasons plausibly unrelated to corruption concerns or anti-corruption legislation—to make these disclosures available to the public online.

The treatment event is the year in which the district's state made disclosures available online.[32]

Table 1.1
Classification of online PFD adopters based on field interviews

Table 1.1 presents the classification of online PFD adopter states across two dimensions: (1) whether the state adopted online PFD due to efficiency or corruption motivations and (2) whether the state offers online PFD for state and/or local filers. I perform field interviews to classify states according to their motivations for adopting online PFD (see details in Appendix C). The treatment sample includes efficiency-motivated states with treatment dates which allow for seven observation-years within the sample period (2004-2017).

	Efficiency-motivated adopters	*Corruption-motivated adopters*
Local filers	CA, GA+, MN**, NH, PA, SC, MA*	AL, DC*, FL, LA, MS, NE, NV, OR*, TN [AR]
State filers	AK, AZ*, CA, GA+, HI, KS*, KY**, ME**, MN**, MT, NH, NJ**, NC*, OH**, PA, SC, SD*, MA* [IA*, UT]	AL, DC*, FL, LA, MS, NE, NM, NV, NY, OR*, TN, VA*, WV [AR, IL]

Notes:
[] Interview resulted in ambiguous classification. Note that NM and AL declined to interview.
* States fall out of sample because online PFD dates fall too close to the end of the sample period to allow for observations three years pre- and post-treatment. Since the sample ends in 2017, an adopter is considered late if they adopted online PFD in 2015 or after.
** States fall out of sample because online PFD dates fall too close to the beginning of the sample period to allow for observations three years pre- and post-treatment. Since the referral sample begins in 2004, an adopter is considered early if they adopted online PFD in 2006 or before.
+ In Georgia, local PFD was only available online from 2008 to 2014.

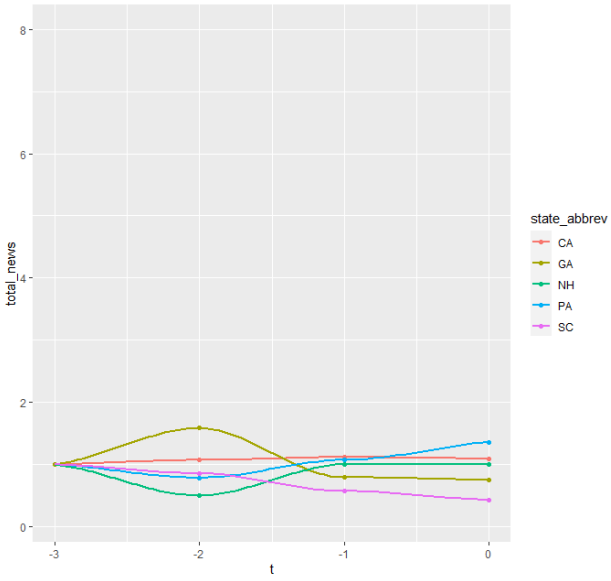
[32] I perform a validity check on my classification by conducting a newspaper search for media mentions of public corruption within three years leading up to online PFD adoption. I plot the trends of media mentions across time as a proxy for the level of detected public corruption within the state. To execute the search, I use Factiva and NexisUni to search national and local newspapers for the term "public" within ten words of terms related to "bribery," "conspiracy," "embezzlement," "fraud," "kickbacks," "misappropriation," "corruption," and "scandal" and within roughly 100 words of the state name (following Cordis and Milyo 2016). The resulting media coverage plot for the main treatment sample (local adopters) is available in Figure 1.1. A listing of the newspapers used for this search is available upon request.

Figure 1.1

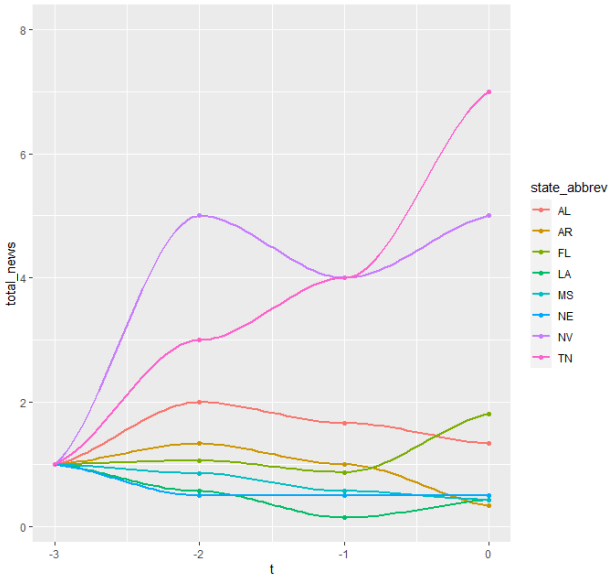
Pre-adoption trends in public corruption media mentions for sample local adopters

The figures below illustrate trends in national and local news media mentions of public corruption in the three years prior to local online PFD adoption (pre-adoption period) in the sample. Counts of media mentions are standardized based on the earliest pre-treatment year (t-3) to examine differences in coverage trends, and specifically whether there are pre-adoption shifts in coverage trends in the efficiency-motivated adoption group. Overall, there appears to be more shifts in corruption coverage in the corruption-motivated group relative to the efficiency-motivated group. Within the efficiency-motivated group, I do not observe major changes in coverage in the three years prior to online PFD.

A. Efficiency-motivated adopters



B. Corruption-motivated adopters



1.4.2 Defining the outcome: detected corruption

This paper considers public corruption to be corrupt acts performed by public officials. The aggregated TRAC public corruption data measures corruption charges for DOJ-defined programs for "state corruption" and "local corruption" from 1986 to 2017. Over this period, the three most frequent charges for both state and local corruption were: "theft or bribery concerning programs receiving federal funds" (18 USC 666), "Hobbs Act"[33] (18 USC 1951), and "mail fraud" (18 USC

[33] The Hobbs Act (18 USC 1951) is also known as the "under the color of official right" provision of the federal extortion statute (DiBiagio 2020). It is one of the three main legal provisions supporting public corruption cases.

1341). Together, these three charges accounted for about half (53%) of state and local corruption cases in the sample.

Federal investigative agencies such as the FBI or IRS learn about potential corruption through leads driven by internal inquiries or external monitors (i.e. whistleblowers, media outlets, etc.). Based on these tips, investigators conduct investigations to determine whether the case has the potential to be successfully prosecuted in court. Once the investigative agency decides to move forward with the case, it will issue a referral to the USAO in its respective federal district. The USAO will then determine whether or not it believes it has sufficient grounds to bring the case to trial. If the USAO deems the referral insufficient, it will dispose of the referral. If the referral offers a promising path to prosecution, the USAO will file and prosecute the case. Upon prosecution, the case may result in enforcement outcomes for the defendant which include fines, probation, and prison sentences.

The detailed TRAC referral-level data, based on USAO administrative records, provide a strong basis to explore the impacts of online PFD across multiple stages of this process. The data show at the federal district and DOJ corruption program level: the full population of corruption referrals from investigative agencies and whether referrals resulted in prosecution or disposal. These data span 2004 to 2017 and serve as the basis for my measures of detected corruption. In particular, I consider two outcome variables which may be directly impacted by online PFD: (1) referral rate (volume of detected referrals per ten thousand government employees) and (2) prosecution rate (proportion of referrals selected for prosecution).[34]

[34] Regarding completeness, the TRAC referrals data consist of all records available from USAO offices from 2004 to 2017. Since administrative records include referrals that are in process and expired as of 2004, the earliest date of referral receipt is December 1999 and the earliest date of referral disposal is October 2002. To alleviate concerns about incomplete records pre-2004, I begin my dataset in 2004. The main tests employ a three-year difference-in-differences model. I require that treated districts adopt online PFD between 2007 and 2014 so that the three years prior to

1.4.3 Defining the monitoring environment: internal and external PFD oversight

To proxy for internal monitoring by the state, I use the annual state ethics commission budget scaled by the number of full-time equivalent government employees. This variable is drawn from the Council on Governmental Ethics Laws (COGEL) Blue Book Ethics Update series which provides rich qualitative information on the resources, responsibilities, and financial disclosure practices of each ethics commission from 2008 to 2018.[35] State ethics expenditure per employee is used to capture the level of internal oversight over government employee ethics. To proxy for external monitoring, I use local news media circulation from the Editor and Publisher Newspaper Databook. These data provide raw counts of newspaper circulation at the city-year level.[36] I aggregate this figure up to newspaper circulation at the federal district-year level, and scale by the population in each given district-year.

1.4.4 Additional control variables

Following prior literature, I include control variables for economic conditions (income per capita, unemployment rate, legal expenditures per capita, high school education attainment rate, and internet access rate) drawn from the U.S. Census, Bureau of Economic Analysis, and National Telecommunications and Information Administration. These variables attempt to capture the level of affluence and economic prosperity in a given federal district, as well as the amount the state has chosen to invest in law enforcement and education (Glaeser and Saks 2006, Cordis and Warren 2014). To control for political factors associated with e-government adoption, I also include

treatment, the treatment year, and three years post-treatment fall within the sample period (see Table 1). For untreated districts (no online PFD adoption), I restrict all district-years to be between 2004 and 2017 inclusive.

[35] Since the data sample begins in 2004, COGEL respondent values from 2008 are carried back to the beginning of the sample. States which did not participate in the COGEL survey are excluded from sub-sample analyses based on COGEL survey variables.

[36] These data range from 2004-2016, with values carried forward for the final sample year.

indicators for the political party in control of the state legislature (McNeal et al. 2003, McNeal and Hale 2010).

1.5 Empirical model

To test the impact of online PFD on corruption, I estimate the generalized difference-in-differences model given below in Equation 1. States adopted the treatment (online PFD) in a staggered fashion, meaning that not all states received treatment at the same point in time. Staggered adoption helps mitigate concerns that results are driven by concurrent institutional or economic changes which are unrelated to online PFD adoption.[37]

$$Y_{i,s,l,t} = \alpha + \beta * \text{online_PFD_x_post}_{s,l,t} + \theta * \text{Ext}_{i,s,t} + \delta * \text{Int}_{s,t} + \lambda * X_{i,s,t} + \gamma_t + \rho_{i,s} + \varepsilon_{i,s,l,t} \quad \text{(Eq. 1)}$$

In Equation 1, *i* indexes the federal districts located within state *s* at year *t*.[38] The dependent variable $Y_{i,l,t}$ is one of the public corruption outcome measures in district *i*, state *s*, year *t*, for the DOJ public corruption program *l*. The DOJ classifies public corruption referrals into categories for "federal," "state," and "local" corruption. The paper considers two district-level outcome measures: (1) volume of corruption referrals scaled by full-time equivalent state and local government employees (tens of thousands) ("referral_rate") and (2) proportion of referrals selected for prosecution ("prosecution_rate"). All variable descriptions are summarized in Table 1.2.

[37] Recent work by Baker, Larcker, and Wang (2021) raises concerns about staggered difference-in-differences designs. See discussion in section 1.7.

[38] While treatment is defined at the state level, analyses are performed at the federal-district level. There are 94 federal districts representing all U.S. states and territories, with at least one district in each state (DOJ 2017b).

Table 1.2
Variable descriptions

Variable type	Variable	Definition
Treatment	online_PFD_x_post	Indicator equals 1 in year t+1 and afterward if the state adopted online PFD in year t.
Independent variables	news_circ	Average daily newspaper circulation, scaled by district population. (Source: Editor and Publisher)
	ethics_budget	State ethics commission budget scaled by government size (full-time equivalent state and local government employees). (Source: COGEL)
Dependent variables	referral_rate	Number of referrals received per program (state, local, federal/other) per federal district-year, scaled by government size (full-time equivalent state and local government employees, in tens of thousands). (Source: TRAC)
	prosecution_rate	Proportion of referrals received in each federal district-year by the USAO which result in prosecution (case filing). (Source: TRAC)
	punishment_rate	Proportion of prosecuted referrals received in each federal district-year which resulted in sanctions including prison, probation and/or fines for the defendant. (Source: TRAC)
Controls	inc_per_cap	Per capita personal income (dollars) averaged across counties within each federal district. (Source: BEA)
	unemployment_rate	Average annual unemployment rate calculated as the ratio of unemployed individuals to total labor force, averaged across counties within each federal district. (Source: BEA)
	legal_exp	Expenditures (thousands of dollars) on legal services spent by state and local levels of government, scaled by state population. (Source: U.S. Census)
	edu_rate	High-school educational attainment as a share of the state population (Source: U.S. Census)
	int_rate	Proportion of adults over the age of fifteen with access to internet within the state. (Source: NTIA)
	leg_maj	Indicator group for political party holding the majority in the state legislature (Democratic majority, Republican majority, or no majority). (Source: NCSL)
	year	Year.
	federal_district	Federal district. Note that data collected at the county level was aggregated to the federal district level using county-to-district assignments listed on the United States Courts' Public Access to Electronic Court Records website. (Source: PACER)

The main treatment variable of interest is online_PFD_x_post $_{s,l,t}$ which equals 1 in year t+1 if state *s* has made PFD available online for officials in program level *l* in year t. Once activated, the indicator online_PFD_x_post $_{s,l,t}$ remains equal to 1 for all years after t+1. $Ext_{i,s,t}$ represents the level of external monitoring of public officials at the federal district level. The proxy measure for external monitoring is the average daily newspaper circulation per capita ("news_circ") in district *i*, state *s* and year *t*. $Int_{s,t}$ represents the level of state-provided internal monitoring of public officials, and is proxied by the state ethics commission budget scaled by government employees in state *i* and year *t* ("ethics_budget"). $X_{i,s,t}$ consists of a vector of economic and political control variables defined at the federal district level (income per capita, unemployment rate) and state level (legal expenditures, educational attainment rate, internet access rate, state legislature majority party).

I include fixed effects for all years γ_t and districts $\rho_{i,s}$. Standard errors are clustered at the state level.[39]

1.6 Results

I begin with a full sample of treated federal districts and untreated federal districts. Treated districts belong to efficiency-motivated online PFD adopter states, and untreated districts belong to states which did not adopt online PFD over the sample period (2004-2017). I exclude districts from states with corruption-motivated adoption to avoid misattributing corruption outcomes to online PFD as opposed to another concurrent anti-corruption policy.

I observe that, while all adopters made online PFD available for state official filers, a subset of adopters also offered online PFD for local official filers. I refer to the former group as the "state

[39] I cluster at the level of treatment (state) to avoid error correlation across districts within the same state (Bertrand, Duflo, and Mullainathan 2004).

adopter group" and the latter the "local adopter group." Recall that the TRAC data break out detected corruption measures across federal, state, and local corruption programs. This detail allows me to distinguish between the impact of online PFD for state filers on state corruption ("state adopter group"), and the impact for local filers on local corruption ("local adopter group"). Table 1.1 summarizes these groupings.

Between these groups, I expect the effects of online PFD to be more pronounced for local filers. This is because the PFD studied in this paper are made available and managed by the state as opposed to local authorities. By nature of their roles, state officials are likely to wield greater influence or even legislative power over state PFD policy than their local official counterparts. Thus, the effects of online PFD on corruption enforcement may be stronger among local officials without the legislative capacity to restrict or manage PFD rules.

1.6.1 Local adopter group

I begin with the local adopter group, the primary treatment group of interest, to assess the effects of local online PFD on local corruption. I apply coarsened exact matching (CEM) supplemented by hand-matching to generate a sample of treated and control districts for analysis. The purpose of matching in small samples is to improve balance along key covariates and thereby reduce bias in estimates of the treatment effect (Blackwell et al. 2020). Though small overall, the sample of local online PFD adopters features ample potential controls (n=58) to match to treated districts (n=12). I define treated districts as belonging to efficiency-motivated states which adopted local online PFD. Control districts belong to states which either: (1) never adopted local online PFD or (2) adopted local online PFD more than three years after the latest treated district.

To perform the match, CEM temporarily coarsens continuous variables for control units and assigns them to strata featuring common values. One feature of this algorithm is that it prunes

units from any stratum that does not contain at least one treated and control unit. To avoid pruning treated districts from the small treatment sample, I supplement CEM-generated matches with hand-matches. In total, I match on three variables (median income per capita, political party, and region) for control selection in the CEM-generated sample and two variables (median income per capita and political party) for the supplemental hand-matches.

CEM, like other exact matching techniques, imposes dimensionality constraints which limit the researcher's ability to match treated units to controls based on precise pre-treatment covariate values. To address this issue, I identify key matching covariates based on prior literature. In particular, studies suggest that state wealth and political party leadership are associated with public corruption and e-government adoption. I select income per capita as my proxy measure for district wealth because it is likely to correlate with other important economic indicators linked to corruption such as educational attainment or unemployment (Glaeser and Saks 2006, Tolbert, Mossberger, and McNeal 2008). To capture political and cultural attitudes towards e-government and public corruption, I also select controls with the same political majority in the state legislature and geographic region of the U.S.[40] The results of this matching procedure and summary statistics for the matched sample are available in Table 1.3 Panels A and B, respectively.

[40] Through my interviews, I learn that there are regional differences both in the types of corruption cases observed and how corruption cases are classified by USAO offices. To capture these commonalities, I select controls from within the same census region which divides the country into four quadrants. Out of the final matched sample in Table 1.3, 6 out of 31 controls share a land border their matched treated districts.

Table 1.3

Matched sample for local online PFD adopters

Panel A. Selection criteria

Panel A shows the treated and matched control federal districts which constitute the main sample of the paper. The treated districts belong to efficiency-motivated states which adopted local online PFD. Matched control districts belong to states which either: (1) never adopted local online PFD or (2) adopted local online PFD more than three years after the latest treated district. Matched controls are selected by the coarsened exact matching (CEM) algorithm based on income per capita, legislative party control, and census region, unless otherwise noted.

Treatment year	Treated district	Matched controls	Income per capita median	Legislative control	Census region
2012	California,C; California,N; California,E; California,S	Colorado; Hawaii; Washington,E; Oregon; Washington,W	Upper	Dem.	West
2012	New Hampshire	Connecticut; Maine; New Jersey; New York,E; New York,N; New York,S; New York,W; Rhode Island; Vermont; Massachusetts	Upper	Dem.	Northeast
2009	Pennsylvania,E	Alaska; Montana; Virginia,E	Lower	Split/ No maj.	Northeast*
2009	Pennsylvania,M; Pennsylvania,W	Indiana,N; Indiana,S; Kentucky,E; Kentucky,W; Michigan,E; Michigan,W; Ohio,N; Ohio,S	Upper	Split/ No maj.	Northeast*
2008	South Carolina; Georgia,M; Georgia, N; Georgia,S	Texas,E; Texas,N; Texas,S; Texas,W; Virginia,W	Lower	Rep.	South

**The matches for Pennsylvania are hand-selected. Pennsylvania districts did not have exact matches within its region of the Northeast due to its split party control of the legislature in the pre-treatment year. Hand-matched controls are matched based on median income per capita and political party control.*

Table 1.3 (Continued)

Panel B. Sample statistics

Panel B shows the summary statistics associated with the matched sample from Panel A. The median federal district income per capita is around $36,781 and the median number of local referrals is 3 per year. The annual budget for state ethics commissions is about $3.27 per government employee. While corruption referrals occur in almost every district-year, prosecuted cases (and their associated punishment outcomes) occur more rarely in the sample.

Independent variables

	N	Mean	Std. Dev.	Min.	P25	P50	P75	Max.
news_circ	301	0.02	0.02	0.00	0.01	0.01	0.02	0.20
ethics_budget	301	9.33	32.68	0.00	1.49	3.27	5.09	206.07
income_per_cap	301	39,218.07	9,996.57	23,829.47	31,361.06	36,781.85	45,242.00	68,453.00
unemployment_rate	301	7.97	2.85	3.31	5.82	7.76	9.42	19.80
legal_exp	301	0.14	0.06	0.06	0.10	0.12	0.18	0.39
edu_rate	301	31.29	5.38	21.10	27.40	30.60	34.70	42.20
int_rate	301	0.83	0.02	0.78	0.82	0.84	0.85	0.87

Dependent variables

	N	Mean	Std. Dev.	Min.	P25	P50	P75	Max.
referral_rate	297	0.15	0.26	0.00	0.02	0.06	0.19	2.40
prosecution_rate	248	0.35	0.32	0.00	0.00	0.33	0.55	1.00
punishment_rate	170	0.83	0.29	0.00	0.75	1.00	1.00	1.00

I estimate Equation (1) in the matched sample and find that local online PFD is associated with increased referral rates, in support of **H1**. Table 1.4 reports results from multiple estimations of Equation (1) with sequentially robust specifications. Column (1) estimates a basic differences-in-differences model absent fixed effects or controls. The estimate of the treatment effect—coefficient on "online_PFD_x_post"—is significant at the 5% level. In addition, the coefficients on "online_PFD" and "post" are insignificant which is meaningful in this context. First, the insignificance of "post" indicates there were no significant changes in referral rates in the control group between the pre- and post-treatment periods. This alleviates concerns that changes in control districts may be driving the treatment effect. Second, the insignificance of "online_PFD" implies a lack of baseline differences in referral rates between treated and control districts in the pre-

adoption period. This helps corroborate the success of the matching process in selecting matches with similar pre-treatment characteristics. Collectively, these results imply that the treatment effect is driven by referral rate changes within treated districts in the post-adoption period.

Table 1.4
Referral rate

Table 1.4 investigates the impact of local online PFD on the referral rate of local corruption incidents detected by investigative agencies and referred to federal prosecutors. The dependent variable ("referral_rate") is the number of referrals detected by investigative agencies in a given federal district scaled by the number of government employees in that district's state (in tens of thousands). The variable "post" is an indicator variable equal to one for all post-treatment district-years, and "online_PFD" is a treatment indicator equal to one for all districts treated with local online PFD. Additional variables are described in Table 1.2. Column (1) displays a baseline specification with no fixed effects or controls. Column (2) adds district and year fixed effects, and Column (3) includes monitoring, economic and political controls. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
online_PFD_x_post	0.079**	0.078**	0.088**
	(2.36)	(2.53)	(2.07)
post	-0.041		
	(-1.47)		
online_PFD	-0.062		
	(-1.20)		
Monitoring controls			
news_circ, ethics_budget	N	N	Y
Economic and political controls			
income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	N	N	Y
Fixed effects			
year	N	Y	Y
federal_district	N	Y	Y
Observations	297	297	297
Adjusted R-squared	0.002	0.533	0.543

Robust t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

The magnitude of the effect in Column (1) indicates that local online PFD is associated with increases in referral volume by .08 per ten-thousand government employees. To contextualize this finding, this effect translates into an increase of 3.8 referrals for the median sample district. Given that the sample median number of referrals per year is 3, an additional 3.8 referrals from online PFD represents a roughly twofold increase in referral volume.

In Column (2), I replace "online_PFD_x_post" and "post" with federal district and year fixed effects. The treatment effect remains stable and significant at 5%. The overall explanatory power of the model also increases as adjusted R2 rises from .00 to .53. The final and most robust specification in Column (3) includes fixed effects and the full set of monitoring, economic, and political controls. The magnitude of the final treatment effect rises to .09 (significant at 5%) and the model's adjusted R2 increases again to .54. For the median sample district-year, column (3) implies that local online PFD is associated with an increase in referral volume by 4.2 per ten thousand government employees. This translates into an increase in referral volume from 3 to 7.2 referrals per year.

Next, I examine whether local online PFD changes the proportion of referrals selected for prosecution (**H2**). The results, summarized in Table 1.5, suggest that online PFD is associated with increased prosecution rates. Table 1.5 Columns (1), (2), and (3) similarly report a basic difference-in-differences specification with sequentially added fixed effects and controls. In Column (1), the coefficients on "online_PFD" and "post" are insignificant, again lending support that the treatment effect is driven by changes within the post-adoption treatment group. The estimate of the treatment effect remains stable and significant at the 5% level across all specifications, increasing slightly in magnitude from .12 in Column (1) to .17 in Column (3). As in Table 1.4, I observe the model's

adjusted R2 growing across all specifications. The final estimate in Column (3) implies that local online PFD raises prosecution rate for the median district-year from 33% to 50%.

Table 1.5
Prosecution rate

Table 1.5 investigates the impact of local online PFD on the proportion of case referrals selected for prosecution. The dependent variable is the proportion of referrals from investigative agencies selected by the USAO for prosecution in each federal district ("prosecution_rate"). The variable "post" is an indicator variable equal to one for all post-treatment district-years, and "online_PFD" is a treatment indicator equal to one for all districts treated with local online PFD. Additional variables are described in Table 1.2. Column (1) displays a baseline specification with no fixed effects or controls. Column (2) adds district and year fixed effects, and Column (3) includes monitoring, economic and political controls. Standard errors are clustered at the state level. Note that three control districts did not have sufficient observations in either the pre- or post-adoption period and were removed from the sample. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
online_PFD_x_post	0.123**	0.139**	0.174**
	(2.18)	(2.38)	(2.62)
post	-0.051		
	(-1.06)		
online_PFD	-0.021		
	(-0.37)		
Monitoring controls			
news_circ, ethics_budget	N	N	Y
Economic and political controls			
income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	N	N	Y
Fixed effects			
year	N	Y	Y
federal_district	N	Y	Y
Observations	244	244	244
Adjusted R-squared	-0.003	0.172	0.193
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1		

To illustrate this effect in real terms, consider the case of Massachusetts which recently made its PFD available online in 2017. Prior to 2017, the USAO in Massachusetts received a median of 11 referrals per year and prosecuted 25% of these referrals. The implied effects of increased referral rates from Table 1.4 and prosecution rates from Table 1.5 suggest that local online PFD would raise the annual number of prosecuted referrals in Massachusetts from 3 to 6.

I then explore whether the treatment effects on referral rates (**H1**) and prosecution rates (**H2**) are concentrated in districts with strong external and/or internal monitoring (**H3**). I begin by partitioning treated districts into two groups according to their respective levels of external and internal monitoring. For external monitoring, I compare local news circulation levels among treated districts in the pre-treatment year. Treated districts that fall above/below the median are assigned to the high/low external monitoring group, along with their matched control districts. Likewise, treated districts that fall above/below the median state ethics budget per employee are assigned to the high/low internal monitoring group, along with their matched controls.[41]

Table 1.6 summarizes the results. The significant, positive effect of local online PFD on referral rates appears to be driven by treated districts with high external monitoring (Table 1.6, Panel A). This result is consistent with my field interviews with local news journalists who describe regularly consulting PFD for government reporting and accessing PFD online if possible (Appendix G, B-Q2, B-Q4). Federal prosecutors also described enhanced media access as one of the potential enforcement benefits of online PFD (Appendix G, A-Q4). Conversely, I find that the treatment effect on prosecution rates is concentrated in districts with strong internal monitoring (Table 1.6, Panel B). This implies that state investments in ethics oversight may supplement online PFD in supporting anti-corruption enforcement. In sum, these findings suggest that external

[41] Sample weights are adjusted appropriately to accommodate multiple treatment and control districts belonging to the same stratum.

monitoring by local media and internal state monitoring serve as complements for online PFD in supporting corruption detection and prosecution.[42]

Table 1.6
Subsample tests

Table 1.6 explores how the main effects of local online PFD on "referral rate" (Table 1.4) and "prosecution rate" (Table 1.5) might vary across subsamples with strong and weak external and internal monitoring. The subsamples for external monitoring are defined by splitting the sample into federal districts with above and below-median media coverage ("news_circ") in the pre-treatment year (Columns (1) and (2)). The subsamples for internal monitoring are defined by splitting the sample into districts with above and below-median ethics budget ("ethics_budget") in the pre-treatment year (Columns (3) and (4)). Additional variables are described in Table 1.2. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Referral rate

	External		Internal	
	High	Low	High	Low
	(1)	(2)	(3)	(4)
online_PFD_x_post	0.146**	0.084	0.146*	0.135*
	(2.46)	(1.61)	(2.01)	(1.85)
Monitoring, economic, and political controls				
news_circ, ethics_budget, income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y	Y	Y
Fixed effects				
year, federal_district	Y	Y	Y	Y
Observations	199	167	160	137
Adjusted R-squared	0.507	0.595	0.542	0.430
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1			

[42] There is low power in the subsample tests and I do not detect significant differences within the subgroups. However, I do find that districts which belong to the high monitoring groups (either internal or external) experience higher prosecution rates than those in the low monitoring groups (significant at the 1% level).

Table 1.6 (Continued)

Panel B. Prosecution rate

	External		Internal	
	High	Low	High	Low
	(1)	(2)	(3)	(4)
online_PFD_x_post	0.269*	0.167*	0.246**	0.175
	(2.06)	(1.90)	(2.94)	(0.66)
Monitoring, economic, and political controls				
news_circ, ethics_budget, income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y	Y	Y
Fixed effects				
year, federal_district	Y	Y	Y	Y
Observations	152	141	130	114
Adjusted R-squared	0.345	0.229	0.292	0.118
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1			

1.6.2 State adopter group

Next, I estimate Equation (1) for the state adopter group, assessing the impact of state online PFD on corruption outcomes. These results, summarized in Appendix D, are not significant.[43] This may be due to overall low levels of detected corruption at the state level (for example, across the full sample the total number of state corruption referrals is 2,646 compared to 7,524 for local referrals). However, this may also be driven by my initial hypothesis that state officials have greater ability to influence PFD policy and ethics commission oversight than their local counterparts. Several examples raised during field interviews of prosecutors and journalists point in this direction. For instance, prior to his conviction, Sheldon Silver actively "sought to prevent, and in fact prevented, the disclosure of information about his outside income" to an ethics

[43] I also re-estimate the model using combined measures of state and local corruption (Appendix D, Table D-3). While the referral rate remains unchanged, the proportion of corruption referrals selected for prosecution increases by .09 (significant at the 10% level). Note that in the state adopter sample, there is a limited pool of potential control districts (n=26) to match to treated districts (n=13). Thus I use the full, unmatched sample for tests of state online PFD adoption.

probe led by Governor Cuomo over the course of two years (DOJ 2015, 6). In 2016, Georgia lawmakers sought to remove the requirement that public officials report payments from the state on their personal financial disclosure forms. The adjustment came after the Atlanta Journal-Constitution reported that the House Majority Leader Jon Burns failed to disclose state payments to his private businesses, and was passed after midnight on the final evening of the legislative session. At the time, the State Ethics Commission was reviewing Burns' PFD for indications of impropriety (Godwin 2016). Both cases suggest that state officials wield influence over PFD rules and monitoring, which may not extend to local officials subject to state reporting requirements.

1.6.3 Additional tests

Returning to the main results on local corruption, another potential outcome of interest is whether online PFD is associated with changes in sentencing outcomes. Overall I do not find significant effects of online PFD on the likelihood of punishment conditional on prosecution (Appendix E). However these results must be approached with caution. First, though almost every district-year contains corruption referrals, actual corruption prosecutions are much rarer. This feature of the data is intuitive given that prosecutors are resource-constrained and not every referral is worthy of prosecution. Nevertheless, it places limitations on the sample size for tests involving the outcomes of prosecuted cases.[44] Second, my measure of "punishment" only includes specific sanctions defined within the corruption case data (i.e. prison, probation, or fines). Yet there may be many other sanctions on public officials which result from public prosecution (i.e. reputational costs) which are difficult to quantify. Moreover, there may be other omitted factors associated with sentencing outcomes (i.e. judicial discretion) and/or settlement decisions which fall beyond the

[44] I do not impute missing values in the dependent variables. I ensure that each district contained in the analysis has at least one observation in the pre- and post-period.

modelling scope of this paper. Based on the field interviews, online PFD appears to play a more meaningful role in the early stages of an investigation—helping investigators and information intermediaries (media, ethics monitors) detect and refer corruption leads which are attractive for prosecution (Appendix G). Thus, this paper focuses on the impact of online PFD on the investigative and prosecutorial processes within anti-corruption enforcement, as opposed to sentencing outcomes.

1.7 Robustness

I conduct three robustness tests for the main results presented in Tables 1.4 and 1.5. First, I perform a falsification test using placebo outcome variables following Cordis and Warren 2014. The intuition behind this approach is that changes in state-level rules and procedures for PFD should not impact federal officials. Online PFD should only generate changes in detected corruption by those officials subject to the online PFD treatment. If my current analyses are valid, I expect to see no significant changes in federal corruption measures in response to local online PFD. In Table 1.7, I repeat the main results using dependent variables which capture public corruption classified as "federal" by DOJ program category. As predicted, I find no significant associations between local online PFD and any dependent variables based on federal public corruption.

I perform a second placebo test by randomly selecting a placebo treatment year for each treated state from the pre-adoption period. Table 1.8 replicates the results from Tables 1.4 and 1.5 using the same sample of treated and matched control districts, altering only the treatment year. As expected, I do not find any significant effects of local online PFD when the true treatment year is replaced with a placebo treatment year.

Table 1.7

Robustness: placebo outcome variable

Table 1.7 tests the impact of online local PFD on measures of public corruption by federal officials. Following Cordis and Warren (2014), this is a robustness test intended to show that federal officials are not affected by changes to PFD availability related to local officials. The dependent variables are identical to those used in the Tables 1.4 and 1.5 ("referral_rate," "prosecution_rate") using measures of federal corruption as opposed to local corruption. Additional variables are described in Table 1.2. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Referral_rate (1)	Prosecution_rate (2)
online_PFD_x_post	-0.020	0.110
	(-0.61)	(1.47)
Monitoring controls		
news_circ, ethics_budget	Y	Y
Economic and political controls		
income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y
Fixed effects		
year, federal_district	Y	Y
Observations	297	269
Adjusted R-squared	0.453	0.187
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

Table 1.8

Robustness: placebo treatment year

Table 1.8 is a robustness test for the results presented in Tables 1.4 and 1.5. In this test, the treatment year is randomly selected from the pre-adoption period. The test is replicated using identical treatment and control districts, shifting only the treatment date to the randomly-selected placebo treatment year. The dependent variables are identical to those used in the Tables 1.4 and 1.5 ("referral_rate," "prosecution_rate"). Additional variables are described in Table 1.2. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Referral_rate (1)	Prosecution_rate (2)
online_PFD_x_post	-0.009	0.080
	(-0.27)	(1.13)
Monitoring controls		
news_circ, ethics_budget	Y	Y
Economic and political controls		
income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y
Fixed effects		
year, federal_district	Y	Y
Observations	299	243
Adjusted R-squared	0.467	0.151
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

Third, I use Oster's 2017 method to test for the impact of omitted variable bias on my results. I compute Oster's delta statistic using an R^2_{max} of 1.3 times the R^2s of the original controlled regressions, resulting in a delta of -3.4 for the referral rate result (Table 1.4, Column 3) and -139.0 for the prosecution rate result (Table 1.5, Column 3). While negative deltas cannot be used to bound the magnitude of omitted variable bias, the result indicates that the treatment coefficients increase in magnitude when more controls are included. Since adding controls strengthens the coefficients of interest, negative deltas suggest that the results are unlikely to be

driven by omitted variable bias (Flynn 2017, Graham, Miller, and Strom 2017, Glewwe, Ross, and Wydick 2018).

Finally, recent work by Baker, Larcker, and Wang (2021) raises concerns with staggered difference-in-differences designs overall. The authors show these designs may be biased in the presence of treatment effect heterogeneity—particularly when treatments are spaced far apart in time. In these settings, differences between early-treated and late-treated units may drive the aggregated treatment effect. In my paper, the treatment timings are relatively close together (2008, 2009, and 2012), so ex ante I do not expect this bias should be a significant cause for concern. To verify, I run the main results (Table 1.4, Column 3 and Table 1.5, Column 3) separately for each treatment-year cohort. I find that the treatment coefficients from all cohorts point in the same direction as the aggregated treatment coefficient.[45] These analyses confirm that the paper's main results are not driven by comparisons of early versus late-treated states in the presence of treatment effect heterogeneity.

1.8 Mechanism and discussion

Though empirical analyses suggest that local online PFD supports the detection and prosecution of public corruption, the precise mechanism behind these effects remains unclear. To better understand the relationship between online PFD and anti-corruption enforcement, I interviewed 93 federal prosecutors, investigators, and journalists involved in public corruption coverage over the past two decades. In total, I reached out to 826 prosecutors involved in state/local public corruption cases from 2004 to 2017 and interviewed 47, for an overall response rate of 6% (effective response rate 10%). I also contacted 255 local newspapers representing all 51 states and

[45] These untabulated results are available upon request.

received 41 responses, for an overall response rate of 16% (effective response rate 18%).[46] Response rates of 10-18% compare favorably with other survey response rates in the literature, especially considering the potentially sensitive nature of the topic. Prior research seeking information from managers on firm practices, for example, typically have response rates ranging from 5% to 15%.[47] See Appendix F for additional details on sample selection and implementation.

The purpose of these interviews was to understand how PFD—and, in particular, online PFD—support corruption investigation and prosecution. From the prosecutor interviews, I learned that overall prosecutors view PFD as having both investigative and evidentiary value.[48] On their own, PFD often do not "make or break" a public corruption case—however PFD are a useful piece of the investigative puzzle.[49] PFD are generally consulted at the beginning to middle of an investigation to help create a baseline for an officials' financial profile. When asked how PFD were directly useful, the most common reasons cited by prosecutors included: provides leads to other evidence (38%), helps connect official to third-party organizations (26%), and commits official to financial statement at a specific point in time (23%) (Appendix G, A-Q2). Though an investigation often begins from public tips or media stories, PFD can help prosecutors build the case for opening or furthering a criminal investigation. These disclosures are particularly useful when they reveal the nondisclosure of assets or business relationships that prosecutors have identified. This early snapshot of the officials' self-reported finances is important because prosecutors must establish probable cause or predication in order to open an investigation. Opening

[46] These conversations led me to interview an additional 2 prosecutors, 2 journalists, and 1 former investigator from outside the original sample about their experiences.
[47] Response rates from accounting surveys include the following – Brown et al. 2019 (14.5%), Dichev et al. 2013 (5.4%), Brown et al. 2015 (10.9), Graham, Harvey, and Puri 2017 (13.4%), and Graham, Harvey, and Rajgopal 2005 (10.4%).
[48] The majority of respondents (n=32) reported that PFD were "very useful" for supporting corruption investigation, while several found them "somewhat" supportive (n=10) and few "not at all" supportive (n=3) (Appendix G, A-Q1).
[49] Although there are notable examples, such as the Sheldon Silver or Seth Williams cases, where they did play a critical role in criminal corruption convictions and the role of PFD is publicly observable. See sections 1.1 and 1.8.

an investigation facilitates future data requests, including subpoenas for other potential evidence such as tax returns or bank records.

In terms of evidentiary value, PFD often support prosecution when the official has not disclosed some financial benefit they received in exchange for official services. The most commonly cited reason for this is that prosecutors can use nondisclosure to demonstrate criminal intent or consciousness of guilt (81%). Nondisclosures can also serve as a critical point of comparison to other financial records (i.e. bank accounts, tax returns, real estate records, etc.) (12%) and be useful for questioning the defendant's credibility (7%) (Appendix G, A-Q2). For example, in the case of former Philadelphia district attorney Seth Williams, Williams' repeated failure to disclose illicit gifts on his financial disclosure forms was "at the heart of the federal case against him" (Roebuck 2017). According to his indictment, this repeated omission helped establish that Williams "intentionally omitted reference to valuable benefits" to conceal bribery (DOJ 2017a, 19). When prosecutors identify differences between the public-facing PFD and established transactions, this can provide strong evidence of an official's *mens rea* or "consciousness of guilt"—the official knew the transaction was illicit, and sought to conceal the transaction.

I also find that the medium of PFD availability (online vs. request-based) matters for how prosecutors access and use disclosure information. Most prosecutors (79%) felt that online PFD would support the detection and prosecution of public corruption. The major reasons for this included online PFD helping the public (33%) and media (26%) access information which could support the development of leads and evidence collection.[50] In addition, others pointed out that online PFD allows enforcement agents to covertly access disclosures without issuing subpoenas to state agencies which could tip off the government or lead to premature disclosure about an

[50] Many also hoped online PFD would eventually deter officials from committing crime (12%).

investigation. Preventing information leakage about investigations is especially important in public corruption cases where the defendant is a political figure. Protecting covert access to information was a less-commonly cited benefit of online PFD (5%), but points to an important consideration for investigative strategy. In a similar vein, prosecutors remarked that online PFD can have mechanical benefits in terms of faster information access which is helpful in forming an investigative strategy (Appendix G, A-Q4). Overall, online PFD appears to offer a low-cost, high-speed, and covert mechanism for enforcement agents to get an early-stage picture of an official's self-reported financial interests. Moreover, it allows investigators and prosecutors to benefit from enhanced availability of these disclosures to the public and media.

Despite the potential benefits of online PFD, prosecutors remained uncertain if the costs to official privacy would be worth the benefits of online access. The most commonly cited drawback to online PFD was privacy concerns for officials (50%), especially given that prosecutors still have the subpoena option (21%) (Appendix G, A-Q4).[51] This issue highlights the tension surrounding online PFD adoption, a motivating concern for this paper.

The prosecutors' suggestion that online PFD might help the public and media develop leads aligns closely with perspectives from my journalist interviews. I find that PFD are routinely used by political reporters, and online access matters to them. The most common reason for accessing PFD was routine checks (23%), followed by prompts from public tips (20%) and proposed legislation (19%) (Appendix G, B-Q4). The vast majority (90%) of respondents could recall either themselves or their colleagues using PFD as part of coverage for local and/or state officials (Appendix G, B-Q3). All respondents were aware of these disclosures in their state and the majority access these disclosures online if possible (78%) (Appendix G, B-Q1). In addition, there

[51] Other concerns included deterring candidates from seeking public office (8%).

does not appear to be a strong substitute for PFD. When asked what alternate data sources they might consult to learn about officials' personal finances, the most common response was that journalists were not sure (19%). This was followed by public tips (12%), state business registration (12%) and property records (10%). These responses suggest that online PFD are particularly useful for journalists, containing information which would be otherwise challenging to obtain.

This fieldwork connects hypotheses from the stylized model with the main conclusions from the empirical analyses. Collectively, the interviews suggest that online PFD is likely to enhance public awareness of official activity and support lead development. Online access may also speed up enforcement agents' search for information about officials' financial backgrounds, and enable them to covertly and efficiently access information. This would in turn allow investigators and prosecutors to better identify cases worthy of prosecution. In addition, these effects ought to be concentrated in areas with high media concentration (external monitoring) and well-resourced ethics commissions (internal monitoring) which manage the PFD filing process and online release of the disclosures.

1.9 Conclusion

Business and government have stakes in managing public corruption. In this paper, I model information-seeking by investigators under an "online disclosure" regime (which imposes official privacy costs on society) and a "request disclosure" regime (which imposes investigation frictions on investigators). As predicted, I find that online PFD for local filers is associated with increased referral and prosecution rates. Field interviews with federal prosecutors and journalists affirm that online PFD is likely to support anti-corruption enforcement through increased public awareness of officials' financial conflicts and reduced investigation frictions for investigators.

This study contributes to prior literature on public disclosure by illustrating how the medium of online disclosure matters for supporting regulatory monitoring. While this paper does not attempt to offer a cost-benefit analysis of online PFD (which must incorporate the costs of official privacy and investigation frictions), it can offer useful insights for policymakers. For example, policymakers might benefit from understanding how online PFD mitigates multiple forms of investigation frictions (tipoff costs, evidentiary costs). They may also appreciate field data documenting the importance of online PFD for federal prosecutors and political journalists—establishing that these constituencies regularly access and read public officials' PFD. In addition, the paper proposes empirical estimates of the benefits of local online PFD for corruption detection and prosecution.

Lastly, while this paper offers a first step towards understanding the effects of online PFD on detected corruption, there are many qualities of PFD left unexplored in the present work. For example, this paper does not measure the differing levels of disclosure detail in PFD forms both across states and within states across official levels (i.e. state vs. local filers). This paper also focuses on PFD centrally managed and posted online by state. It does not consider PFD administered by sub-geographies of the state (i.e. counties, municipalities, etc.) which may have their own online disclosure policies. Finally, this study focuses on PFD – disclosures directly targeting officials' personal financial and economic relationships. There are other types of conflict disclosures (i.e. campaign finance disclosures) subject to differing oversight rules and online disclosure policies which may also provide fruitful settings for anti-corruption studies. I present this paper as an initial inquiry into the impacts of online PFD for anti-corruption enforcement, and leave consideration of these additional effects for future research.

CHAPTER 2

Creating firm disclosures

A later version of this essay was published in the Journal of Financial Reporting (Fall 2019, vol. 4, no. 2, p. 1-31; https://doi.org/10.2308/jfir-52578). This essay is co-authored work with Eugene F. Soltes and Amir Amel-Zadeh.

2.1 Introduction

Managers of publicly traded firms spend considerable time and resources disclosing information to investors and other stakeholders outside the firm. Much of this disclosure—including 10-Ks, 10-Qs, and 8-Ks— are mandated by regulators, but managers often supplement such filings with additional voluntary disclosures provided via conference calls, press releases, and private meetings with investors.

An extensive literature examines how differences in the style and presentation of disclosures as measured by their tone, length, and complexity impacts investor perceptions and market responses. Much of this interest in examining the structural and textual components of corporate disclosures began with Li 2008 who showed that firms that employ more complex language have lower earnings persistence. Recent surveys on textual disclosures (e.g. Li 2010, Loughran and McDonald 2016) describe a variety of impacts associated with the disclosure presentation and style, from increased analyst coverage for firms with less readable written disclosures (Lehavy, Li, and Merkley 2011) to higher litigation risk of firms with more optimistic disclosures (Rogers, Buskirk, and Zechman 2011).

Within most of this literature, researchers focus on the economic impact of how disclosures are presented, but relatively little emphasis is placed on the internal processes that potentially lead to variation in disclosure style. Even when viewed in conjunction with the disclosure literature

more broadly, little is known about the actual people who create disclosures— the firm managers in legal, PR/marketing, finance, and IR— and how they contribute to the disclosure process. Some evidence suggests that individual managers can impact disclosure choices. For example, Bamber, Jiang, and Wang 2010 show that CEO and CFO backgrounds can influence voluntary financial disclosure choices. Yet, despite the ability of managers to individually contribute to the disclosure process, we do not have systematic evidence on how firms create disclosures and how differences in this process potentially manifest in the textual information ultimately conveyed to investors.

One major impediment to understanding who, when, and to what extent different managers are involved in creating disclosures is that this process is not publicly observable as disclosures are prepared privately within firms. As Li, Minnis, Nagar, and Rajan 2014 note in their investigation of how internal knowledge is revealed, researchers seeking to understand firm communication patterns have tended to rely on individual case studies to understand internal processes. "These case studies typically have unparalleled access to internal communications of the organization under study, an access inconceivable for a large sample of firms" (97). While case studies provide an opportunity to deeply examine internal firm processes, individual cases do not offer sufficient power to engage in a more generalized and systematic empirical investigation. In this paper, we seek to overcome this hurdle through field study.

We began by developing seven case studies to understand the disclosure preparation process in detail for a small number of firms. From these case studies, we identified the most salient areas of possible variation across firms including the people involved, timing of the processes, and the effort expended. Case development typically relies on researchers orally questioning managers in an open-ended fashion, which creates several logistic challenges to scaling. To remove some of these barriers and move from individual case studies to a larger body

of field data, we narrowed our focus and developed a written questionnaire based on these detailed case studies. By doing so, we collected internal firm data on who contributes to creating disclosures, the amount of time spent by different managers, and when the preparation occurred for nearly 200 firms.

Using this field data, we seek to examine two questions. First, do firms vary in how they create disclosures? As many companies rely on "benchmarking" surveys to align their practices with other firms, there is potentially significant homogeneity in practices across firms reducing the opportunity for exploring differences in practices. Second, to the extent that there are differences, is variation in internal firm processes associated with publicly observable output? Specifically, we examine if variation in how disclosures are prepared is associated with the presentation, style, and tone of the MD&A and conference calls.[52]

Our investigation yields a number of insights to both of these questions. First, despite firms' tendencies to benchmark, we show that there is considerable variation in how firms prepare disclosures. When creating the MD&A, we find that investor relations—described in some literature as the "chief disclosure officer"— takes a more limited role as compared to other senior executives including the CFO and legal officers in the drafting process. We also find some firms where PR/marketing and even board members take a leading role in creating the MD&A. Firms vary in how many weeks in advance they begin preparing their MD&A—with some beginning eight or more weeks in advance, while others only one to two weeks in advance—and how much they rely on the prior year as a template.

[52] We focus our investigation on the MD&A and conference calls as they constitute two prominent narrative disclosures among mandatory and voluntary disclosure means and comprise a large part of a firm's regular textual disclosure.

In planning for conference calls, we find that only a third of firms collect questions in advance from analysts and investors in preparing potential responses. As would be expected from the prior literature, the vast majority of firms employ a script during the presentation portion, but we also find — in contrast to prior research that posits that the Q&A is largely extemporaneous— that over half of firms employ some form of scripting during the Q&A portion of the call. CFOs spend nearly twice as many hours as the CEO preparing for conference calls on average, but we also find some firms where senior leadership does little to no advance preparation.

Broadly, despite practitioner literature suggesting otherwise, there are few homogenous disclosure preparation practices—with the exception of scripting the presentation portion of the call. The amount of effort, time, and engagement by different individuals varies quite significantly and often in ways (e.g. PR/marketing heavily involved in MD&A drafting) that are not obvious from prior academic research or practitioner articles.

We examine the desire for transparency by different managers and find that IR and the CFO tend to seek the most transparency although IR still has a significantly higher desire for openness. We investigate whether the executives who are most involved with the creation of the disclosures are also the ones that seek the greatest transparency. We find variation with some executives who desire for transparency being the least, and in some other instances, being the most involved. In the vast majority of cases, we find that executives who desire for greater transparency are more involved with conference call creation than MD&A. In this way, the informativeness of different disclosures is impacted by the managers that are involved in their creation.

Creating disclosures takes considerable time and we examine when firms begin this process in comparison to when they are aware of the preliminary or finalized quarterly financial results.

We find that the majority of firms (65 percent) of the sample begin preparing for the quarterly conference call in advance of even preliminary financial results being known.

Ultimately, we show that many groups outside of IR are involved with disclosure preparation— including PR/marketing— and this varies significantly across firms. Our analysis also shows that some perceptions in the academic literature— for example that conference call Q&A tends to be unscripted and extemporaneous— are not consistent with actual practice.

In our second series of tests, we examine whether the differential engagement by mangers is associated with the presentation, style, and tone of disclosures. In line with their department's goals of improving perceptions of their firms, we find that when PR/marketing is more involved in the MD&A and conference call preparation, the call tends to be less negative and the MD&A more optimistic. We also find that greater involvement by legal departments reduces the use of more descriptive positive and negative language which can create greater liability for firms. Furthermore, we find that involvement by PR/marketing and legal departments impact the year-over-year MD&A similarity by reducing the number of changes, and therefore the informativeness as documented in prior work.

Lastly, we find evidence that variation in the preparation process is associated with the presentation and tone. Executives that employ a more improvised style in responding to questions in the conference call Q&A section answer more questions and use more self-serving language (i.e. avoid the use of "we"). Moreover, when executives do not rely on prepared responses in the Q&A, they tend to use more negative and less positive language reflecting a less tailored description that employs more descriptive language. We also find that managers who prepare their MD&A further in advance tend to have less language complexity (as indicated by FOG) in their MD&A.

Overall, our findings suggest that there is a link between how disclosures are prepared and how their information is conveyed publicly to markets. This evidence is supportive of prior research where the presentation, style, and tone is not simply a reflection of the firm economics, but rather also a reflection of the individual managers involved in the process. By showing that this extends beyond senior management (i.e. CEO and CFO) to other departments (e.g. PR/marketing, legal, IR, etc.) and is also related to the timing and effort expended, the analysis indicates that how disclosures are presented capture organizational factors related to people rather than firms.

Our paper offers a number of contributions to the disclosure literature. Perhaps most significantly, our analysis explicitly shows that managerial efforts to prepare disclosures varies significantly across firms. In doing so, we build on recent work by Bushee, Gow, and Taylor 2018 that shows that interpreting the readability of a firm's disclosures requires understanding the underlying economics of the firm and its managers. To the extent that managerial time and effort vary, as we show in our analysis, so too can output of those activities.[53] In this way, our investigation seeks to refine the conversation on corporate disclosure which often speaks of "firms disclosing information." However, firms are not endowed with the ability to create disclosures; rather it is the firms' managers that ultimately create those disclosures.

Second, given the variation we observe in disclosure practices across firms, researchers should be cautious about drawing inferences about incentives, potential biases, and obfuscation without knowing who is involved in the process. For example, it is possible that an executive's decision to employ certain language is driven by self-serving attribution bias or instead by the fact that PR/marketing managers— who seek to make the firm and its managers look more attractive—

[53] A number of recent papers have examined the amount of senior executive time expended on different activities and how that relates to performance (see Bandiera, Hansen, Prat, Sadun (2017) and Porter and Nohria (2018)).

were more heavily involved in preparing those remarks. Researchers (e.g. see Li 2010, 159) have often been aware of this distinction in drawing inferences and careful in noting that without knowing who prepares disclosures, these hypotheses cannot be separated. Our field data indicates that more heavily researching who prepares disclosures is likely to help develop a better understanding of the underlying incentives behind particular language uses.

Our paper also offers a methodological contribution by demonstrating how one can collect data on internal firm processes in "large sample." Accounting researchers have tended to rely on proxies to examine behavior or processes that are not accessible in public data sets. Yet, it is possible to collect this information directly from managers thereby revealing more information and reducing the potential noise and measurement that accompany the use of proxies (e.g. see Bloomfield, Nelson, and Soltes 2016). To the extent that researchers seek to collect information about firm processes— rather than individuals or their judgements— such data collection does not face the same institutional restrictions thereby reducing the challenges faced by researchers needing to collect such field data.[54]

From a regulatory standpoint, our investigation contributes to the question of "disclosure efficiency" and design. Bloomfield 2012 explains the obstacles associated with managers disclosing the most salient information to investors in a concise fashion and proposes appealing to work in the philosophy of language that indicates how information is efficiently conveyed in human communication. Our field data suggests a wide variety of different managers are involved in the disclosure process, each bringing with them their own preferences (e.g. marketing managers will approach the disclosure process with a marketing lens). As a consequence, firm disclosures

[54] To the extent that a researcher is simply collecting data on firm practices, Institutional Review Boards would deem the work as non-human subjects research and outside their scope. To the extent that some anonymous data was collected that related to individuals, it would likely be exempted under 45 CFR 46. 101(b)(2).

end up representing an amalgamation of different internal interests which does not always align with the broader objective of clear, concise, and transparent disclosure. By identifying and "elevating" certain information (as described in Bloomfield 2012) in disclosures, regulators would potentially be able to mitigate some of this variation that arises from differences in the disclosure creation process.

While our approach permits an illumination of internal firm processes, it is subject to several limitations and caveats. Although the sample size in this paper is considerably larger than other studies using field based data (e.g. see Park and Soltes 2018), by comparison to most archival based work in financial accounting, the sample is still only moderate in size. As a result, it is possible that we lack the power to identify all the potential relationships between the internal disclosure creation process and the structure of disclosures given the noise and variability in the textual outcome variables. In addition, our field data collection focused on gathering information about a firm's average disclosure creation process rather than quarter-to-quarter practices. Ideally, we would have been able to gather the specific practices from quarter-to-quarter to allow within firm variation (e.g. good vs. bad quarter). Practically, such specificity could only be collected by embedding some monitoring mechanism within firms (as in Park and Soltes 2018). As this would have limited sample size due to cost considerations, we opted for greater breadth by collecting process data at the firm level, but future researchers would benefit from ascertaining the amount of intra-firm variation in disclosure processes.

2.2 Managers and the corporate disclosure process

In this section, we describe the background—both institutionally and from the research literature—about the disclosure creation process and its impact on market reactions. In 2.1, we describe the regulatory environment around the disclosure process that leads to differences in the

disclosure process. In 2.2, we provide an overview of the prior research that shows how the content, readability, structure, and style of disclosures impacts investor and market responses. In 2.3, we provide two case studies describing how firms differ in their disclosure creation process. Finally, in 2.4, we explain our hypotheses that motivate our field data collection and analysis.

2.2.1 The regulatory and institutional environment surrounding corporate disclosure creation

Firms are mandated to publicly disclose information about their operations, performance, and strategy. Many of these disclosures, like annual reports (i.e. 10-Ks), quarter reports (i.e. 10-Qs), and intermediate updates (i.e. 8-Ks) arise from regulatory requirements (e.g. the Securities Act of 1933). These requirements provide fairly detailed guidelines leading to some homogeneity in the types of information disclosed by firms. Supplementing these disclosures, firms often voluntarily disclose additional information in other venues. Quarterly conference calls hosted by management when releasing earnings is one prevalent form of these supplemental voluntarily disclosures.

Although regulators provide guidance on what information is required to be disclosed, in what form (e.g. according to U.S. GAAP), and when it should be disclosed, there is little to any guidance on *how* these disclosures should be created. While regulations may prescribe that certain people must give their assurance (e.g. CEO/CFO certification under Section 302 of SOX), such attestations provide little evidence into the relative effort and point in time when each party should become involved in creating the disclosure. Put differently, a CEO may only feel comfortable certifying the financial statements by becoming heavily involved with discussions during the entire report preparation or may only seek to validate once the financials are effectively finalized. The lack of requirements means that managers are effectively able to choose the process that they feel is more appropriate for the creation of disclosure documents as long as the final document

conforms to expectations (e.g. regulatory with the SEC, independent auditors). Moreover, while regulations describe what needs to be disclosed, the specific structure and style of those disclosures are also left to managerial discretion.

2.2.2. The impact of disclosure structure and style

Over the past decade, a considerable body of research has investigated how the presentation, structure, and style of disclosures impacts market responses (see Loughran and McDonald 2016 and Li 2010 for summaries of this research). For example, Mayew and Venkatachalam 2012 find that the affective tone of executives during the Q&A portion of earnings conference calls impacts subsequent investors' reactions. Larcker and Zakolyunkina 2012 show that executives who utilize more deceptive language during conference calls are more likely to engage in deceptive accounting practices (e.g. SEC sanctioned restatement). Brown and Tucker 2011 show that firms with larger year-over-year modifications to their MD&A statements have larger stock price responses to their 10-K filing. Broadly, as these examples indicate, this line of research shows that the structure and style of firm disclosures, whether in regulatory documents (e.g. 10-K, 10-Q) or voluntarily disclosures (e.g. quarterly earnings conferences calls), are economically significant.

Some observations in this literature also indicate that the structure and style of disclosures are driven by factors related to the companies producing those disclosures. For instance, Brown and Tucker 2011 find that larger economic shifts are associated with larger year-over-year MD&A changes. Yet, researchers have struggled to elucidate the precise mechanisms driving stylistic variation. As Loughran and McDonald 2016 explain "researchers face the problem of separating the business and the document. These issues are intertwined because the document attempts to describe the economic reality of the business" (1198). As an example, a disclosure document could

have a low readability score because managers seek to obfuscate news or instead because more complex language is needed to describe an inherently more intricate set of transactions. Bushee, Gow, and Taylor 2018 address this challenge by decomposing a disclosure's structure into two components, one related to the linguistic complexity associated with managerial obfuscation and the other related to a business' complexity. By showing that there are competing factors that contribute to differences in the language and style of disclosures, Bushee, Gow, and Taylor 2018 demonstrate that interpreting the readability of a firm's disclosures requires understanding the underlying economics of the firm and its managers.

Bushee, Gow, and Taylor 2018 indicate that managers can influence the readability and style of disclosures, but questions still remain about how, who, and in what manner managers impact firm disclosures. To the extent that language—whether written or spoken—reflects the individual incentives and goals of those who create the communications, the style and structure of disclosures are also likely to vary depending on who prepares those disclosures within an organization. Specifically, we hypothesize that the structure of conference calls and the style of language in an annual report is reflective of the effort, preparation, and coordination among different people within an organization. Put simply, to the extent that a specific manager exerts greater time and effort creating the disclosure, the disclosure will look different and more heavily reflect that manager's experience and incentives. For instance, to the extent that marketing managers become involved earlier and more intensively in the preparation of a conference call script, the remarks on the conference call are more likely to reflect the objectives and perspective of marketing managers whose job is to positively communicate the firm's position. In this way, we expect that marketing managers' impact on the readability, structure, and style of the disclosure will be a reflection of the amount of time and effort they expend on the disclosure process.

To practitioners, the ways that individual managers impact the form and style of disclosures is a popular topic of discussion. Practitioner publications (e.g. *IR Update*, *IR Magazine*) often provide articles and benchmarks about how to "effectively" prepare disclosures. One article, for example, on how firms should prepare for conference calls describes practices at various companies. Nils Paellmann, the head of investors relations for T-Mobile, explained that "we typically have three or four earnings prep sessions with top leadership where we also review the document together…in addition, we do one or two earnings calls rehearsals where we ask top management the toughest questions analyst are most likely to ask" (Walsh 2017). While there is a rather voluminous amount of discussion of "best practices" in the practitioner literature, there is no clear consensus or understanding of what the impact of different practices actually is. One reason for this is that most of these articles provide "benchmarks" which simply describe what other firms do rather than indicating what the effect of including different people or exerting differential effort is on the final disclosures.[55] In this regard, it is not even clear from the practitioner literature if differences in effort or preparation actually have an economic impact on the ultimate disclosures since the focus is simply on inputs (e.g. how much time a CEO spends preparing for the call) rather than the outputs (e.g. measuring how this impacts how a CEO actually communicates on a call).

In contrast to the practitioner literature which focuses considerable attention on the role that individuals play in the disclosure process, individual managers and how they impact the style and structure of disclosures has attracted much less attention by academics. One factor likely contributing to this lack of attention is that the preparation process is conducted privately by firms and is therefore not readily observable to researchers. The one area related to the preparation

[55] For example, to what extent the efforts of the CEO in preparing for the earnings call affect the linguistic characteristics and economic outcomes of the call remains unclear from this work.

process that has attracted academic attention—and is publicly observable in some instances—is the role of attorneys. Bozanic, Choudhary, and Merkley 2016 find that the use of an external legal counsel improves the readability and increased the likelihood of cautionary letters in annual reports. Cohen, Malloy, and Nguyen 2016 show that firms that hire outside attorneys create disclosures that appear more similar year-over-year and the findings in Hopkins, Maydew, and Venkatachalam 2015 suggest that more highly paid general counsels tend to be at firms that have lower financial reporting quality and more aggressive accounting practices.

While attorneys play a significant role in the disclosure creation process, they are only one of many individuals and parts of an organization who contribute toward creating firm disclosures. To help illustrate the role of different individuals, we present two case studies that illustrate the time and extent that different managers contribute to creating disclosures.

2.2.3 Differential involvement of managers: two case studies

As part of our initial work in creating this project, we engaged with investor relations officers to understand, in detail, how different managers become involved in the disclosure creation process.[56] From these interactions, we were able to acquire internal documents describing the disclosure creation process and timeline. In Figure 2.1, Panels A and B, we provide two of these schedules—one for a mid-capitalization industrial company (Firm A) and the second for a small-capitalization technology company (Firm B).

[56] We acquired the disclosure schedules for seven publicly traded firms in the spirit of Simons (2010) and Li et al. (2014), 97. We were provided this information under the agreement that we would keep the firms names confidential.

A variety of differences are apparent from comparing the preparation process between the firms. Firm A spends approximately 5 weeks creating its quarterly earnings disclosures (e.g. conference call, 10-Q, press release), whereas Firm B spends less than 3 weeks.

Figure 2.1

Sample disclosure creation schedules

Figure 2.1 depicts the earnings announcement schedules for two firms. Firm A is a middle-capitalization industrial firm. Firm B is a small capitalization technology firm. The activity describes the portion of the disclosure process that a manager is involved with. The responsibility column shows the position of the manager whose is accountable for completing the activity.

Panel A. Firm A earnings announcement schedule

Date	Activity	Responsibility
January XX-XX	First drafts press release- script	IR
	-strategy section	CEO
	-financials/guidance	GC
January XX-XX	Draft Q&A, preparation of conference call	CFO
January XX-XX	Updating Q&A	IR
	Listen to competitor conference calls	IR
	Review blast list	CFO assistant
	Prepare press release announcing call	IR
	Collect numbers for analysts	IR
January XX-XX	Issue press release	IR
January XX-XX	Finalize all materials	IR
	Legal review	Legal
	Board review	Board
	Rehearse (as needed)	IR
February XX-XX	Disseminate press release	PR
	Conference call	All
	Follow-up	IR

Figure 2.1 (Continued)

Panel B. Firm B earnings announcement schedule

Date	Activity	Responsibility
2-3 weeks before	Financials/messaging meeting	CEO, CFO, IR
2 weeks before	Monitor first call to be sure estimates are accurate	IR
	Press release on timing of conference call	IR
	First drafts of script to CFO	CFO
	Share drafts with marketing and PR for Input	PR
	Comments and revisions to release and script	Auditors, CFO
1 week before	Finalize release and script	CEO, CFO, GC
<7 days before	Develop Q&A	IR
	Share summaries of peer calls/key points	IR
	Review materials	GC, Board
Day of	Manager conference call	All
	Review transcript; share	IR
Day after	Update	IR

At Firm A, the general counsel becomes involved in drafting the financial guidance from the beginning whereas in Firm B, the General Counsel only becomes involved in the final week before the release in regards to the earnings release and conference call script. Moreover, for Firm B, public relations (i.e. marketing) is involved with feedback and guidance for the conference call script whereas public relations is not involved in any of the disclosure creation process in Firm A (e.g. they simply disseminate information, but are not actually involved in its creation). While these differences emerge, there also seem to exist a number of similarities. In particular, both firms prepare scripts for discussion on the conference call and possible Q&A questions that management expect to receive. The CFO is closely involved in this script creation at both firms. The differences and similarities in these processes served as motivation to collect field evidence and focus our empirical analysis around these dimensions.

2.2.4. Investigating the disclosure creation process

Our analysis examines two areas around disclosure creation. First, we investigate if the process for creating disclosures—focusing on MD&A and conference calls—varies across firms. We examine this variation across three dimensions: who prepares the disclosures, the amount of effort expended by different types of managers, and when the preparation occurs. Some anecdotal evidence, such as the cases described in section 2.3 and published case studies (e.g. Simons 2010), suggest that we ought to expect significant variation in practices across firms in all three dimensions. On the other hand, the practitioner literatures indicates that many, if not most, firms rely on "benchmarking" to determine processes (e.g. NIRI). To the extent that people rely on similar benchmarks and follow their peers, this should homogenize the process leading to little variation across at least some of these dimensions across firms. We rely on the field data we collect to examine if, and in what regards, there is variation in the disclosure creation process.

Our second series of analyses examines how potential differences in process are associated with the presentation of public disclosures. Practitioner guides often describe how different individuals contribute to the corporate disclosure process by bringing their own perspective and experience. For example:

> *Although the Investor Relations Officer is often responsible for and usually leads the development of the annual report, there are many people involved in the process. They often comprise … of the finance department, people from the corporate communications and legal departments and … the marketing department. During various stages of the development process, other people will become involved, such as the CEO, CFO and chief legal officer. Everyone contributes their own perspectives on the business…* (JP Morgan 2017, 29).

Although different groups, including PR/marketing, IR, and legal may contribute to creating conference calls and the MD&A, it is unclear whether their individual objectives will necessarily

be reflected. For example, PR/marketing seeks to present the firm in a more positive light whereas legal typically seeks to have more conservative disclosures. Moreover, the reason why one group (e.g. finance or legal) may contribute more than IR at a particular firm may not be a reflection of legal seeking to leave a stronger mark on the disclosure process, but instead because of the background and qualifications of those in legal as compared to IR. While at some firms the investor relations team act as sophisticated analysts, at other firms they primary serve as communications professionals arranging interactions with more senior management.

To the extent that these different groups substitute for one another, we should not find a noticeable impact on the presentation, style, and tone of conference calls and the MD&A based on their contributions. Moreover, we also see practitioner guides suggesting elements related to the timing that could impact the disclosures. As an example,

> *Timeliness also reflects well on the management team and IRO. Start the development process as early as possible; for companies whose fiscal year coincides with the calendar year, many get started in September* (JP Morgan 2017, 30).

The timing and amount of preparation could simply reflect a balancing of tasks within the firm and therefore have little ultimate impact on the disclosures. Alternatively, this timing could reflect the priorities of those working on the disclosures thereby making those outputs more closely reflect their objectives.

To assess these competing hypotheses, we investigate whether the contribution of different people, amount of effort, and time are associated with commonly examined textual dimensions (e.g. positive language, length, similarity, and FOG) within conference calls and MD&A disclosures.

2.3 Field data collection and description

One of the main obstacles associated with this project was collecting data on the internal firm processes that managers employ to create their firms disclosures. Oral interviews with firm managers, as is done in building case studies, can elicit significant detail, but imposes significant time commitments for each firm (e.g. arranging meeting times and locations, engaging in dialogues with multiple people, etc.). In order to build the desired "large sample" to study textual outputs potentially associated with different disclosure creation processes and to support the generalizability of the investigation, we understood that approaching the data collection as a case-based process would be infeasible. At the same time, we sought to capture several dimensions of how firms internally process as is typical of cases.

To understand the private disclosure creation process in more detail, we began by developing 10 case studies. By speaking with the managers involved in the disclosure creation process, we were able to understand potential dimensions across which firms vary. Two of these case studies are described in brief in section 2.3. We found three dimensions across which firms could make different decisions. These included: the managers/teams involved in the disclosure creation process, the timing in which different parts of the disclosures were created, and the amount of effort expended by different mangers. We found these dimensions captured the greatest difference in the detailed cases and decided to use these dimensions as the focal points to collect additional data.

To scale our data collection, we developed a questionnaire based on our case studies. The underlying spirit of the questionnaire was to gain similar data to that sought if speaking with

managers in person to develop a case on the firms' disclosure creation process.[57] Our questionnaire differed from surveys conducted by accounting researchers in two significant ways. First, our focus was on collecting data about firm practices rather than subjective assessments about how managers felt or believed about a particular situation or hypothetical. In this way, our interest was the firm, rather than the respondent.[58] Second, as is typical with cases where researchers may need to speak with multiple managers to understand a phenomena, our questionnaire posed several questions that potentially required input from different managers or divisions. As this placed a larger burden on respondents, we sought to be concise in the number of questions that were asked. In addition, we coded each survey to identify the firm thereby avoiding the need to ask basic firm level information regarding its size, industry, etc. Ultimately, in spite of the effort required by managers to complete our questionnaire, we found that many were willing to engage based on the response rate.

To develop our questionnaire, we first created a draft set of questions that reflected a number of the most significant issues we observed from the cases. Drafts of these questions were shared with two experienced investor relations officers who provided us detailed feedback and the framing and language used in the questions. Based on the feedback from these two executives we iterated the design until the questions would allow us to capture the desired information while also conforming to the expectations of potential respondents about the types of information that they would reasonably be expected to be able to answer. The final questionnaire we utilized is provided in Appendix I.

We sent our questionnaire to 500 randomly selected firms in July 2017. To form our list of

[57] In a related area, Bloom et al. (2016) discuss the potential benefits and costs of open versus closed ended questions.

[58] Studies that ask data about firms, rather than people are moreover exempted from IRB. Our study underwent a formal IRB Review by Harvard University (IRB17-0939) and was exempted by the Harvard IRB office under 45 CFR 46.101(b)(2).

sample firms we began by considering all U.S.-based (i.e. incorporated and headquartered in the United States) public companies which were trading common stock (as of December 31, 2015) and appeared in both the CRSP and Compustat databases. We then narrowed our list of potential sample firms to only include entities which held four quarterly conference calls during the fiscal year 2016. This criteria left us with a pool of 1,406 potential sample firms which we stratified into four quartiles based on market capitalization. We then used Stata to randomly draw 125 firms from each quartile, for a sample of 500 firms total.

As the point person for much of a firm's disclosure program, the firm's investor relations officer was utilized as our contact for the questionnaire.[59] We manually collected business addresses for the investor relations officers for all firms in our sample. There were 78 firms for which we could not identify or obtain contact information for the investor relations officer, or a chief executive tasked with overseeing investor relations. These included cases where the company employed external investor relations services. These 78 firms were randomly re-drawn from their respective market capitalization quartiles in the potential sample pool of 1,406 firms (less the 422 firms with available contact information). This resulted in our final sample of 500 U.S.-based public firms which all held quarterly 2016 conference calls and had available contact information for executives in charge of their investor relations functions.

After finalizing our sample firms and firm contacts, we began the process of distributing our survey and compiling responses. Although the majority of the questions we asked were factual

[59] Sending the questionnaire to any particular manager, rather than "the firm," has the potential to induce bias associated with that manager. Ideally, the questionnaire would have been provided to several managers to assure that the responses reflected an aggregate view of the preparation process and not a "self-centered" view where the manager- in this case the IRO- over emphasizes his or her influence. Empirically, however, we have some comfort that the IRO's that served as the point person within firms for our surveys did not state that they were the most important individuals for disclosures as often stated in the practitioner literature (i.e. "chief disclosure officer"). Specifically, IROs do not appear as one of the top three preparers of MD&A disclosures or conference call presentations as frequently as other positions such as CFOs, PR/marketing or internal legal departments.

in nature (i.e. statements of information about internal firm practices), to avoid potential biases associated with responding to questions in a written survey, we generated four versions of our survey (versions A, B, C, and D) with differing question and response-orders for judgement-based questions and randomly assigned these to different firms. We mailed paper copies of our survey along with a one-page letter explaining the purpose of the study to our sample firms in June 2017. Besides pre-paid postage and envelopes for returning the survey, the mailing did not include any financial or nonfinancial incentives for participating in the study. In late August 2017, we followed-up with non-responders by placing phone calls and sending personal emails including a link to an identical online version of our questionnaire. Our online version also came in four versions (A, B, C, and D) corresponding to our paper copies. We received an additional 39 completed questionnaires online.

Ultimately, we received 193 responses to our survey including paper and online responses for a total response rate of 39 percent. Although such a response rate is lower than pursuing a case based approach which seeks to develop a personal working relationship with managers, our response rate is considerably higher than most academic studies that rely on surveys—with response rates of 5 percent to 15 percent—to collect data from managers.[60]

Other control variables and firm characteristics such as size (logged market capitalization) and market-adjusted returns were calculated using data from CRSP and Compustat. To calculate our outcome variables of disclosure characteristics such as tone or length, we performed a textual analysis on each firm's 2016 quarterly earnings conference call transcripts and MD&A sections from the firm's 2015 and 2016 annual report. All variable definitions are provided in Appendix H.

[60] Examples of response rates from academic accounting surveys include: Brown et al 2018: 14.5%, Dichev et al. 2013: 5.4%, Brown et al 2015: 10.9%, Graham et al. 2016: 13.4%, Graham et al. 2005 10.4%.

2.4 Variation in management

We begin our analysis by examining whether and in what circumstances variation in the preparation of conference calls and MD&A arises. The data from our questionnaire focuses on three dimensions of disclosure preparation: who prepares, what effort they expend, and the timing of this work.[61]

2.4.1 Conference call data

Table 2.1 examines our field data about preparing for quarterly earnings conference calls.

Table 2.1
Conference call field data summary

Table 2.1 describes the conference call related data collected from the field questionnaires. Each panel describes the question posed to managers and a summary of responses. INC stands for "incomplete" and indicates the number of survey respondents which did not answer a given question.

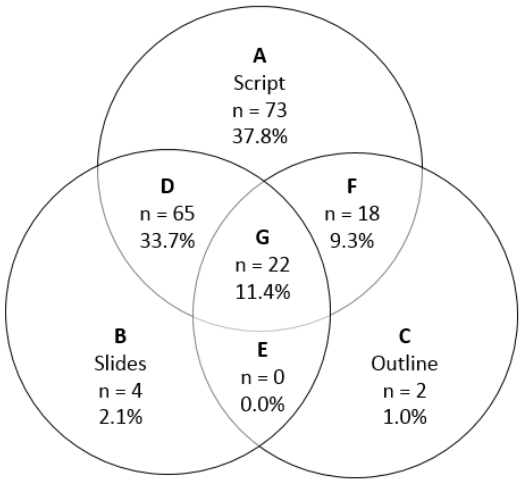
Panel A. On average over the past 4 quarters, how long prior to the quarterly conference call does the draft of the management's remarks begin being drafted?

	No. Responses	*%*
3-4 weeks	101	52.3
1-2 weeks	60	31.1
5-6 weeks	16	8.3
<1 week	9	4.7
INC	6	3.1
7+ weeks	1	0.5
Total	193	100

[61] For brevity, we present selected data from the field questionnaire which provide insights into the variation in disclosure preparation practices among firms. Our complete survey included additional questions which are not examined in detail here. We provide the complete summary statistics for all questions in our online appendix.

Table 2.1 (Continued)

Panel B. What types of materials, if any, are typically prepared for presentation portion of conference calls?



The Venn diagram displays the items- script, slides, and outline- prepared for the meeting. Overlap in the diagram indicate that firms prepared more than one item.

Panel C. How would you characterize your company's preparation style for the Q&A session?

	No. Responses	*%*
Mostly scripted	113	58.6
Mostly improvised	55	28.5
Completely scripted	14	7.3
Completely improvised	6	3.1
INC	5	2.6
Total	193	100

Panel D. Does your company prepare responses to potential questions that might be raised during conference calls?

	No. Responses	*%*
Yes	178	92.2
No	10	5.2
INC	5	2.6
Total	193	100

Table 2.1 (Continued)

Panel E. Does someone from the company speak with sell-side analysts or buy-side investors in advance and collect potential questions of interest?

	No. Responses	*%*
No	117	60.6
Yes	70	36.3
INC	6	3.1
Total	193	100

Panel F. On average over the past 4 quarters, how long does the CEO/CFO spend preparing for the quarterly conference call? (in hours)

	No. Responses	*Mean*	*Median*	*Std. Dev.*	*Q1*	*Q3*
CEO preparation time	181	9	8	9	3	10
CFO preparation time	177	16	11	17	6	20

Panel G. How involved is each department in drafting the introductory management remarks for conference calls? Describe each department's involvement on a scale of 1 = least involved to 5 = most involved. (0 means no involvement)

	No. Responses	*Row*	*Mean*	*Median*	*Std. Dev*	*Q1*	*Q3*	*Mean statistically different from row:*
IR internal	186	1	4.27	5	1.6	5	5	3-9
CFO	187	2	4.05	4	0.9	4	5	3-9
CEO	189	3	3.65	4	1.1	3	4	1-2, 4-9
Legal internal	184	4	2.30	2	1.4	1	3	1-3, 5-9
PR/Marketing	183	5	1.19	0	1.6	0	2	1-4, 7-9
IR external	174	6	1.19	0	1.9	0	2	1-4, 7-9
Legal external	185	7	0.89	0	1.2	0	1	1-6, 8-9
Board	186	8	0.58	0	0.9	0	1	1-7
External audit	185	9	0.49	0	0.9	0	1	1-7

Table 2.1 (Continued)

Panel H. On average after an earnings conference call, how many calls from sell-side/buy-side analysts does your company take within 72 hours after the conference call?

	Sell-side		Buy-side	
	No. Responses	*%*	*No. Responses*	*%*
9+ calls	86	44.6	75	38.9
3-5 calls	51	26.4	51	26.4
6-8 calls	39	20.2	44	22.8
1-2 calls	9	4.7	12	6.2
0	3	1.6	4	2.1
INC	5	2.6	7	3.6
Total	193	100	193	100

In Panel A, we find that most firms (52 percent) begin 3-4 weeks in advance, but nearly a third (31 percent) begin only 1-2 weeks in advance. Preparation may include drafting materials for the presentation portion of the call as well as potential responses to questions raised by analysts and investors on the call.

In Panel B, we examine the three types of materials commonly prepared for the presentation portion of the call: scripts, slides, and outlines. We find that the vast majority (97 percent) prepare a script for the presentation. We also find that slides—which are often posted to the firm's website during or after the call—are also common with 49 percent of firms creating slides. Outlines, for internal and/or external distribution, are somewhat less common with 23 percent of firms preparing outlines. The Venn diagram in Panel B shows overlap between these with script-slides being most commons and all three elements being second most.

In Panels C-E, we examine managers' preparation for the Q&A portion of the call. A voluminous practitioner literature explains how managers "ought" to prepare for earnings conference calls by explaining how most firms prepare (i.e. benchmarking). As an example:

> *A few weeks prior to the earnings conference call, consider calling key investors and analysts to ask them what key issues they would like management to focus on during their remarks. In addition to helping keep the conference call focused, this feedback can be used to develop the Q&A document discussed above* (JP Morgan 2017, 34).

Despite certain efforts in the practitioner literature to nudge managers to similar practices, we actually find some areas with considerable variation in how firms prepare. As shown in Panel C, approximately half of firms (59 percent) script most of their Q&A whereas an additional 7 percent note that it is completely scripted. Thus, there is variation in the amount of scripting for the Q&A section. However, mitigating this variation to some extent is the evidence, shown in Panel D, which indicates that 92 percent of firms prepare responses to potential questions. Thus, even those firms which indicate that they rely on a more "improvised" style for the Q&A still often engage in having prepared responses available. Notably, this contrasts somewhat with Lee 2016, who uses a proxy to infer whether managers are scripting calls. Lee 2016 notes that "the [management discussion] portion of the call is often referred to by managers as the "prepared remarks" and likely represents a written narrative intended to be read out loud. In contrast, the Q&A is more likely to be extemporaneous" (232). Our field evidence suggests that even the Q&A portion of the call for many managers is heavily scripted with the vast majority of firms preparing responses and many scripting the Q&A session to some significant extent. Furthermore, in contrast to the suggested 'best practice' in the practitioner literature (see example above) Panel E reveals that only a minority (36 percent) engages with analysts and investors to discuss topics of interest ahead of the call.

In Panel F, we describe the amount of time spent by the two primary speakers on conference calls, the CEO and CFO. CEOs spend, on average, 9 hours preparing and CFOs spend

16 hours. The lengthier preparation by the CFO is statistically significant at the 1 percent level (t-stat.= 4.9).

Brown et al. 2018 find that planning for the presentation portion of the conference call is among the most important activities for IROs. In this spirit, we find that IR is the most involved, on average, in drafting the introductory remarks in Panel G. The CFO and CEO are the second and third most involved in this drafting process. The difference in involvement between IR and CFO is marginally statistically significant at the 10 percent level (t-stat.= 1.6), whereas the difference between the CFO and CFO is significant at the 1 percent level (t-stat.=-3.9).

A growing body of research examines how managers engage offline with investors. Soltes 2014 finds that investor relations often calls analysts immediately after the conference call to address any additional questions analysts have. In this spirt, we also find that the majority of firms speak privately with investors and analysts after the calls. Specifically, 98 percent of firms report following up with sell-side analysts after the call and 97 percent of firms report following up with buy-side investors.

Overall, we find significant variation in several disclosure preparatory practices across firms including whether the firm speaks to investors ahead of time and the relative amount of time different executives spend preparing for their calls. To the extent that we observed similarity across firms, this arises in managers preparing a script for the presentation and preparing responses to questions during the Q&A portion of the call.

2.4.2 10-K/MD&A data

In Table 2.2, we collected information regarding the preparation involved in creating both the MD&A and broader 10-K filings.

Table 2.2

10K/MD&A field data summary

Table 2.2 describes the 10-K and MD&A related data collected from the field questionnaires. Each panel describes the question posed to managers and a summary of responses. INC stands for "incomplete" and indicates the number of survey respondents which did not answer a given question.

Panel A. Which department is primarily responsible for the first draft of the MD&A section in the Form 10K?

Department	*No. Responses*	*%*
Finance	140	72.54
Accounting	17	8.81
Other*	13	6.74
Legal-Internal	12	6.22
IR-Internal	7	3.63
Legal-External	2	1.04
INC	1	0.52
IR- External	1	0.52
Total	193	100

*Other includes write-in responses with one response each. These include: marketing, business segment leader, CEO, external reporting, FPRA, SEC, SEC reporting team, and VP business development.

Panel B. In your most recent Form 10K, how long prior to the filing of the Form 10K did this individual or team begin the draft of the MD&A section?

	No. Responses	*%*
5-6 weeks	69	35.8
7+ weeks	65	33.7
3-4 weeks	43	22.3
1-2 weeks	8	4.2
INC	8	4.2
Total	193	100

Panel C. When creating the draft for the current year's MD&A, to what degree does the primary author rely on the prior year's MD&A as a template?

	No. Responses	*Mean*	*Median*	*Std. Dev*	*Q3*	*Q4*
Template reliance	189	0.61	0.67	0.22	0.33	0.67

Reponses are scaled to between 0 and 1, where 0 is no reliance, .33 is some reliance, .67 is strong reliance, and 1 is very strong reliance.

Table 2.2 (Continued)

Panel D. Estimate the total number of hours your company collectively takes to prepare the following disclosures: MD&A and 10-K

	No. Responses	*Mean*	*Median*	*Std. Dev*	*Q1*	*Q3*
MD&A	112	94.7	50	116.5	20	100
10-K	107	364.6	200	483.9	100	400

Panel E. How involved is each department in creating the MD&A? Describe each department's involvement on a scale of 1 = least involved to 5 = most involved. (0 means no involvement)

	No. Responses	*Mean*	*Median*	*Std. Dev.*	*Q1*	*Q3*
CFO	188	3.61	4	1.19	3	5
Legal internal	183	3.30	4	1.45	3	4
IR internal	182	2.81	3	1.51	2	4
External audit	182	2.38	2	1.45	1	3
Legal external	182	2.20	2	1.53	1	3
CEO	189	1.92	2	1.26	1	3
Board	181	1.22	1	1.04	0	2
PR/Marketing	179	0.65	0	1.01	0	1
IR external	169	0.49	0	1.19	0	0

In Panel A, we find that the initial draft of the MD&A typically originates in the finance department (73 percent of firms). Notably, while investor relations are often viewed as the "chief disclosure officers" (NIRI 2014, as discussed in Brown et al 2018), IR officers are rarely the initial authors of the MD&A as we find that they begin drafting the MD&A in less than 4 percent of firms. In Panel B, we find that most firms begin drafting the MD&A 5 or more weeks in advance. However, more than a quarter of the sample (26 percent) begin less than a month ahead of time with 4 percent of firms beginning this process only 1-2 weeks in advance. Later preparation was associated with a greater frequency of revisions. In particular, untabulated results reveal that late MD&A preparers had a mean of 1.8 revisions per week as compared to early preparers that had .9 revisions per week, which was statistically significant at the 1 percent level (t-stat.= 6.2). Thus, while the aggregate

number of revisions was similar between those who prepared early vs. late, those preparing later had to more aggressively revise the document to complete it by the expected filing date.

We also find, in Panel C, that the majority of firms have a strong reliance on the prior year's MD&A as a template. We find only one firm in our sample whose managers do not rely on the prior year's MD&A at all. The tendency for most firms to begin with the prior year's MD&A as a template for this year is one reason why seemingly minor changes (e.g. the addition or subtraction of particular topics or risks) have economic significance (Brown and Tucker 2010; Cohen, Malloy, and Nguyen 2018).

As a way to expedite the drafting of the MD&A, firms that begin drafting the MD&A later could rely more heavily on the prior year's MD&A. However, we actually find the opposite situation in which firms that begin drafting the MD&A earlier are actually more likely to strongly rely on the prior year's MD&A as a template. In particular, untabulated results show that 38 percent of those that strongly rely on the prior year's MD&A begin 7+ weeks in advance whereas only 26 percent of those that weakly rely on the prior year's MD&A begin this early. This difference is statistically significant at the 10 percent level ($\chi^2 = 2.7$).

In Panel D, we see a wide variation in the amount of time spent preparing the MD&A and 10-K with the interquartile range varying by a magnitude of 4 to 5 times the amount of hours. Although this shows a wide variation in the amount of time, we should note that fewer firms felt comfortable responding to this question given that different divisions are involved in preparing these disclosures (thus making it more difficult to estimate the collective time spent accurately). In several instances, managers followed up with us after completing the survey to update their number to reflect additional information they collected from other divisions.

In Panel E, we describe who is involved and the relative amount of effort each manager places in creating the MD&A. We find that the CFO, followed by legal (internal), followed by IR (internal) are the most involved. The differences in effort are also statistically significant (CFO vs. legal: t-stat.= 2.3; legal vs. IR: t-stat.= 3.2). For 85 percent of firms (n=156), legal (internal) is in the top three managers. IR is somewhat less common with 65 percent (n=118) of firms having IR as one of the top three managers focused on the MD&A. We also find the CEO as ranking relatively low in the relative amount of effort devoted to preparing the MD&A (in only 10 percent of firms is the CEO the most involved, or tied for most involved manager). Thus, from the standpoint of executive leadership, the CFO should typically be viewed as the author of the document (in 62 percent of firms the CFO is the most involved manager).

Despite these average inferences which show some commonality across firms, we do find some significant variation with the board and even PR/marketing becoming heavily involved in the MD&A creation process. In 18 firms, PR/marketing is in the top three most involved for creating the MD&A and for 6 firms, PR/marketing is the most involved. Of these 6 firms that rely most heavily on PR/marketing, 4 are in the software industry. For 19 firms—10 percent of the sample—we also find that the board is among the top three most involved departments. While for the majority of firms the board and PR/marketing are largely uninvolved in the MD&A creation, we do find some firms relying on substantially different processes and departments.

Overall, we find that the finance department tends to be the dominant author of the MD&A, as opposed to IR who is commonly viewed as the primary disclosure person. We do find significant variation, however. Some firms rely on the CEO and board more heavily in drafting the MD&A, and in some instances we even find PR/marketing taking a first-order role in this drafting. We also find that the timing of drafting the MD&A varies widely. Over a third of firms begin a month or

more ahead of others and late preparers are associated with more frequent revisions. We further find that a significant reliance on the prior year's MD&A with those firms starting their drafting process earlier more heavily reliant on the prior year's text. Thus, the effort, participants, and timing all vary significantly in the creation of MD&As across firms.

2.4.3 Transparency and timing data

In Table 2.3, we provide data on the amount of transparency sought by different groups within a firm. In earlier tables we found that the CFO, legal (internal) and IR (internal) were most involved with creating the MD&A and IR (internal), CFO, and CEO were most involved with the remarks for conference calls. When we examine the amount of transparency sought by different constituents, we find some— but not complete— alignment with who is most involved.

Internal IR seeks significantly more transparency than other groups including the CFO (IR vs. CFO: t-stat.= 3.5). The CFO also marginally seeks more transparency than the CEO (CFO vs. CEO: t-stat.= 1.3). As one of the more risk-averse functions within a firm, legal seeks considerably less public disclosure with the average value of 1.69. Notably, we found that legal is, on average, the second most involved group in creating the MD&A and thus this restraint will be most heavily reflected in the MD&A as opposed to conference calls where we see legal considerably less involved. This finding also relates to the recently voiced criticism that 10-K disclosures have become compliance documents rather than means of investor communication.

To better understand whether the individuals who are most involved with the disclosure process also seek greater or less transparency, we graph the level of relative involvement in creating the conference call or MD&A against the desire for transparency in Panel B for several firms.

Table 2.3

Transparency data summary

Table 2.3 describes the transparency related data collected from the field questionnaires. The original ordering of the question is shown in Appendix I. Panel D describes two probit models using the dependent variable "High MDA transparency" which is an indicator variable equal to one if the firm's "MDA similarity" variable is in the top quartile among all firms. "MDA similarity" is calculated following Brown and Tucker, 2011. ***,**,* indicate statistical significance at the 1%, 5% and 10% level respectively.

Panel A.

To what degree does each department seek to provide more public information to the market (i.e. disclose more detailed information about the firm's progress and profitability)? Describe each department's inclination on a scale from 1 = less disclosure to 5 = more disclosure. (0 means no involvement)

	No. Responses	*Mean*	*Median*	*Std. Dev*	*Q1*	*Q3*
IR internal	172	3.70	4	1.52	3	5
CFO	171	3.22	3	1.00	3	4
CEO	172	3.07	3	1.13	3	4
Legal internal	167	1.69	2	1.44	0	3
PR/Marketing	169	1.27	0	1.62	0	3
Legal external	168	1.03	0	1.38	0	2
External audit	170	0.98	0	1.41	0	2
Board	167	0.98	0	1.29	0	2
IR external	164	0.79	0	1.53	0	0

Panel B.

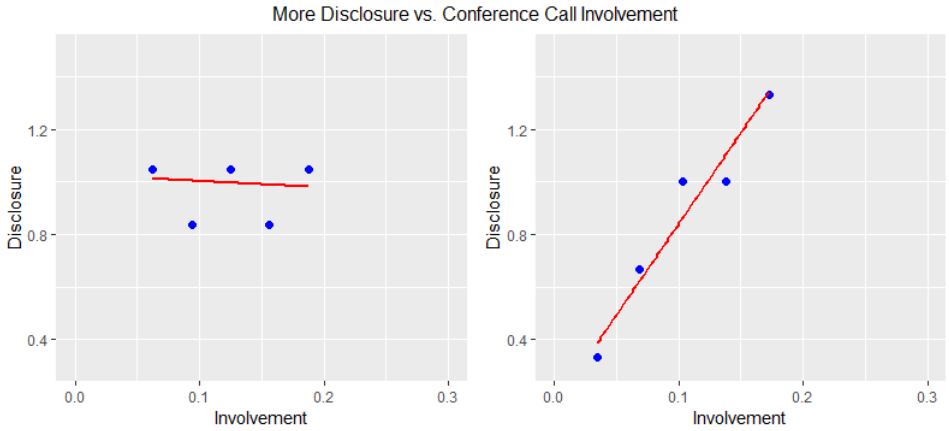
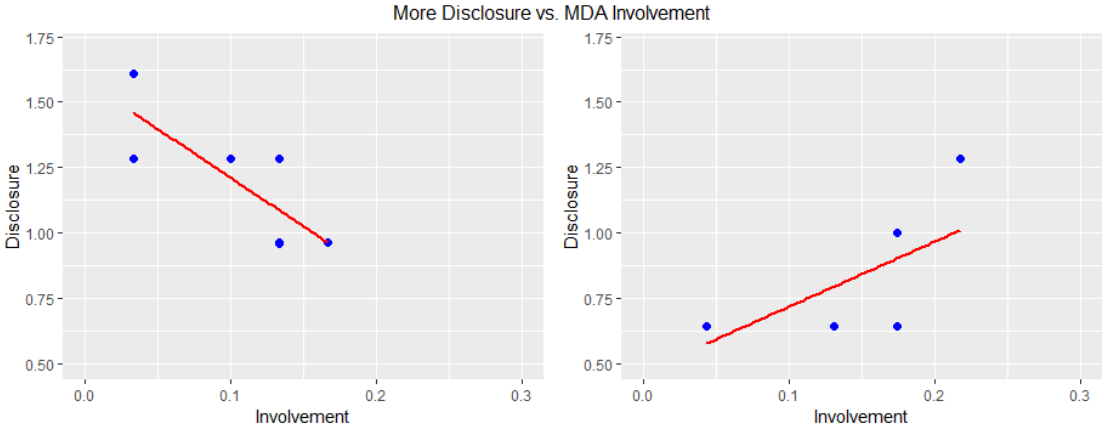


Table 2.3 (Continued)

Panel B. (continued)



Panel C.

	No. Responses	*Mean*	*Median*	*Std. Dev*	*Q1*	*Q3*
MDA involvement, desire for transparency	172	-0.19	-0.22	0.28	-0.39	-0.05
Call involvement, desire for transparency	174	0.73	0.81	0.23	0.64	0.89

Panel D.

	(1) High MDA transparency	**(2)** High MDA transparency
Market Cap (ln)	0.0105	0.0195
	(0.0293)	(0.0311)
Returns	-0.561*	-0.483
	(0.324)	(0.300)
CEO tenure	-0.0817	-0.0977
	(0.142)	(0.145)
Financial violation since 2000	0.541**	
	(0.232)	
Financial violation since 2012		0.837**
		(0.341)
Percent board insiders	0.378	0.499
	(0.563)	(0.575)
Litigious industry	-0.293	-0.313
	(0.267)	(0.262)
Constant	-1.050**	-1.071**
	(0.486)	(0.512)
N	174	174
R2	0.06	0.06

Firms with a strong positive slope are those where the managers most involved with the particular disclosure are also those seeking the greatest transparency (a negative slope would indicate that those seeking the most transparency are the least involved). For each set of charts (Panel B), the chart on the left depicts a firm with a low preparation-transparency correlation and the chart on the right depicts a firm with a high preparation-transparency correlation. In the first subpanel, the company at left is a large-cap food and beverage company and the company at right is a large-cap financial services firm. In the second subpanel, the company at left is a mid-cap sporting company and the company at right is a small-to-mid-cap agricultural firm.

In Panel C, we provide summary statistics of the relative transparency across firms in our sample. Notably, we find that those seeking more transparency are significantly more involved in the conference call preparation than MD&A preparation at the 1 percent level (t-stat.= 33.4). We investigate whether the differences in transparency and call involvement are associated with firm characteristics. We do not identify significant variation in terms of preparation-transparency correlations which can be explained by firm-level variables such as size, returns, CEO tenure, board independence, or industry (Panel D). However, we do find that having at least one financial violation increases the probability of a firm being in the top quartile of MD&A preparation-transparency by 25 percent (significant at 5 percent), holding constant other firm-level characteristics. This suggests that sanctioned firms adjust their management to align with a more transparent disclosure strategy in line with regulatory expectations.

In Table 2.4, we provide data on when firms have compiled preliminary and final earnings numbers and when they are publicly disseminated in an earnings announcement. We find that the average amount of time, in weeks, between preliminary and final results and their dissemination is 2.8 and 1.6 weeks respectively.

Table 2.4

Timing of financial reports data summary

Table 2.4 describes the data on the timing of the financial reporting process from the field questionnaires. Each panel describes the question posed to managers and a summary of responses.

Panel A.

On average over the past 4 quarters, what is the approximate time between when preliminary quarterly financial results are known to senior management and when they are publicly disseminated? (in weeks)

	No. Responses	*Mean*	*Median*	*Std. Dev.*	*Min*	*Max*
Preliminary results	179	2.81	3.00	1.66	0	10
Final results	182	1.66	1.50	1.30	0	8

Panel B.

	No. Firms	*Tot. Responses*	*Mean*	*Median*	*Std. Dev.*	*Q1*	*Q3*
Full sample							
Call preparation time vs. knowledge of preliminary results	172	172	0.83	0.50	2.26	-0.50	2.50
Call preparation time vs. knowledge of final results	175	175	1.99	2.50	2.03	0.50	3.50
Sub-sample of firms that prepare call before results known							
Prepare call before preliminary results	112	172	2.15	2.36	1.45	0.57	3.14
Prepare call before final results	140	175	2.74	2.50	1.47	1.50	3.50

In Panel B, we compare when managers are aware of their preliminary/final earnings numbers and when they begin preparing for their earnings conference call. In particular, we find that 65 percent of firms begin preparing for the conference call before even the preliminary financial results are known for the quarter. For these firms, this preparation begins, on average, two weeks before these results.[62] We also find that 80 percent of firms begin preparation for the conference call in advance of the final results being known. This evidence suggests that many firms are drafting material that is "neutral" to the financial performance of the firm.

[62] In untabulated results, we also examine the number of firms that begin preparing the MD&A in advance of knowing the preliminary financial results. We find that 87% of firms begin the drafting process in advance of knowing the figures. However, as our question was framed on a quarterly, rather than annual basis, we place less reliance on this comparison.

2.5 Disclosure variation as a function of preparation and effort

In this section, we utilize our field data to better understand how differences in preparation are associated with the common measures of structure, style, and tone of conference calls and in the MD&A. In section 2.5.1, we focus on the introductory remarks and Q&A on quarterly conference calls. In section 2.5.2, we focus on the MD&A section.

2.5.1 Conference call style

The conference call contains two distinct sections, the introductory presentation section and the Q&A section. As discussed in Section 2.4, we find that different processes are involved for each component of the call and thus examine the introductory and Q&A sections separately in Tables 2.5 and 2.6 respectively.

In Model 1 of Table 2.5, we examine the length of the introductory remarks. We find that firms that employ a script have shorter introductions. In particular, the use of a script only is associated with a 12.8 percent decrease in the length of the introduction. Prior literature (e.g. Matsumoto, Pronk and Roelofsen 2011) suggests that that Q&A is the most informative portion of the call so being more concise on the presentation can enhance the informativeness of the call. That said, we do find that firms that seek to have longer presentation portions ex ante make more extensive introductions suggesting that some managers prefer to consume a larger portion of their call for introductory remarks (coefficient = 0.36, p-value<0.05).[63]

[63] In the regression analyses, we utilize scaled effort. To compute scaled effort, we summed the total effort expended by all members (where 1 is no involvement to 6 is most involved). For each firm, we then divided the effort of the specific manager by total effort for that firm.

Table 2.5

Conference call presentation and managerial engagement

Table 2.5 investigates differential managerial engagement and the introduction made on earnings conference calls. The dependent variable "Length Intro (ln)" is the log of the average number of words spoken during the introduction section of the call over the firm's four earnings conference calls of 2016. The dependent variables "Negative" and "Positive" are the logs of the average percent of negative words and positive words respectively contained in each firm's call introduction over the firm's four earnings conference calls of 2016. Additional variables are described in Appendix H. ***,**,* indicate statistical significance at the 1%, 5% and 10% level respectively.

	(1)	(2)	(3)
	Length Intro (ln)	Negative	Positive
Market Cap (ln)	0.0161**	-0.00730*	0.00604*
	(0.00631)	(0.00413)	(0.00345)
Returns	0.0449	0.0259	0.0256
	(0.0281)	(0.0170)	(0.0272)
Advance draft	0.0203	0.00297	0.0105
	(0.0208)	(0.0116)	(0.00991)
Prepared script only	-0.128**		
	(0.0491)		
Pct. Presentation	0.362**		
	(0.170)		
PR/Marketing involvement		-1.314**	0.389
		(0.520)	(0.418)
Legal (int) involvement		-0.794*	-0.404
		(0.471)	(0.400)
Legal (ext) involvement		-1.058*	-1.086**
		(0.540)	(0.511)
CEO involvement		-0.777*	-0.239
		(0.466)	(0.367)
CFO involvement		-0.514	-0.350
		(0.589)	(0.481)
IR (int) involvement		-0.500	-0.230
		(0.373)	(0.316)
IR (ext) involvement		-0.464	0.0637
		(0.413)	(0.348)
Length Intro (ln)		-0.00757	0.0498
		(0.0453)	(0.0384)
Constant	7.612***	1.385***	0.876**
	(0.106)	(0.478)	(0.424)
N	179	187	187
R2	0.11	0.08	0.16

In models (2) and (3), we examine negative and positive language in the introductory remarks respectively. We find in model (2) that when PR/marketing becomes more involved in drafting the presentation of the call, the amount of negative words is significantly reduced (coefficient = -1.31, p-value<0.05). A one standard deviation increase in relative PR/marketing involvement is associated in a nearly 7 percent decrease in the proportion of negative words in a firm's call introduction. We do not find an increase in the positive language with PR/marketing involvement in Model (3) suggesting that PR/marketing seeks to avoid negative publicity during the remarks, but does not simultaneously seek to creative a positive language bias.

We also find in models (2) and (3) that the greater involvement of legal counsel reduces negative language (internal and external counsel) and positive language (external counsel). The reduction of positive language is consistent with Rogers, Buskirk, and Zechman 2011 who find that more positive language is associated with shareholder litigation, thus external counsel reduce such risks by helping to reduce the use of positive language. In our sample, we find that a one standard deviation increase in the level of internal and external legal involvement is associated with a 4.2 percent and 4.3 percent decrease in the proportion of negative words on the call introduction, respectively. A one standard deviation increase in external legal involvement is further associated with a 4.4 percent decrease in the proportion of positive words. Overall, we find that legal counsel reduces negative and positive language. Although negative language may be constructed by some as being more "conservative," thereby suggesting that risk-averse attorneys would be amendable to its inclusion, negative language can also increase litigation risk (for examples, see Chapter 10 of Soltes 2016). Thus, by reducing the positive and negative language, external counsel can be fulfilling its role of reducing risk for firms.

In Table 2.6, we examine the Q&A portion of the conference call.

Table 2.6

Conference call Q&A and managerial engagement

Table 2.6 investigates differential managerial engagement and the Q&A portion of earnings conference calls. The dependent variable "Questions (ln)" is the log of the average number of questions coming from analysts over the firm's four earnings conference calls of 2016. The dependent variable "Number of times CEO speaks" is the log of the average times the CEO speaks during each firm's conference call over the firm's four earnings conference calls of 2016. The dependent variable "We" is the log of the average number of references to first-person plural pronouns ("we") over the firm's four earnings conference calls of 2016. The dependent variables "Negative" and "Positive" are the logs of the average percent of negative and positive words respectively contained in each firm's QA section over the firm's four earnings conference calls of 2016. Additional variables are described in Appendix H. ***,**,* indicate statistical significance at the 1%, 5% and 10% level respectively.

	(1)	(2)	(3)	(4)	(5)
	Questions (ln)	Number of times CEO speaks	We	Negative	Positive
Market Cap (ln)	-0.00390	-0.00102	0.00453**	0.00402**	0.00281
	(0.00794)	(0.0118)	(0.00177)	(0.00190)	(0.00368)
Returns	0.100**	0.172***	-0.00774	0.00378	-0.00664
	(0.0495)	(0.0385)	(0.0122)	(0.00824)	(0.0206)
Advance questions	-0.0300	0.146*	-0.0177	-0.0137	-0.0271
	(0.0527)	(0.0769)	(0.0132)	(0.0133)	(0.0253)
No prepared responses	-0.0687	-0.192	-0.0000404	0.0626***	-0.132***
	(0.0732)	(0.127)	(0.0247)	(0.0183)	(0.0456)
Improvised style	0.106**	0.0173	-0.0272**	-0.00755	-0.00623
	(0.0468)	(0.0604)	(0.0136)	(0.0136)	(0.0255)
Analyst coverage	0.0385***	0.0301*	-0.00844***	-0.000668	0.00331
	(0.0118)	(0.0161)	(0.00291)	(0.00310)	(0.00532)
Length QA (ln)	0.507***		0.000833	0.0135	0.0572**
	(0.0504)		(0.0141)	(0.0134)	(0.0268)
Length CEO (ln)		0.365***			
		(0.0938)			
Constant	-1.045***	-0.183	1.916***	0.220**	0.461**
	(0.329)	(0.504)	(0.0985)	(0.0881)	(0.182)
N	187	187	187	187	187
R2	0.62	0.57	0.11	0.07	0.12

Managers that employ a more improvised style for the Q&A (as opposed to a scripted style) answer more question. Our analyses imply that following a more improvised style is associated with taking on nearly 11 percent more analyst questions on a given call. We also find that CEOs engage more on a call (by speaking more frequently) when questions from for sell-side and buy-side analysts are collected in advance. Advance engagement with analysts increases the frequency of the CEO

speaking during the call by 15 percent. Thus, the style and preparation in advance of calls is associated with variation in engagement on the call.

We also find that the tone on calls in influenced by differences in preparation. Executives employ the pronoun "we" less often during the Q&A if they do not script (i.e. employ a more improvised style of) the Q&A. The lack of "we" when speaking more extemporaneously is consistent with some scholars who have suggested that mangers may have self-serving attribution bias (e.g. Li 2010). We also find that executives who prepared Q&A responses employ more negative and less positive language during the Q&A. This is indicative that calls with scripted Q&A employ more cautious language, but when left to speak on their own, executives extemporaneously use more positive and negative language.

Overall, we find that during conference calls, several different aspects of effort and preparation are associated with language and style on the call. Most notably, we find that PR/marketing and legal impact language in the introductory remarks in a manner consistent with their objectives within the organization. Moreover, we find that executives who speak more extemporaneously during the Q&A tend to answer more questions and employ more "descriptive" (i.e. positive and negative) language to describe their firms and its performance.

2.5.2 MD&A style

In Table 2.7, we examine how differences in preparation and involvement are associated with MD&A characteristics.

In Model (1), we examine optimism in the MD&A. In line with the objectives of PR/marketing managers, to the extent that there is greater involvement by their department, we find greater language expressing optimism in the MD&A (coefficient = 1.67, p-value<0.05).

Table 2.7

MD&A characteristics and managerial engagement

Table 2.7 investigates managerial preparation on the style and presentation of the MD&A. Models (1) and (2) use OLS specifications, and Model (3) uses a probit specification. The dependent variable "Optimism" is the log of average optimism score for each firm's MDA across 2015 and 2016, calculated following Henry 2008. The dependent variable "MDA Fog" captures the level of readability of a firm's disclosure, where high FOG indicates low readability. This measure is calculated following Lehavy, Li, and Merkley 2011. The dependent variable "MDA Similarity" is an indicator variable equal to one if the firm's similarity score is above-median for all firms, where similarity is calculated as one minus the average "Rawscore" for each firm. ("Rawscore" is a measure of MDA changes or modifications year over year calculated following Brown and Tucker 2011). Additional variables are described in Appendix H. ***,**,* indicate statistical significance at the 1%, 5% and 10% level respectively.

	(1)	**(2)**	**(3)**
	Optimism	MDA Fog	MDA Similarity
Market Cap (ln)	0.00940	0.0728	0.054
	(0.00737)	(0.109)	(0.0311)
Returns	-0.0597**	-1.286*	0.115
	(0.0287)	(0.767)	(0.115)
Length MDA (ln)	-0.0629***	3.639***	0.823***
	(0.0237)	(0.499)	(0.205)
PR involvement	1.669**	13.94	8.862**
	(0.702)	(12.64)	(3.553)
IR (int) involvement	0.0629	-8.275	-2.934
	(0.394)	(9.094)	(1.786)
IR (ext) involvement	-1.414*	-17.33	-1.673
	(0.720)	(10.88)	(2.790)
Legal (int) involvement	-0.193	-4.369	3.982
	(0.457)	(8.888)	(2.428)
Legal (ext) advisory	-0.104*	-1.820	-0.130
	(0.0584)	(1.325)	(0.263)
CEO involvement	-2.312***	7.871	-2.564
	(0.594)	(8.304)	(2.840)
CFO involvement	-0.128	-0.0817	-0.487
	(0.537)	(9.144)	(2.618)
# Revisions	0.0144*	-0.0482	0.0341
	(0.00790)	(0.104)	(0.033)
MD&A Advance Preprepartion	0.0389***	-0.513**	0.0358
	(0.0135)	(0.219)	(0.0587)
Constant	1.017***	-1.545	-8.615***
	(0.315)	(6.071)	(2.244)
N	173	173	173
R2	0.15	0.27	0.17

Specifically, a one standard deviation increase in PR/marketing involvement is associated with a nearly 6 percent increase in the proportion of optimistic language in the MD&A. We also find that when legal, either internal or external, is more involved there is less optimistic language. One unexpected finding is that greater CEO involvement is associated with lower optimism (coefficient = -2.31, p-value<0.01). One potential explanation is that by expressing optimism in the MD&A, the CEO is setting up higher expectations for the future which can have adverse personal consequences if expectations are not met. Anticipating this the CEO seeks to moderate expectations. For example, Schrand and Zechman 2010 find that financial misreporting often beings with an initial optimistic statement that sets the executive on a slippery slope to later misreport to achieve those expectations. To the extent that executives seek to avoid being compromised in such a manner, they would seek to employ less optimistic language in their firms statements.

In Model (2), we examine MD&A complexity—as measured by FOG. Although we do not find FOG associated with differential effort in managers, we do find that firms that prepare their MD&A farther in advance employ marginally less complex language. In recent years, the SEC has placed significant attention on its "plain language" requirements by encouraging companies to utilize simpler language in their disclosures. To the extent that organizations begin these disclosures farther in advance which allows greater care to be taken, we find greater alignment with this plain language desire.

Finally, a number of papers examine MD&A similarity on the basis of the information conveyed by modifications that firms make (e.g. Brown and Tucker 2011). Using the marginal effects from Model (3), we find that a standard deviation increase in relative PR involvement is associated with an increase in the likelihood of having above-median MDA similarity by 0.10

(significant at 1 percent). Likewise, a standard deviation increase in relative legal internal involvement is associated with an increase in the likelihood of having above-median MDA similarity by 0.079 (significant at 10 percent). We also find that IR involvements is weakly linked to greater change in the MD&A. To the extent that modifications in the MD&A are more informative (e.g. Cohen, Malloy, and Nguyen 2016) IR's desire for more change is consistent with our Table 2.3 results which showed that internal IR seeks, on average, the greatest amount of transparency.

In summary, we find a number of ways in which differential involvement is associated with the MD&A. In particular, when PR/marketing–a department not normally viewed as being involved in regulatory disclosures–becomes more heavily involved we find the disclosure are more optimistic, more complex, and more similar (i.e. less informative) year-over-year. As the objective of marketing departments is "selling" the firm and its products rather than unbiased communications of news, this would be consistent with marketing functions impeding an efficient a more transparent communication of firm news.

2.6 Conclusion

Accounting researchers have long studied firm disclosure practices. However, as simply being entities, firms do not actually disclose information. Instead, it is the individual managers within those firms that make disclosure choices. By collecting an extensive set of field data, our investigation seeks to explore how the preparation, timing, and effort of different managers within firms manifest in disclosure practices. We find that despite the tendency of firms to benchmark with one another, there is significant heterogeneity in how mangers create their MD&A and conference call disclosures. We also show that this variation in preparation styles manifests in differences in the appearance of those disclosures. Specifically, changes in effort and preparation

are associated with the language (e.g. optimistic words), style (e.g. complexity), and presentation of firm disclosures.

Our analysis begins to illuminate the people behind the disclosure process, but there are considerable opportunities for further research. While our field data describes how different managers create disclosures, it does not assess why these practices arise differently within firms. How managers decide to approach their disclosure preparation would deepen our understanding of these differences. Do they arise from "legacy" practices (i.e. it is what a manager's predecessor at the firm did) or is it an expression of managerial preferences (e.g. CEO does not want to spend time on MD&A)?

As described in the introduction, our data on the effort and engagement is static and represents "average" practices for managers at different firms. However, preparation is likely to vary from period-to-period within firms. Researchers that can collect data on this period-by-period effort would be able to shed light on additional hypotheses that have long been subject to speculation by researchers. For instance, when bad news is impending, do some departments (e.g. PR/marketing) become more engaged and potentially seek to obfuscate the adverse news being disclosed?

Finally, we hope our field-based approach inspires other accounting researchers to collect data from within firms to study external disclosure processes. As we found from the considerable engagement of those who we asked to provide us with data, managers are willing to reveal their internal firms processes to researchers. To the extent that accounting researchers have historically relied on largely public signals, this "private" and "proprietary" data could offer new and deeper ways to explore the financial reporting process.

BIBLIOGRAPHY

Albuquerque Journal. n.d. "Q&A: Secretary of State candidate Maggie Toulouse Oliver." Accessed December 2019. https://www.abqjournal.com/1225436/qampa-secretary-of-state-candidate-maggie-toulouse-oliver.html.

Amiram, Dan, Zahn Bozanic, James D. Cox, Quentin Dupont, Jonathan M. Karpoff, and Richard Sloan. 2018. "Financial reporting fraud and other forms of misconduct: a multidisciplinary review of the literature." *Review of Accounting Studies* 23, no. 2: 732-783.

Aobdia, Daniel, Allison Koester, and Reining Petacchi. 2019. "Political connections and government-awarded economic incentives: US state-level evidence." Available at SSRN 3127038.

Baker, Andrew, David F. Larcker, and Charles C.Y. Wang. 2021. "How much should we trust staggered difference-in-differences estimates?" Available at SSRN 3794018.

Bamber, Linda S., John Jiang, and Isabel Y. Wang. 2010. "What's my style? The influence of top managers on voluntary corporate financial disclosure." *The Accounting Review* 85, no. 4: 1131-1162.

Bandiera, Oriana, Stephen Hansen, Andrea Prat, and Raffaella Sadun. 2017. "CEO behavior and firm performance." *Harvard Business School Working Paper*.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan. 2004. "How much should we trust differences-in-differences estimates?" *The Quarterly Journal of Economics* 119, no. 1: 249-275.

Blackwell, Matthew, Stefano Iacus, Gary King, and Giuseppe Porro. 2020. "cem: Coarsened exact matching in Stata." Accessed July 27, 2020. https://mattblackwell.org/files/stata/cem-stata.pdf.

Blankespoor, Elizabeth. 2019. "The impact of information processing costs on firm disclosure choice: Evidence from the XBRL mandate." *Journal of Accounting Research* 57, no. 4: 919-967.

Blankespoor, Elizabeth, Ed deHaan, and Ivan Marinovic. 2020. "Disclosure processing costs, investors' information choice, and equity market outcomes: A review." *Journal of Accounting and Economics* 70, no. 2-3: 1-46.

Blankespoor, Elizabeth, Ed deHaan, and Christina Zhu. 2018. "Capital market effects of media synthesis and dissemination: Evidence from robo-journalism." *Review of Accounting Studies* 23, no. 1: 1-36.

Bloom, Nicholas, Renata Lemons, Raffaella Sadun, Danuela Scur, and John Van Reenen. 2016. "International data on measuring management practices." *American Economic Review* 106, no. 5: 152-156.

Bloomfield, Robert J. 2012. "A pragmatic approach to more efficient corporate disclosure." *Accounting Horizons* 26, no. 2: 357-370.

Bloomfield, Robert J., Mark W. Nelson, and Eugene F. Soltes. 2016. "Gathering data for archival, field, survey, and experimental accounting research." *Journal of Accounting Research* 54, no. 2: 341-395.

Bozanic, Zahn, Preeti Choudhary, and Kenneth J. Merkley. 2016. "Securities law expertise and corporate disclosure." Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2662096.

Brown, Lawrence D., Andrew C. Call, Michael B. Clement, and Nathan Y. Sharp. 2015. "Inside the "black box" of sell-side financial analysts." *Journal of Accounting Research* 53, no. 1: 1-47.

Brown, Lawrence D., Andrew C. Call, Michael B. Clement, and Nathan Y. Sharp. 2019. "Managing the narrative: Investor relations officers and corporate disclosure." *Journal of Accounting and Economics* 67, no. 1: 58-79.

Brown, Stephen V., and Jennifer W. Tucker. 2011. "Large-sample evidence on firms' year-over-year MD&A modifications." *Journal of Accounting Research* 49, no. 2: 309-346.

Bushee, Brian J., Ian D. Gow, and Daniel J. Taylor. 2018. "Linguistic complexity in firm disclosures: obfuscation or information?" *Journal of Accounting Research* 56, no. 1: 85-121.

Capitol Retail Report. 2010. "Alabama enacts ethics reform." Alabama Retail Association, last modified December 22, 2010. https://alabamaretail.org/wp-content/uploads/20101222SpecialSessionSummary.pdf.

Christensen, Hans B., Eric Floyd, Lisa Yao Liu, and Mark Maffett. 2017. "The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records." *Journal of Accounting and Economics* 64, no. 2-3: 284-304.

Cohen, Lauren, Chris Malloy, and Quoc Nguyen. 2016. "Lazy prices." Harvard Business School Working Paper.

Cordis, Adriana S., and Jeffrey Milyo. 2013. "Do state campaign finance reforms reduce public corruption?" Department of Economics, University of Missouri-Columbia.

Cordis, Adriana S., and Jeffrey Milyo. 2016. "Measuring public corruption in the United States: Evidence from administrative records of federal prosecutions." *Public Integrity* 18, no. 2: 127-148.

Cordis, Adriana S., and Patrick L. Warren. 2014. "Sunshine as disinfectant: The effect of state Freedom of Information Act laws on public corruption." *Journal of Public Economics* 115: 18-36.

Crider, Kayla, and Jeffrey Milyo. 2013. "Do state ethics commissions reduce political corruption: An exploratory investigation." *UC Irvine Law Review* 3, no. 3: 717-733.

Department of Justice (DOJ). 2015. "U.S. v. Sheldon Silver indictment." Last modified February 19, 2015. https://www.justice.gov/usao-sdny/pr/us-v-sheldon-silver-indictment.

Department of Justice (DOJ). 2017a. "U.S. v. Rufus Seth Williams indictment." Last modified March 21, 2017. https://www.justice.gov/usao-nj/press-release/file/950406/download.

Department of Justice (DOJ). 2017b. "U.S. Attorneys: About." Last modified April 6, 2017. https://www.justice.gov/usao/about-offices-united-states-attorneys.

DiBiagio, Thomas M. 2020. "Public corruption prosecutions as financial crimes under federal criminal law: Targeting the illicit use and misuse of public assets and resources." *American Criminal Law Review* 57: 233-274.

Dichev, Ilia D., John R. Graham, Campbell R. Harvey, and Shiva Rajgopal. 2013. "Earnings quality: Evidence from the field." *Journal of Accounting and Economics* 56, no. 2-3: 1-33.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2010. "Disclosure by politicians." *American Economic Journal: Applied Economics* 2, no. 2: 179-209.

Duro, Miguel, Jonas Heese, and Gaizka Ormazabal. 2019. "The effect of enforcement transparency: Evidence from SEC comment-letter reviews." *Review of Accounting Studies* 24, no. 3: 780-823.

Federal Bureau of Investigation. n.d. "Field offices." Accessed December 2019. https://www.fbi.gov/contact-us/field-offices.

Faccio, Mara. 2006. "Politically connected firms." *American Economic Review* 96, no. 1: 369-386.

Faccio, Mara, Ronald W. Masulis, and John J. McConnell. 2006. "Political connections and corporate bailouts." *The Journal of Finance* 61, no. 6: 2597-2635.

Flynn, Sean Joseph. 2017. "Debt structure and future financing and investment." Doctoral dissertation, Arizona State University.

Fung, Archon, Mary Graham, and David Weil. 2007. *Full disclosure: The perils and promise of transparency*. New York: Cambridge University Press.

Gao, Pengjie, Chang Lee, and Dermot Murphy. 2020. "Financing dies in darkness? The impact of newspaper closures on public finance." *Journal of Financial Economics* 135, no. 2: 445-467.

Giroud, Xavier, and Joshua Rauh. 2019. "State taxation and the reallocation of business activity: Evidence from establishment-level data." *Journal of Political Economy* 127, no. 3: 1262-1316.

Glaeser, Edward L., and Raven E. Saks. 2006. "Corruption in America." *Journal of Public Economics* 90, no. 6-7: 1053-1072.

Glewwe, Paul, Phillip H. Ross, and Bruce Wydick. "Developing hope among impoverished children using child self-portraits to measure poverty program impacts." *Journal of Human Resources* 53, no. 2 (2018): 330-355.

Godwin, Becca. 2016. "Late-night ethics change weakens government transparency in Ga." *Atlanta Journal-Constitution*, September 3, 2016. https://www.ajc.com/news/state--regional-govt--politics/late-night-ethics-change-weakens-government-transparency/a8b537yOGsEdnFEu0MH7NK/.

Goldman, Eitan, Jörg Rocholl, and Jongil So. 2013. "Politically connected boards of directors and the allocation of procurement contracts." *Review of Finance* 17, no. 5: 1617-1648.

Graham, John R., Campbell R. Harvey, and Manju Puri. 2017. "A corporate beauty contest." *Management Science* 63, no. 9: 3044-3056.

Graham, John R., Campbell R. Harvey, and Shiva Rajgopal. 2005. "The economic implications of corporate financial reporting." *Journal of Accounting and Economics* 40, no. 1-3: 3-73.

Graham, Benjamin A.T., Michael K. Miller, and Kaare W. Strom. 2017. "Safeguarding democracy: Powersharing and democratic survival." *American Political Science Review* 111, no. 4: 686-704.

Habershon, Alexandra, and Stephanie Trapnell. 2012. *Public office, private interests: Accountability through income and asset disclosure*. Washington, D.C.: The World Bank.

Healy, Paul M., and Krishna G. Palepu. 2001. "Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature." *Journal of Accounting and Economics* 31, no.1-3: 405-440.

Henry, Elaine. 2008. "Are investors influenced by how earnings press releases are written?" *Journal of Business Communication* 45, no. 4: 363-407.

Hobson, Jessen L., William. J. Mayew, and Mohan Venkatachalam. 2012. "Analyzing speech to detect financial misreporting." *Journal of Accounting Research* 51, no. 2: 349-392.

Hollander, Stephan, Maarten Pronk, and Erik Roelofsen. 2010. "Does silence speak? An empirical analysis of disclosure choices during conference calls." *Journal of Accounting Research* 48, no. 3: 531-563.

Hopkins, Justin J., Edward L. Maydew, and Mohan Venkatachalam. 2015. "Corporate general counsel and financial reporting quality." *Management Science* 61, no. 1: 129-145.

International Monetary Fund (IMF). n.d. "Tackling corruption: financial disclosure systems for public officials." Accessed December 2019. https://imfilab.brightidea.com/ct/j.bix?c=8746D5CB-E6CB-11E9-8AD2-0E86B03ECB0E.

J.P. Morgan. 2017. "IR best practices guide." Available at: https://www.adr.com/Content/Documents/2017_IR_Best_Practices.pdf.

Lambert, Richard A. 1986. "Executive effort and selection of risky projects." *The RAND Journal of Economics*: 77-88.

Larker, David F., and Anastasia A. Zakolyukina. 2012. "Detecting deceptive discussions in conference calls." *Journal of Accounting Research* 50, no. 2: 495-540.

Lee, Joshua. 2016. "Can investors detect managers' lack of spontaneity? Adherence to predetermined scripts during earnings conference calls." *The Accounting Review* 91, no.1: 229-250.

Lehavy, Reuven, Feng Li, and Kenneth Merkley. 2011. "The effect of annual report readability on analyst following and the properties of their earnings forecasts." *The Accounting Review* 86, no. 3: 1087-1115.

Li, Feng. 2010. "Textual analysis of corporate disclosures: a survey of the literature." *Journal of Accounting Literature* 29: 143-165.

Li, Feng, Michael Minnis, Venky Nagar, and Madhav Rajan. 2014. "Knowledge, compensation, and firm value: an empirical analysis of firm communication." *Journal of Accounting and Economics* 58: 96-116.

Leuz, Christian, and Peter D. Wysocki. 2016. "The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research." *Journal of Accounting Research* 54, no. 2: 525-622.

Loewenstein, George, Daylian M. Cain, and Sunita Sah. 2011. "The limits of transparency: Pitfalls and potential of disclosing conflicts of interest." *American Economic Review: Papers and Proceedings* 101, no. 3: 423-428.

Loughran, Tim, and Bill McDonald. 2016. “Textual analysis in accounting and finance: a survey.” *Journal of Accounting Research* 54, no. 4: 1187-1230.

Matsumoto, Dawn, Maarten Pronk, and Erik Roelofsen. 2011. “What makes conference calls useful? The information content of managers’ presentations and analysts’ discussion sessions.” *The Accounting Review* 86, no. 4: 1283-1414.

Mayew, William J., and Mohan Venkatachalam. 2012. “The power of voice: managerial affective states and future firm performance.” *The Journal of Finance* 67, no. 1: 1-43.

McNeal, Ramona S., and Kathleen Hale. 2010. “E-disclosure of campaign finance information: Divergent interests in the states.” *Journal of Information Technology & Politics* 7, no. 1: 52-66.

McNeal, Ramona S., Caroline J. Tolbert, Karen Mossberger, and Lisa J. Dotterweich. 2003. “Innovating in digital government in the American states.” *Social Science Quarterly* 84, no. 1: 52-70.

Mehta, Mihir N., Suraj Srinivasan, and Wanli Zhao. 2020. “The politics of M&A antitrust.” *Journal of Accounting Research* 58, no. 1: 5-53.

Neil, Martha. 2009. “Lawyer told now-convicted former lawmaker Joseph Bruno to avoid fraud charges by avoiding mail.” *ABA Journal*, December 7, 2009. https://www.abajournal.com/news/article/lawyer_told_convicted_ex-lawmaker_to_avoid_fraud_charges_by_avoiding_mail.

National Conference of State Legislatures (NCSL). 2017. “Full- and part-time legislatures.” Last modified June 14, 2017. https://www.ncsl.org/research/about-state-legislatures/full-and-part-time-legislatures.aspx.

National Conference of State Legislatures (NCSL). 2019. “Legislators financial disclosures: Income.” Last modified September 30, 2019. www.ncsl.org/research/ethics/financial-disclosure-for-legislators-income.aspx.

Oster, Emily. 2017. “Unobservable selection and coefficient stability: Theory and evidence.” *Journal of Business & Economic Statistics* 37, no. 2: 187-204.

Park, Jihwon, and Eugene F. Soltes. 2018. “What do investors ask managers privately?” *Harvard Business School Working Paper*. Available at https://ssrn.com/abstract=3087369.

Porter, Michael E., and Nitin Nohria. 2018. “How CEOs manage time. Harvard Business Review.” Available at: https://hbr.org/2018/07/the-leaders-calendar.

Roebuck, Jeremy. 2017. “The federal case against Seth Williams explained.” *Philadelphia Inquirer*, June 19, 2017. https://www.inquirer.com/philly/news/crime/seth-williams-corruption-trial-explainer-20170619.html.

Rogers, Jonathan L., and Andrew Van Buskirk. 2009. "Shareholder litigation and changes in disclosure behavior." *Journal of Accounting and Economics* 47, no. 1-2: 136-156.

Rogers, Jonathan L., Andrew Van Buskirk, and Sarah L. C. Zechman. 2011. "Disclosure tone and shareholder litigation." *The Accounting Review* 86, no. 6: 2155-2183.

Romer, Christina D., and David H. Romer. 2010. "The macroeconomic effects of tax changes: estimates based on a new measure of fiscal shocks." *American Economic Review* 100, no. 3: 763-801.

Schrand, Catherine M, and Sarah L.C. Zechman. 2012. "Executive overconfidence and the slippery slope to financial misreporting." *Journal of Accounting and Economics* 53, no. 1-2: 311-329.

Simons, Robert. 2010. "Accountability and control as catalysts for strategic exploration and exploitation: Field study results." *Harvard Business School Working Paper*.

Soltes, Eugene F. 2014. "Incorporating field data into archival research." *Journal of Accounting Research* 52, no. 2: 521-540.

Soltes, Eugene F. 2016. *Why they do it: Inside the mind of the white-collar criminal*. New York: PublicAffairs.

State of Alabama Ethics Commission. 2009. "Annual report: Fiscal year 2008-2009." Accessed December 2019. http://ethics.alabama.gov/news/annual_report_2009.pdf.

State of Alabama Ethics Commission. 2010. "Annual report: Fiscal year 2009-2010." Accessed December 2019. http://ethics.alabama.gov/news/2010EthicsCommAnnRpt.pdf.

Szakonyi, David. 2018. "Indecent disclosures: Anti-corruption campaigns and political selection." Available at SSRN 3101123.

Tahoun, Ahmed, and Florin P. Vasvari. 2019. "Political lending." *Institute for New Economic Thinking Working Paper Series* 47.

Tolbert, Caroline J., Karen Mossberger, and Ramona S. McNeal. 2008. "Institutions, policy innovation, and E-Government in the American States." *Public administration review* 68, no. 3: 549-563.

Transactional Records Access Clearinghouse (TRAC). 2011. "Federal prosecutor data." Last modified March 11, 2011. https://trac.syr.edu/data/jus/eousaData.html.

UNC Center for Innovation and Sustainability in Local Media Database of Newspapers. n.d. Last modified 2021. https://www.usnewsdeserts.com/.

Walsh, A. 2017. “Financial Guidance on the Rise.” *IR Update*: 16-20.

Weiser, Benjamin and Susanne Craig. 2015. “Sheldon Silver, ex-New York Assembly Speaker, is found guilty on all counts.” *New York Times*, Nov. 30, 2015. https://www.nytimes.com/2015/12/01/nyregion/sheldon-silver-guilty-corruption-trial.html.

Weiser, Benjamin and Jesse McKinley. 2020. “Sheldon Silver, former N.Y. Assembly Speaker, will finally go to prison.” *New York Times*, July 20, 2020. https://www.nytimes.com/2020/07/20/nyregion/sheldon-silver-sentencing-prison.html.

White, Liz Essley. 2017. “Conflicted interests: State lawmakers often blur the line between the public’s business and their own.” Center for Public Integrity. Last modified October 26, 2018. https://publicintegrity.org/state-politics/conflicted-interests-state-lawmakers-often-blur-the-line-between-the-publics-business-and-their-own/.

Wihbey, John, and Mike Beaudet. 2016. “Transparency, corruption, and the information needs of communities: The case of personal financial disclosure.” *Northeastern University School of Law Research Paper* 278-2016.

APPENDIX A

Stylized model

Prop. 1. Referral volume is higher under "online disclosure" than "request disclosure."

In my model, an investigator decides whether to refer a lead. Not referring will generate payoff U_O with certainty. Referring the lead will either generate a high payoff $U_H > U_O$ or low payoff $U_L < U_O$. High payoff (U_H) represents the net benefit of a successful referral that leads to prosecution. The low payoff (U_L) captures the cost of referring a lead to the USAO that does not result in prosecution. Before making a referral, investigators can seek additional information about the quality of the lead—that is, the posterior probability of U_H occurring after making a referral—via official PFD. If the investigator blindly refers leads absent any additional information, then U_H occurs with probability .5.[1]

The investigator's decision problem is akin to the decision of the executive in Lambert 1986, who seeks additional information when choosing between a safe project (no referral) and a risky project (referral). Following Lambert, I model the additional information signal as r, representing the posterior probability of U_H occurring if the investigator refers the lead. The posterior probability r is uniformly distributed between 0 and 1. In other words, there exists a continuum of potential corruption leads which are characterized by $r \sim U$ [0, 1]. Observing r —obtaining information from the PFD—means that investigators will have better information about whether a corruption lead is valuable and ought to be prosecuted. Finally, I denote a threshold value $\hat{r}$ at which the investigator will refer a lead if $r > \hat{r}$ and not refer if $r < \hat{r}$. Figure A-1 summarizes this scheme.

I consider two alternative information regimes by which a social planner can make official PFD—that is, the additional information r—available to investigators.[2] First, the social planner can decide to make r *publicly observable* through online PFD ("online disclosure"). However, online disclosure imposes a social cost c which represents the lost privacy of public officials. Second, the social planner can make r *privately observable* to the investigator through a formal request or subpoena ("request disclosure"). The request disclosure regime imposes investigation frictions for investigators when PFD is only available by request or subpoena from the government. More specifically, the frictions reduce the posterior probability r of a successful referral by some constant δ.

In the "online disclosure" regime, for a given lead the investigator publicly observes r and decides whether to refer the lead for prosecution. To find the optimal threshold value $\hat{r}$ under "online disclosure," I solve the investigator's maximization problem given below:

$$\max_{\hat{r}} \quad U_O p_O(\hat{r}) + U_L p_L(\hat{r}) + U_H p_H(\hat{r}) \tag{1}$$

[1] I further assume $U_O > .5\ (U_H + U_L)$ such that the investigator will always prefer to view PFD than not view PFD. This is because not viewing PFD will generate a payoff of at *most* U_O for the investigator whereas referring after viewing PFD will generate a payoff of at *least* U_O for the investigator.

[2] I assume investigators act on behalf of the public, and therefore do not require a principal to incentivize them to seek information. Hence, the effort cost of observing r will be normalized to zero under online disclosure.

The investigator's expected payoff is a function of the three potential payoffs (U_O,U_L,U_H) and the probabilities of those respective payoffs occurring (p_O,p_L,p_H) which are functions of $\hat{r}$. Given the uniform distribution of r, I infer:

$$\begin{cases} p_O(\hat{r}) = \hat{r} \\ p_L(\hat{r}) = 0.5(1-\hat{r})^2 \\ p_H(\hat{r}) = 0.5(1-\hat{r}^2) \end{cases} \quad (2)$$

Substituting these expressions into the investigator's maximization problem (1) and solving for $\hat{r}$ yields the following expression for the optimal referral threshold r^*_{OD} under the "online disclosure" regime. The second-order condition confirms that r^*_{OD} is a maximum.

$$r^*_{OD} = \frac{U_O - U_L}{U_H - U_L} \quad (3)$$

Conversely, in the "request disclosure" regime, investigators absorb an information friction penalty if they choose to seek information about r. If the investigator chooses to refer a lead, the probability of U_H occurring is lowered by a friction penalty $\delta \in (0, \frac{U_H - U_O}{U_H - U_L})$. Thus, this penalty modifies the probabilities of the high and low payoffs occurring, as demonstrated below:

$$\begin{cases} p_O(\hat{r}) = \hat{r} \\ p_L(\hat{r}) = 0.5(1-\hat{r})^2 + (1-\hat{r})\delta \\ p_H(\hat{r}) = 0.5(1-\hat{r}^2) - (1-\hat{r})\delta \end{cases} \quad (4)$$

Substituting these new expressions into the investigator's maximization problem (1) and solving for $\hat{r}$ yields the following optimal referral threshold r^*_{RD} under the "request disclosure" regime:

$$r^*_{RD} = \frac{U_O - U_L}{U_H - U_L} + \delta \quad (5)$$

Again, the second-order condition confirms that r^*_{RD} is a maximum. Comparing the threshold across both regimes demonstrates that the threshold for making a referral under the "request disclosure" regime has increased by the friction cost δ.[3] In other words,

$$r^*_{RD} = r^*_{OD} + \delta \quad (6)$$

Because the threshold for referring leads is higher in the request disclosure regime than in the online disclosure regime, this ought to produce a higher volume of referrals under online disclosure than under request disclosure (**H1**).

[3] Note that $\delta \in (0, \frac{U_H - U_O}{U_H - U_L})$ implies that $r^*_{RD} \in (r^*_{OD}, 1)$. If δ = 0, then the optimal cutoff is identical under "request disclosure" and "online disclosure." If δ = $\frac{U_H - U_O}{U_H - U_L}$, then it is optimal for the investigator to never make a referral regardless of the observed r. In this case, the information friction costs are so high that the investigator will always prefer to receive payoff U_O for certain and will never make a referral. Thus, $\frac{U_H - U_O}{U_H - U_L}$ defines the upward bound of δ.

Prop 2. Conditional on referral, leads under "online disclosure" have a higher prosecution probability than those under "request disclosure."

Next, I show that referrals under online disclosure have a higher probability of prosecution than those under request disclosure. That is, I wish to compare whether the probability of U_H occurring, conditional on the investigator making a referral, is greater under the "online disclosure" than "request disclosure" regime. To see this, recall that under the "online disclosure" regime investigators make referrals if $r > r^*_{OD}$, whereas under the "request referral" regime they make referrals if $r > r^*_{RD}$. We thus need to check whether:

$$\mathrm{E}[\,r \mid r > r^*_{OD}\,] >^{?} \mathrm{E}[\,r \mid r > r^*_{RD}\,] - \delta \tag{7}$$

$$\Leftrightarrow 0.5(1 + r^*_{OD}) >^{?} 0.5(1 + r^*_{RD}) - \delta \tag{8}$$

$$\Leftrightarrow \delta >^{?} 0 \tag{9}$$

By definition, $\delta > 0$ is true. This establishes that, conditional on referral, the probability of leads resulting in prosecution is higher under the "online disclosure" regime compared to the "request disclosure" regime (**H2**).[4]

Prop. 3. "Online disclosure" may be socially optimal compared to "request disclosure" depending on information friction (δ) and privacy costs (c).

Finally, I consider the conditions under which online disclosure may be *socially* optimal compared to request disclosure. I compare the total expected payoff under open and request disclosure, considering the privacy cost c that is incurred under online disclosure. Recall that the information friction cost δ is already incorporated in the calculation of r^*_{RD}.

Online disclosure is then socially optimal if:

$$p_O(r^*_{OD})U_O + p_L(r^*_{OD})U_L + p_H(r^*_{OD})U_H - c > p_O(r^*_{RD})U_O + p_L(r^*_{RD})U_L + p_H(r^*_{RD})U_H \tag{10}$$

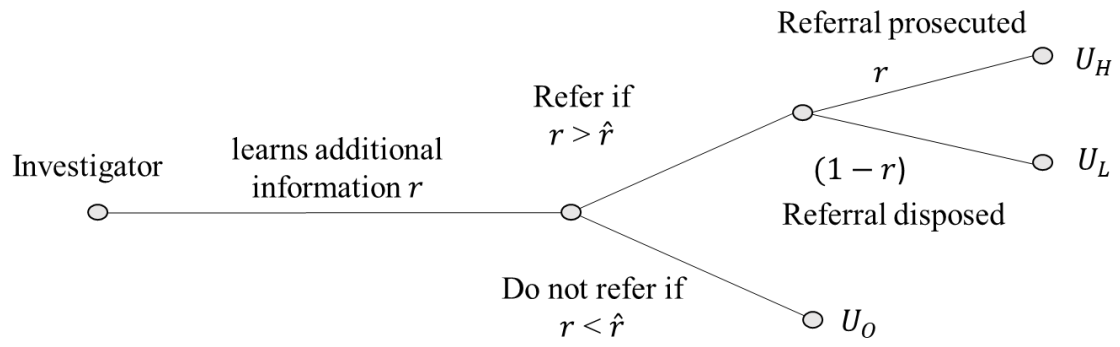
Substituting our expressions for r^*_{OD} and r^*_{RD} and simplifying results in the following condition:

$$c < (U_H - U_O)\delta - .5(U_H - U_L)\delta^2 \tag{11}$$

Taking the derivative of the right-hand side of the inequality with respect to δ results in the following expression: $(U_H - U_O) - (U_H - U_L)\delta$. This derivative is positive if $\delta < \frac{U_H - U_O}{U_H - U_L}$, which holds by definition of δ. This implies that the right-hand side of inequality (11) is growing with δ. Hence, inequality (10) is likely to hold and online disclosure be socially optimal if privacy costs c are relatively small, and information friction costs δ are relatively high.

[4] Under alternate assumptions for the distribution of r, this prediction could go in the opposite direction. Testing H2 is ultimately an empirical question, as addressed in the main paper.

Figure A-1. Investigator's decision tree



APPENDIX B

PFD treatment dates and links

Note: All websites were accessed in December 2019.

State	***Form name***	***Associated oversight body***	***Searchable web link***	***Web link includes disclosures for:***		***Earliest date of web link for:***	
				State	*Local*	*State*	*Local*
Alabama	Statement of Economic Interests	Alabama Ethics Commission	http://ethics.alabama.gov/Search/PublicOfficialEmployeeSearch.aspx	x	x	2012	2012
Alaska	Public Official Financial Disclosure (POFD), Legislative Financial Disclosure (LFD)	Alaska Committee on Legislative Ethics	https://aws.state.ak.us/ApocReports/POFD/	x	N/A	2013	N/A
Arizona	Financial Disclosure Statement	N/A	https://azsos.gov/elections/campaign-finance-reporting/financial-disclosure-statements	x	N/A	2016	N/A
Arkansas	Statement of Financial Interest	Arkansas Ethics Commission	http://www.sos.arkansas.gov/filing_search/index.php/filing/search/new	x	x	2005	2005
California	Statement of Economic Interests, Form 700	California Fair Political Practices Commission	http://www.fppc.ca.gov/transparency/form-700-filed-by-public-officials/form700-search/form700-old.html	x	x	2012	2012
Colorado	Personal Financial Disclosure	Colorado Independent Ethics Commission	http://www.sos.state.co.us/	N/A	N/A	N/A	N/A
Connecticut	Statement of Financial Interests	Connecticut Office of State Ethics	http://www.ct.gov/ethics/cwp/view.asp?a=3510&q=416556	N/A	N/A	N/A	N/A
Delaware	Financial Disclosure Report	Delaware Public Integrity Commission	http://sos.delaware.gov/foia_requests.shtml	N/A	N/A	N/A	N/A
D.C.	Public Financial Disclosure Statement	District of Columbia Board of Ethics and Government Accountability	https://ocf.dc.gov/service/archived-financial-disclosure-statements	x	x	2015	2015
Florida	Full and Public Disclosure of Financial Interests (Form 6)	Florida Commission on Ethics	http://public.ethics.state.fl.us/search.cfm	x	x	2006	2006
Georgia	Financial Disclosure Statement	Georgia State Ethics Commission	http://media.ethics.ga.gov/search/Financial/Financial_ByName.aspx	x	x	2006	2008
Hawaii	Disclosure of Financial Interests	Hawaii State Ethics Commission	http://ethics.hawaii.gov/alldisc/	x	N/A	2014	N/A

Idaho	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Illinois	Statement of Economic Interests	Illinois Secretary of State	http://www.ilsos.gov/economicinterest/economicinterest	x	N/A	2004	N/A
Indiana	Financial Disclosure Statement	Indiana State Ethics Commission	http://campaignfinance.in.gov/PublicSite/Search.aspx	N/A	N/A	N/A	N/A
Iowa	Personal Financial Disclosure form (Legislators and Candidates)	Iowa Ethics & Campaign Disclosure Board	https://www.legis.iowa.gov/legislators/informationOnLegislators/econInterests	x	N/A	2017	N/A
Kansas	Statement of Substantial Interest	Kansas Governmental Ethics Commission	https://www.sos.ks.gov/elections/ssi/examiner_entry.aspx	x	N/A	2015	N/A
Kentucky	Statement of Financial Disclosure	Kentucky Legislative Ethics Commission	http://klec.ky.gov/Reports/Pages/Legislators-and-Candidates.aspx	x	N/A	2000	N/A
Louisiana	Financial Disclosure Statement	Louisiana Ethics Administration	http://ethics.la.gov/PFDisclosure/DisclosureSearch.aspx	x	x	2011	2011
Maine	Financial Disclosure Statement	Maine Commission on Governmental Ethics & Election Practices	https://www.maine.gov/ethics/legislators/disclosure	x	N/A	2006	N/A
Maryland*	Financial Disclosure Statement	Maryland State Ethics Commission	http://ethics.maryland.gov/employeeoffcials/financial-disclosure/	N/A	N/A	N/A	N/A
Massachu-setts	Statement of Financial Interests	Massachusetts Ethics Commission	https://www.mass.gov/how-to/public-inspection-of-sfis	x	x	2017	2017
Michigan	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Minnesota	Statement of Economic Interest (Senators and House of Representatives Members)	Minnesota Campaign Finance and Public Disclosure Board	http://www.cfboard.state.mn.us/eis/poatoz.html	x	x	2000	2000
Mississippi	Statement of Economic Interest	Mississippi Ethics Commission	http://www.ethics.state.ms.us/	x	x	2008	2011
Missouri	Personal Financial Disclosure	Missouri Ethics Commission	http://mec.mo.gov/mec/PFD/Home.aspx	N/A	N/A	N/A	N/A
Montana	Form D-1 Business Disclosure Statement	Montana Commissioner of Political Practices	https://campaignreport.mt.gov/forms/candidatesearch.jsp	x	N/A	2007	N/A
Nebraska	Form C-1	Nebraska Accountability & Disclosure Commission	http://www.nadc.nebraska.gov/ccdb/search.cgi	x	x	2014	2014

Nevada	Financial Disclosure Statement	Nevada Commission on Ethics	https://www.nvsos.gov/SOSCandidateServices/AnonymousAccess/CEFDSearchUU/Search.aspx#individual_search	x	x	2014	2014
New Hampshire	Financial Disclosure Form	New Hampshire Attorney General's Office	https://sos.nh.gov/FinInterest.aspx	x	x	2012	2012
New Jersey	Financial Disclosure Statement	Joint Legislative Committee on Ethical Standards	https://www.njleg.state.nj.us/ethics/FinanceDiscloseForms.asp	x	N/A	2005	N/A
New Mexico	Financial Disclosure Statement	N/A	https://portal.sos.state.nm.us/FinancialDisclosure/search.aspx	x	N/A	2017	N/A
New York	Financial Disclosure Statement	New York State Commission on Public Integrity	https://www.jcope.ny.gov/financial-disclosure-statements-elected-officials	x	N/A	2011	N/A
North Carolina	Statement of Economic Interest	North Carolina State Ethics Commission	https://ethics.ncsbe.gov/	x	N/A	2017	N/A
North Dakota	Statement of Interests, required for candidates	N/A	https://www2.jlec-olig.state.oh.us/fds/ReportsSearch.aspx	N/A	N/A	N/A	N/A
Ohio	Financial Disclosure Statement	Ohio Ethics Commission	https://www2.jlec-olig.state.oh.us/fds/ReportsSearch.aspx	x	N/A	1998	N/A
Oklahoma	Financial Disclosure Statement	Oklahoma Ethics Commission	http://guardian.ok.gov/	N/A	N/A	N/A	N/A
Oregon	Financial Disclosure Statement	Oregon Government Ethics Commission	https://apps.oregon.gov/OGEC/EFS/Records	x	x	2016	2016
Pennsylvan-ia	Financial Interest Form	Pennsylvania Ethics Commission	http://www.ethicsrulings.state.pa.us/	x	x	2009	2009
Rhode Island	Financial Disclosure Statement	Rhode Island Ethics Commission	http://www.ethics.ri.gov/disclosure/	N/A	N/A	N/A	N/A
South Carolina	Statement of Economic Interest	South Carolina State Ethics Commission	http://apps.sc.gov/PublicReporting/IndSEI.aspx	x	x	2008	2008
South Dakota	Statement of Economic Interest	N/A	https://sdsos.gov/general-information/executive-actions/oaths-of-office/search/	x	N/A	2016	N/A

Tennessee	Statement of Disclosure of Interests	Tennessee Ethics Commission	https://apps.tn.gov/conflict-app/search.htm	x	x	2011	2011
Texas	Personal Financial Statement	Texas Ethics Commission	https://www.ethics.state.tx.us/filinginfo/pfsforms_ins.html	N/A	N/A	N/A	N/A
Utah	Conflict of Interest Financial Disclosure	Utah Office of the Lieutenant Governor	https://house.utah.gov/conflict-disclosures/	x	N/A	2014	N/A
Vermont	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Virginia	Financial Disclosure Statement	Virginia Conflict of Interest and Ethics Advisory Council	http://ethicssearch.dls.virginia.gov/#tabs1-conflict	x	N/A	2016	N/A
Washington	Personal Financial Affairs Statement	Washington Public Disclosure Commission	https://www.pdc.wa.gov/browse/campaign-explorer	N/A	N/A	N/A	N/A
West Virginia	Financial Disclosure Statement	West Virginia Ethics Commission	http://www.ethics.wv.gov/pages/financialdisclosuresearch.aspx	x	N/A	2013	N/A
Wisconsin	Statement of Economic Interests	Wisconsin Government Accountability Board	https://sei.wi.gov/	N/A	N/A	N/A	N/A
Wyoming	State Elected Officials Financial Disclosure	N/A	http://soswy.state.wy.us/Elections/Ethics.aspx	N/A	N/A	N/A	N/A

*According to its current website, Maryland began offering online PFD in 2019. However, it is unclear from the Wayback Machine at which point these disclosures became publicly accessible. Maryland is not included in the empirical analyses of this paper as its potential adoption year (2019) falls outside the sample period.

APPENDIX C

Efficiency and corruption-motivated adoption classification

In Table 1.1, I classify U.S. states by (A) the motivation behind online PFD (efficiency versus corruption motivations) and (B) the level of officeholder responsible for filing PFD (local versus state officials). In this appendix, I explain how I approach these classification decisions.

(A) First, I classify states according to the underlying motivations behind PFD adoption using field interviews. I categorize adopter states into two buckets: (1) *efficiency-motivated* where adoption is driven by upgrade or modernization needs and (2) *corruption-motivated* where adoption is driven explicitly by public corruption concerns.

I begin by conducting interviews of state offices which make online PFD available. These interviews took place in spring 2020 and lasted about thirty minutes each. Interviews consisted of the following questions:

1. *Please describe the history of your offices' financial disclosure system for public officials. For example, how long has the current financial disclosure system been in place?*
2. *What were the reasons which led to your office releasing the personal financial disclosures online?*
3. *Did your office receive any significant support or pushback surrounding the decision to put the disclosures online?*
4. *What constituencies consume personal financial disclosures?*
5. *What role does financial disclosure play in your office's mission of promoting ethics in public office?*

Based on interview responses, I identified four key motivations which support efficiency-motivated adoption:

(1) *Convenience and modernization* – desire to digitize PFD as effort to modernize office practices and embrace technological change
(2) *Desire to 'practice what you preach'* – desire to promote ethical behavior and transparency among constituents by practicing openness and transparency as an office
(3) *Cost savings* – desire to reduce wear on tangible resources (i.e. office machinery, paper, costs of staff pay and postage) and/or intangible resources (i.e. staff time and effort)
(4) *Voluntary/office-led initiative* – desire to adopt online PFD driven by internal office demand rather than top-down rules imposed by state government

Conversely, corruption-motivated adoptions included the following:

(1) *Comprehensive ethics reform bill or legislation* – online PFD adopted as a result of a comprehensive change in ethics law, possibly coinciding with the creation of state ethics regulatory agencies
(2) *Wide-ranging amendment to existing legislation* – online PFD adopted as a result of a major overhaul or significant amendment to existing state ethics laws
(3) *Recent history of public corruption scandals* – online PFD adopted as a result of concerns related to recent public corruption scandals or public ethics lawsuits

(4) *Involuntary/government-led initiative* – desire to adopt online PFD driven by demands outside of the office (i.e. state government requirements or involvement)

Next, I classified the reasons cited in each interview according to the four key motivations in both the efficiency and corruption motivation buckets. In Table C-1, I articulate these motivations and tabulate the frequency each motivation was cited through my interviews, broken out by their classification group. (Note that one state interview may cite multiple reasons for online PFD adoption).

Table C-1. Frequency count for reported online PFD adoption motivations

		Efficiency adopters		*Corruption adopters*	
	Motivation	*Local*	*State*	*Local*	*State*
Efficiency motivations	1. Convenience and modernization	*5*	*15*	*0*	*0*
	2. Desire to "practice what you preach"	*2*	*6*	*2*	*2*
	3. Cost savings	*2*	*9*	*0*	*1*
	4. Voluntary/office-led initiative	*2*	*9*	*1*	*2*
Corruption motivations	1. Comprehensive ethics reform	*0*	*0*	*1*	*3*
	2. Wide-ranging amendment to existing	*0*	*0*	*3*	*5*
	3. Recent history of public corruption	*0*	*0*	*3*	*5*
	4. Involuntary/government-led initiative	*0**	*0**	*4*	*8*

*Note: For local (n=1) and state (n=4) efficiency-motivated adopters there were instances where the adoption was initiated by the office responsible for PFD, but the office collaborated with the state government in the effort to put PFD online. If a plausibly efficiency-motivated adoption resulted in a legislative rule-change, I ensured a lag time of at least three years between the rule-change and the online availability of PFD.

The resulting table shows the most commonly cited reason for efficiency-motivated adoption of online PFD for both local and state PFD was "convenience and modernization," followed by "cost savings" and "voluntary/office-led initiative." Among corruption-motivated adopters, the most common reasons for online PFD adoption were "involuntary/government-led initiative," "wide-ranging amendment to existing ethics legislation" and "recent history of public corruption scandals."

There were several instances where interviews resulted in ambiguous or unclear classifications. For example, two states did not reply to requests for interview (Alabama and New Mexico).[1] In these cases, I referred to secondary sources to confirm the reasons behind online PFD adoption.

[1] I illustrate this process for the non-responder states. In Alabama, Act 2010-762 (sponsored by State Representative Paul DeMarco) required the State Ethics Commission to create a publicly accessible, online, searchable database of financial disclosures by April 2012. According to media coverage, the law was part of a package of anti-corruption measures encouraged by the outgoing governor (Capitol Retail Report 2010). Moreover, according to the requests to access statement of economic interest (SEI) forms surged from 857 in 2009 to 1,817 in 2010, about two years prior to the online database going live (Alabama Ethics Commission 2009-2010). For these reasons, Alabama was classified as a corruption-motivated adopter as it appears that the adoption was part of a wide-ranging reform to state ethics laws.

In New Mexico, the reasons behind implementation were more ambiguous. In an interview with the Secretary of State Mary Tolouse, she describes enacting "rules to shine a light on dark money and put elected officials' financial disclosure forms online" (Albuquerque Journal 2019). However, since the underlying motivations behind these policy changes is unclear from this secondary source interview, I conservatively classify New Mexico as a corruption-motivated adopter.

These sources included: historical annual reports, minutes or other office publications available on state office websites, legislative history notes from WestLaw, media coverage, and historical office website via the Wayback Machine.

As noted in the paper, if online adoption dates conflicted between interviews and the Wayback Machine, I deferred to the date cited in the interview. The reasoning behind this choice is that using the Wayback Machine to determine when PFD are available is biased towards later years because it uses *current* PFD website links as its input. It is possible—and consistent with interview responses—that PFD were available online earlier using an older version of the office's website which is currently inactive. Another concern may be that the interviewer conflated online PFD adoption with other office changes. Here, the staggered adoption of online PFD across states should alleviate these concerns as they relate to individual offices.

Though I have tried to approach this classification systematically, judgements based on qualitative data are sensitive to discretion of the interviewee and researcher. Any errors in the final classification are my own.

(B) Second, I classify states according to whether they offer online PFD for state or local filers. I adopt a broad definition of "state" versus "local" official to maximize overlap between differing definitions by state, local, and federal institutions. The TRAC data contain referral and case filing data from U.S. Attorney offices tagged by the following DOJ categories: federal, state, and local corruption. Though program categorization criteria are not available, according to TRAC "state corruption" relates to corrupt acts conducted by public officeholders in state government, and "local corruption" relates to corrupt acts conducted by public officeholders supporting any sub-geography of state government (i.e. counties, towns, etc.). Consistent with the aims of the paper, I consider PFD requirements as they apply to officials serving in public office (elected or appointed) rather than candidates for these offices. A listing of official roles required to file PFD and online availability by state is available upon request.

Differences between the DOJ's classification of public corruption programs and states' idiosyncratic definitions of public official roles may introduce measurement error to the analysis. However, this error is likely to bias against finding significant results. For example, a state may consider a public official "local" whereas the DOJ would categorize them as a "state" official. Under this scheme, local online PFD adoption should not have a significant effect on local corruption since the affected official's corrupt activity would be recorded as state corruption.

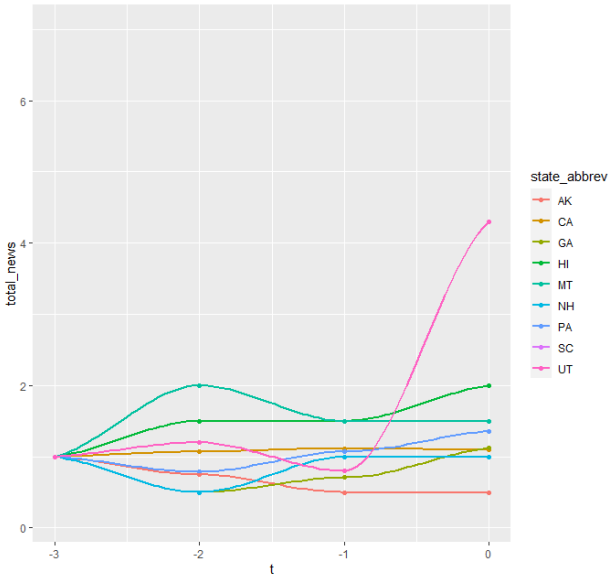
APPENDIX D

State corruption results

Figure D-1. *Pre-adoption trends in public corruption media mentions for sample state adopters*

The figures below illustrate trends in national and local news media mentions of public corruption in the three years prior to state online PFD adoption (pre-adoption period) in the sample. Counts of media mentions are standardized based on the earliest pre-treatment year (t-3) to examine differences in coverage trends, and specifically whether there are pre-adoption shifts in coverage trends in the efficiency-motivated adoption group. Overall, efficiency-motivated adopters appear to have slightly less movement in pre-adoption corruption coverage than the corruption-motivated group. (Utah appears to have elevated coverage in the adoption year (t=0), though this could itself be driven by online PFD adoption).

A. Efficiency-motivated adopters



B. Corruption-motivated adopters

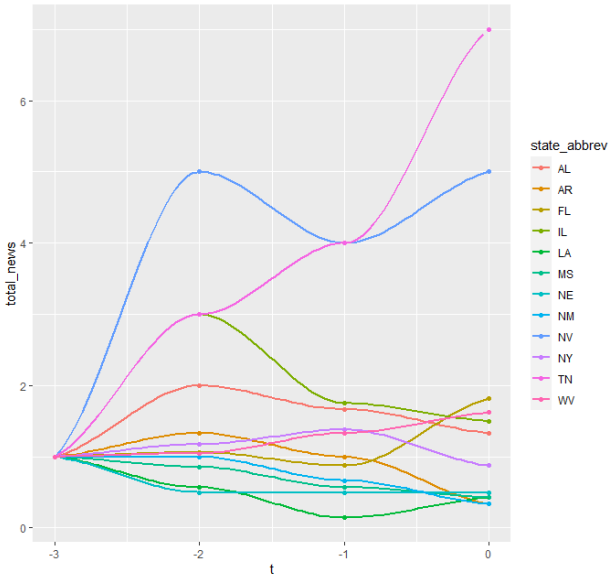


Table D-1. *Full sample summary statistics*

Table D-1 shows the summary statistics for the unmatched sample of efficiency-motivated online PFD adopters and corresponding dependent variables measured in terms of state official corruption. (Note that districts from states which did not respond to the COGEL survey will not have values for "ethics_budget.")

Independent variables

	N	Mean	Std. Dev.	Min.	P25	P50	P75	Max.
news_circ	455	0.02	0.01	0.00	0.01	0.01	0.02	0.10
ethics_budget	420	5.28	13.89	0.00	0.97	3.25	4.69	136.19
income_per_cap	455	39,291.65	9,209.19	21,684.31	32,342.78	37,860.53	44,828.00	71,823.00
unemployment_rate	455	6.54	2.71	2.40	4.66	5.84	7.90	19.80
legal_exp	455	0.13	0.05	0.06	0.09	0.11	0.14	0.39
edu_rate	455	31.25	5.07	21.10	27.30	31.30	34.90	42.20
int_rate	455	0.83	0.02	0.78	0.82	0.83	0.84	0.88

Dependent variables

	N	Mean	Std. Dev.	Min.	P25	P50	P75	Max.
referral_rate	437	0.07	0.22	0.00	0.00	0.01	0.05	2.97
prosecution_rate	220	0.29	0.39	0.00	0.00	0.00	0.50	1.00
punishment_rate	94	0.76	0.41	0.00	0.67	1.00	1.00	1.00

Table D-2. *State online PFD*

Table D-2 replicates the results from the paper (Tables 1.4 and 1.5) using dependent variables defined by measures of state official public corruption. I observe overall insignificant results. As discussed in the paper, this may be due to the overall low level of detected state corruption over the sample period, or official interference in PFD oversight. Additional variables are described in the main paper, Table 1.2. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Referral_rate (1)	Prosecution_rate (2)
online_PFD_x_post	0.042	-0.002
	(0.79)	(-0.02)
Controls (Eq. 1)	Y	Y
Fixed effects (Eq. 1)	Y	Y
Observations	404	210
Adjusted R-squared	0.275	0.021
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

Table D-3. *State and local online PFD*

Table D-3 replicates the results from the paper (Tables 1.4 and 1.5) using dependent variables which combine state and local official public corruption. I observe overall insignificant and inconsistent results. This suggests that state corruption measures obscure the impact of local online PFD on local corruption, which is observed in the matched sample of local online PFD adopters. Additional variables are described in the main paper, Table 1.2. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Referral_rate (1)	Prosecution_rate (2)
online_PFD_x_post	-0.009	0.087*
	(-0.07)	(1.77)
Controls (Eq. 1)	Y	Y
Fixed effects (Eq. 1)	Y	Y
Observations	404	342
Adjusted R-squared	0.426	0.098
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

APPENDIX E

Punishment rate results

Table E-1. Punishment rate

Table E-1 investigates the impact of local online PFD on the probability of punishment conditional on referral prosecution. The dependent variable captures the proportion of prosecuted referrals receiving punishment (prison, probation, and/or fine sentence) compared to all other cases. The variable "post" is an indicator variable equal to one for all post-treatment district-years, and "online_PFD" is a treatment indicator equal to one for all districts treated with local online PFD. Additional variables are described in Table 1.2. Column (1) displays a baseline specification with no fixed effects or controls. Column (2) adds district and year fixed effects, and Column (3) includes monitoring, economic, and political controls. Standard errors are clustered at the state level. Note that sixteen districts did not have sufficient observations in either the pre- or post-adoption period and were removed from the sample. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
online_PFD_x_post	-0.020	-0.048	-0.042
	(-0.25)	(-0.51)	(-0.62)
post	-0.005		
	(-0.10)		
online_PFD	-0.140		
	(-1.48)		
Monitoring controls			
news_circ, ethics_budget	N	N	Y
Economic and political controls			
income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	N	N	Y
Fixed effects			
year	N	Y	Y
federal_district	N	Y	Y
Observations	126	126	126
Adjusted R-squared	0.045	0.272	0.284

Robust t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

APPENDIX F

Field interview implementation

I interviewed two populations – (A) federal prosecutors and (B) journalists – to understand the mechanisms linking online PFD to corruption detection. In this appendix, I detail the design and implementation of these interviews. These interviews took place between July and August 2020 and lasted 15-30 minutes on average.

Population A: Federal prosecutors

Population A consists of current and former federal prosecutors assigned to state and/or local public corruption cases between 2004 and 2017. I obtained a listing of these individuals and their case assignments from TRAC. I retrieve contact information for individuals using public internet searches, Westlaw, and the implied format of email addresses used by their respective institutions. Based on the TRAC data, I begin with a population of 1,548 prosecutors assigned to state/local corruption cases at the referral-level, of which about 32% (n=493) were assigned to referrals resulting in prosecution.

For my initial outreach, I created a stratified sample of 470 potential participants by randomly sampling ten unique prosecutors per state.[2] After receiving several responses from individuals who did not recall having corruption experience, I expanded my outreach to encompass all prosecutors assigned to referrals which resulted in prosecution. This prompted in a secondary outreach to an additional 356 potential participants. As expected, response rates in this second round were much higher than the first. Respondents with experience prosecuting corruption cases did not appear to have difficulty recalling their involvement.

In total, I reached out to 826 current and former federal prosecutors via email of which 467 (57%) successfully reached the recipient. The outreach success rate is likely impacted by office turnover as the sample spans active prosecutors over the past two decades. Out of the 467 successful contacts, I interviewed 47 current and former prosecutors for an effective response rate of 10%. I also found that response rates were much higher in the second round when I narrowed my outreach only to contacts with corruption prosecution experience.

Table F-1 summarizes prosecutor outreach and response rates.

[2] I include all prosecutors from twelve states which had less than ten unique prosecutor names over the sample period.

Table F-1. Prosecutor outreach and response rates

	Round 1	Round 2	Total
No. outreach	470	356	826
No. unsuccessful contact	194	165	359
No. successful contact	276	191	467
Outreach rate	59%	54%	57%
No. interviews	21	26	47
Overall response rate (out of population sampled)	4%	7%	6%
Effective response rate (out of population contacted)	8%	14%	10%
*Additional responses**			
Recent prosecutors	0	2	2
Retired investigator	0	1	1
Total interviews			50

*Several prosecutors referred me to colleagues who had more recently worked in public corruption and hence fell outside of my sample range (2004-2017). I was also referred to a retired former investigator who was not part of the original TRAC-based sample.

Population B: Journalists

Population B consists of journalists working at one of the top local newspapers in their respective states. I form a stratified sample of 255 newspapers representing the top five local newspapers from 51 states (including DC) by circulation. To create this sample, I use 2019 data from the UNC Center for Innovation and Sustainability in Local Media's Database of Newspapers. For each newspaper, I identified and emailed the chief editor or reporter tasked with covering state or local government issues. Once a recipient agreed to speak, I arranged a phone call for the interview. I spoke to only one journalist per newspaper. Non-respondents were sent the identical interview questions in Qualtrics format such that responses could be submitted anonymously online. In total, 29 out of the 255 newspapers could not be contacted due to being out of business, having a defunct website, and/or lack of contact emails available on their public website. Out of the 226 contacted newspapers I performed 34 telephone interviews and received 7 Qualtrics survey responses. This resulted in a total of 41 responses from the sample, and an effective response rate of 18%.

Table F-2 summarizes this process.

(It should be noted that several journalists declined to respond citing furlough or increased workload brought on by the COVID19 pandemic. In addition, I did not conduct follow-up or reminder phone calls as most news offices were closed due to COVID19.)

Table F-2. Newspaper outreach and response rates

No. outreach		255
	No. unsuccessful contact	29
	No. successful contact	226
	Outreach rate	89%
No. responses		
	No. interviews	34
	No. Qualtrics responses	7
	Total responses	41
	Overall response rate (out of population sampled)	16%
	Effective response rate (out of population contacted)	18%
*Additional responses**		
	Investigative reporters	2
Total responses		43

*Some interviewees connected me with other journalists whom they felt could contribute to this research. These individuals were not part of the original sample.

APPENDIX G

Field interview results

This appendix summarizes the responses to the field interviews for federal prosecutors (population A) and journalists (population B). To protect the confidentiality of participants, responses are aggregated and anonymized. Note that one respondent may cite multiple reasons motivating their response to open-ended questions. These responses reflect the personal experiences of respondents and do not represent the official views of their employers.

Population A: Federal prosecutors

A-Q1. *Most states across the country require public officials to make personal financial disclosures which are considered public records. To what degree do you feel these disclosures support investigation of public corruption? [i.e. not at all / somewhat / very much]*

	No. Responses	*%*
Very much	32	68%
Somewhat	10	21%
Not at all	3	6%
No response	2	4%
Total	47	100%

A-Q2. *[If supportive] How are they supportive – directly or indirectly? [i.e. disclosed information supports investigation / non-disclosed information supports investigation]*

A-Q2 – Overall response

	No. Responses	*%*
Both	25	53%
Indirect	14	30%
Direct	2	4%
No response / N/A	6	13%
Total	47	100%

A-Q2 – Reasons why PFD are indirectly supportive

	No. Mentions	*%*
Demonstrates criminal intent or consciousness of guilt	34	81%
Serves as point of comparison with other financial records	5	12%
Calls into question defendant credibility	3	7%
Total	42	100%

A-Q2 – Reasons why PFD are directly supportive

	No. Mentions	*%*
Provides leads to other evidence	15	38%
Helps connect official to other third-party organizations	10	26%
Commits official to financial statement at specific point in time	9	23%
Efficient "headstart" on investigations	4	10%
Helps clarify non-illicit transactions	1	3%
Total	39	100%

A-Q3. *[If not supportive] Why are they not supportive? [i.e. redundant, not relevant, not reliable, not accessible, other]*

	No. Mentions	*%*
Disclosures too vague	4	57%
Lack of enforcment over disclosures	1	14%
Disclosures not easily searchable	1	14%
Irrelevant content	1	14%
Total	7	100%

A-Q4. *Many states have begun making these disclosures publicly available online. Do you think that public disclosure would support the prosecution of public corruption? Why or why not?*

A-Q4 – Overall response

	No. Responses	*%*
Yes	37	79%
No	6	13%
No response	4	9%
Total	47	100%

A-Q4 – Reasons why online PFD supportive

	No. Mentions	*%*
Helps public access information	19	33%
Helps reporters access information	15	26%
Deters officials from committing crime	7	12%
General public awareness	5	9%
Supports covert investigation	3	5%
Helps investigators easily access information	3	5%
Prosecutors are resource-constrained	3	5%
Helps open investigations	1	2%
Helps business competitors generate tips	1	2%
Total	57	100%

A-Q4 – Reasons why online PFD are not supportive

	No. Mentions	*%*
Privacy concerns for officials	12	50%
Already have subpoena power	5	21%
Deters candidates from seeking public office	2	8%
Disclosures too vague	1	4%
Disclosures not accessible/searchable enough	1	4%
Diminishing number of investigative journalists	1	4%
Corrupt officials will violate the law regardless of online PFD	1	4%
Lack of enforcement over financial disclosures	1	4%
Total	24	100%

Population B: Journalists

B-Q1. *Most states across the country require public officials to make personal financial disclosures which are considered public records. Are you aware that these disclosures exist?*

	No. Responses	*%*
Yes	41	100%
Total	41	100%

B-Q2. *[If applicable] Were you aware when your state made these disclosures available online?**

	No. Responses	*%*
Yes	32	78%
No	2	5%
N/A [Not online]	5	12%
No response	2	5%
Total	41	100%

*For individuals who started working with the newspaper after their state adopted online PFD, the question was re-phrased as: "Do you access these disclosures online?"

B-Q3. *Have you or your colleagues ever used these disclosures as part of coverage of local and/or state government officials?*

	No. Responses	*%*
Yes	37	90%
No	4	10%
Total	41	100%

B-Q4. *If yes, what prompted you or your colleagues to consult these disclosures?*

	No. Mentions	*%*
Routine checks	15	23%
Tips from public	13	20%
Proposed legislation	12	19%
Periodic checks	8	13%
Election coverage	7	11%
Political conflicts	3	5%
N/A [not used]	2	3%
Seeking contact information	1	2%
Tips from business competitors	1	2%
Lawsuits	1	2%
No response	1	2%
Total	64	100%

B-Q5. *If PFD were not available, what other data sources might you consult to learn about a public officials' personal finances?*

	No. Mentions	*%*
Not sure	13	19%
Public tips	8	12%
State business registration records	8	12%
State property records	7	10%
Talk to public officials	5	7%
SEC filings	4	6%
LexisNexis/other news media	4	6%
Nonprofit tax records (CitizenAudit)	3	4%
Social media (LinkedIn, Facebook, etc.)	3	4%
Bankruptcy records	3	4%
Official state biographies/personnel files	2	3%
Misunderstood question*	2	3%
Third-party business records (OpenCorporate)	1	1%
Campaign finance reports	1	1%
Lawsuits	1	1%
Divorce proceedings	1	1%
No response	3	4%
Total	69	100%

*Two interviewees responded with sources that do not contain financial information for state and/or local public officials.

APPENDIX H
Variable summary

Controls	
Market Cap (ln)	Log of market capitalization, where market capitalization iscalculated by multiplying share price (Compustat item: PRCC_C) by number of common stock shares outstanding at end of year (Compustat item: CSHO).
Returns	Market-adjusted returns equal the total cumulative return for each firm for the calendar year 2016 (calculated by compounding monthly returns from the CRSP monthly data file, CRSP item: ret) less the equal-weighted cumulative return (calculated by compounding monthly returns from the CRSP monthly data file, CRSP item: ewretd) over the same period.
MDA	
Involvement [CEO, CFO, IR (ext), IR(int), PR, Legal (ext), Legal (int)]	Relative involvement is measured by taking the respondent's involvolvement score for this position and dividing it by the total sum involvement score that respondent gave to all managers for this question. In other words, it is the percentage of the total involvement score that can be attributed to this position's involvement. Scores range between 0-1. Relative involvement is calculated separately using the same process for survey questions related to: MDA involvement (survey question #5), call draft involvement (survey question #18), and transparency involvement (survey question #24).
Legal (external) advisory	Indicator variable equals one if the firm utilized an external legal counsel for routine purposes, non-routine purposes, or both routine and non-routine purposes.
Revisions	Variable equals the number of substantive revisions the MDA underwent before publication (survey question #6). Since survey respondents were asked to select a range of revisions, we interpret survey responses at the average of the response range. For example, if a firm answered that they underwent "3-5" revisions, the "Revisions" variable would take a value of 4.
Length MDA (ln)	Log of the average number of words included in the firm's MDA from their 2015 and 2016 10-K.
MD&A Advance Preprepartion	Variable equals the number of weeks the firm began drafting the MDA section of their 10-K in advance of filing their 10-K (survey question #2). Since survey respondents were asked to select a range of weeks of advance preparation, we interpret survey responses at the average of the response range. For example, if a firm answered that started drafting their MDA "3-4 weeks" in advance, then "MD&A Advance Preparation" would take a value of 3.5.
MDA fog	MDA fog is calculated using the following formula: (MDA_mean_wps+ MDA_mean_sixltr) * .4. Where MDA_mean_wps is the average words per sentence across MDA for each firm, and MDA_mean_sixltr is the average % of words longer than 6 letters (more than two syllables) across MDA for each firm. The general formula FOG score = (average words per sentence + percent of complex words) x .4, as described in Lehavy et al., 2011.
MDA similarity	MDA similarity is an indicator variable equal to one if the firm's similarity score is above-median for all firms, where similarity is calculated as one minus the average "Rawscore" for each firm. "Rawscore" is a measure of MDA changes or modifications year over year from Brown and Tucker, 2011.
High MDA similarity	Indicator variable equal to one if the firm's "MDA similarity" variable is in the top quartile among all firms.
Optimism	Log of average optimism score for each firm's MDA across 2015 and 2016. The optimism score is calculated per Henry, 2008.
Additional firm characteristics	
CEO tenure	CEO tenure is equal to the log of the number of years the firm's CEO (as of 2016) has been in his or her role plus one.
Financial violation since 2000	Indicator for whether the firm has had a financial violation since 2000. Financial violations refer to all SEC prosecutions including: accounting frauds, trading violations, investor protection violations, and FCPA violations.
Financial violation since 2012	Indicator for whether the firm has had a financial violation in the past five years (since 2012). Financial violations refer to all SEC prosecutions including: accounting frauds, trading violations, investor protection violations, and FCPA violations.
Percent board insiders	Percentage of insiders on the Board of Directors = 100*(Number_of_Insiders / Number_of_Directors)
Litigious industry	Indicator for whether the firm belongs to a litigious industry, as suggested by Rogers and Bushkirk, 2009 (footnote 18).

Calls

Prepared script only	Indicator equals one if the firm prepared only a script for the conference call as opposed to a script plus supplemental materials (outline or slides) (survey question #14).
No prepared responses	Indicator equals one if the firm did not prepare responses to potential questions that might be raised during the conference call (survey question #15).
Advance draft	Variable equals the number of weeks the firm began drafting their management's remarks prior to the quarterly conference call (survey question #12). Since survey respondents were asked to select a range of weeks of advance preparation, we interpret survey responses at the average of the response range. For example, if a firm answered that started drafting their remarks "3-4 weeks" in advance, then "Advance draft" would take a value of 3.5.
Pct. Presentation	Percent of the call the firm seeks to allocate for the management presentation (survey question #20). Since survey respondents were asked to select a range of call proportions allocated to presentation, we interpret survey responses at the average of the response range. For example, if a firm answered that they seek to allocate "26-50%" of their call to the presentation, then "Pct. Presentation" would take a value of .38.
Length Intro (ln)	Log of the average number of words spoken during the introduction section of the call over the firm's four earnings conference calls of 2016.
Advance questions	Indicator equals one if someone from the company speaks with sell-side analysts or buy-side investors in advance and collects potential questions of interest (survey question #13).
Improvised style	Indicator equals one if the firm characterizes its preparation style for the Q&A session as "completely improvised" or "mostly improvised" (survey question #19). (On the other hand, the indicator equals zero if the preparation style was reported as "mostly scripted" or "completely scripted").
Analyst coverage	Number of sell-side analysts that covered the firm on average over the prior year (survey question #23). Since survey respondents were asked to select a range of analyst coverage, we interpret survey responses at the average of the response range. For example, if a firm answered that they had on average "3-5" sell-side analysts covering their firm, then "Analyst coverage" would take a value of 4.
Length QA (ln)	Log of the average number of words spoken during the Q&A section of the call over the firm's four earnings conference calls of 2016.
Length CEO (ln)	Log of the average number of words spoken by the CEO during the Q&A section of the call over the firm's four earnings conference calls of 2016.
Negative (Intro)	Log of the average percent of negative words contained in each firm's call introduction over the firm's four earnings conference calls of 2016.
Positive (Intro)	Log of the average percent of positive words contained in each firm's call introduction over the firm's four earnings conference calls of 2016.
Questions (ln)	Log of the average number of questions coming from analysts over the firm's four earnings conference calls of 2016.
We (QA)	Log of the average number of references to first-person plural pronouns ("we") over the firm's four earnings conference calls of 2016.
Negative (QA)	Log of the average percent of negative words contained in each firm's QA section over the firm's four earnings conference calls of 2016.
Positive (QA)	Log of the average percent of positive words contained in each firm's QA section over the firm's four earnings conference calls of 2016.
Number of times CEO speaks (ln)	Log of the average times the CEO speaks during each firm's conference call over the firm's four earnings conference calls of 2016.

APPENDIX I

Questionnaire

1 - Which department is primarily responsible for the first draft of the MD&A section in the Form 10K?

☐ IR (internal) ☐ IR (external) ☐ Legal (internal) ☐ Legal (external) ☐ Finance ☐ Other _____

2 - In your most recent Form 10K, how long *prior* to the filing of the Form 10K did this individual or team begin the draft of the MD&A section?

☐ 1-2 weeks ☐ 3-4 weeks ☐ 5-6 weeks ☐ 7+ weeks

3 - When creating the draft for the current year's MD&A, to what degree does the primary author rely on the prior year's MD&A as a template? <u>Check ONLY one.</u>

☐ No reliance ☐ Some reliance ☐ Strong reliance ☐ Very strong reliance

4 - Estimate the total number of hours your company collectively takes to prepare the following disclosures:

MD&A: _____ Hour(s)
Complete 10K: _____ Hour(s)

5 - How involved is each department in creating the MD&A? <u>Describe each department's involvement on a scale of 1 = least involved to 5 = most involved.</u>

		Least Involved ⟶ ***Most Involved***				
IR (Internal)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
IR (External)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CEO	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CFO	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PR/Marketing	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Board	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Legal counsel (Internal)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Legal counsel (External)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
External auditor	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

6 - How many substantive revisions does the MD&A go through before publication? <u>Estimate.</u>

☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-10 ☐ 11-15 ☐ 16+

7 - In the past year, have you utilized an external investor relations advisor? <u>Check ONLY one.</u>

☐ Yes, for non-routine disclosures (M&A event, SEC inquiry, etc.)

☐ Yes, for *both* non-routine and routine disclosures

☐ Yes, for routine disclosures (10K, 10Q, comment letters, etc.)

☐ No

8 - In the past year, have you utilized an external legal counsel for the preparation of disclosure documents? <u>Check ONLY one.</u>

☐ Yes, for non-routine disclosures (M&A event, SEC inquiry, etc.)

☐ Yes, for *both* non-routine and routine disclosures

☐ Yes, for routine disclosures (10K, 10Q, comment letters, etc.)

☐ No

9 - Does external legal counsel help prepare or review the Risk Factors disclosed in the 10K?

☐ Yes ☐ No

10 - <u>Answer if your company provides annual earnings guidance</u>: How would you characterize the influence that the sell-side consensus forecast has on your company's annual earnings guidance (i.e. the range or point estimate provided to the market)?

☐ Very limited ☐ Limited ☐ Neutral ☐ Strong

11 - When reporting quarterly earnings, which objective would your management generally prefer among these two options? <u>Check ONLY one.</u>

☐ Meet sell-side analyst consensus ☐ Beat sell-side analyst consensus

12 - On average over the past 4 quarters, how long *prior* to the quarterly conference call does the draft of the management's remarks begin being drafted?

☐ <1 week ☐ 1-2 weeks ☐ 3-4 weeks ☐ 5-6 weeks ☐ 7+ weeks

13 - Does someone from the company speak with sell-side analysts or buy-side investors in advance and collect potential questions of interest?

☐ Yes ☐ No

14 - What types of materials, if any, are typically prepared for presentation portion of conference calls? <u>Check ALL that apply.</u>

☐ Script of remarks ☐ Outline of remarks ☐ Presentation slides

15 - Does your company prepare responses to potential questions that might be raised during conference calls?

☐ Yes ☐ No

16 - On average over the past 4 quarters, how long does the *CEO* spend preparing for the quarterly conference call?

_____ Hour(s)

17 - On average over the past 4 quarters, how long does the *CFO* spend preparing for the quarterly conference call?

_____ Hour(s)

18 - How involved is each department in drafting the introductory management remarks for conference calls? <u>Describe each department's involvement on a scale of 1 = least involved to 5 = most involved.</u>

		Least Involved → ***Most Involved***				
IR (Internal)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
IR (External)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CEO	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CFO	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PR/Marketing	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Board	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Legal counsel (Internal)/GC	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Legal counsel (External)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
External auditor	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

19 - How would you characterize your company's preparation style for the Q&A session? <u>Rank using scale below.</u>

☐ Completely improvised ☐ Mostly improvised ☐ Mostly scripted ☐ Completely scripted

20 - On average over the past 4 quarters, what percent of the call do you seek to allocate for the management presentation?

☐ 0-25% ☐ 26-50% ☐ 51-75% ☐ 76-100%

21 - On average after an earnings conference call, how many calls from *sell-side* analysts does your company take within 72 hours after the conference call? <u>Estimate.</u>

☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-8 ☐ 9+

22 - On average after an earnings conference call, how many calls from *buy-side* analysts/investors does your company take within 72 hours after the conference call? <u>Estimate.</u>

☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-8 ☐ 9+

23 - On average over the prior year, how many sell-side analysts have covered your company? <u>Estimate.</u>

☐ 0 ☐ 1-2 ☐ 3-5 ☐ 6-8 ☐ 9+

24 - To what degree does each department seek to provide more public information to the market (i.e. disclose more detailed information about the firm's progress and profitability)? <u>Describe each department's inclination on a scale from 1 = less disclosure to 5 = more disclosure.</u>

		Less Disclosure → More Disclosure				
IR (Internal)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
IR (External)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CEO	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CFO	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PR/Marketing	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Board	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Legal counsel (Internal)/GC	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Legal counsel (External)	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
External auditor	☐ No involvement	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

25 – On average over the past 4 quarters, what is the approximate time between when *preliminary* quarterly financial results are known to senior management and when they are publicly disseminated? Estimate in terms of weeks or days.

_____ Week(s) _____ Day(s)

26 - On average over the past 4 quarters, what is the approximate time between when *final* quarterly financial results are known to senior management and when they are publicly disseminated? Estimate in terms of weeks, days, or hours.

_____ Week(s) _____ Day(s) _____ Hour(s)

Thank you for your time! If you would like a copy of the results of this project sent to you, please provide an e-mail address in the space below:

_____