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Voluntary Disclosure and Information Asymmetry: Evidence from the 2005 Securities Offering Reform

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ABSTRACT

In 2005, the SEC enacted the Securities Offering Reform (Reform), which relaxes 'gun jumping' restrictions, thereby allowing firms to more freely disclose information before equity offerings. We examine the effect of the Reform on voluntary disclosure behavior before equity offerings and the associated economic consequences. We find that firms provide significantly more pre-offering disclosures after the Reform. Further, we find that these pre-offering disclosures are associated with a decrease in information asymmetry and a reduction in the cost of raising equity capital. Our findings not only inform the debate on the market effect of the Reform, but also speak to the literature on the relation between voluntary disclosure and information asymmetry by examining the effect of quasi-exogenous changes in voluntary disclosure on information asymmetry, and thus a firm's cost of capital.

JEL Classification: G14; M41
Keywords: Voluntary Disclosure; Information Asymmetry; Cost of Capital; Securities Offering Reform; Management Forecasts; Press Releases; Seasoned Equity Offerings; Market Efficiency

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1. Introduction

In 2005, the Securities and Exchange Commission (SEC) enacted the Securities Offering Reform (Reform), which relaxes restrictions—known as 'gun jumping' provisions—on firms' disclosures prior to public equity offerings.[1] The SEC states that the Reform will increase the flow of information to investors before equity offerings and promote more efficient capital markets by allowing investors to more accurately value securities while current "rules regarding liability and disclosure [e.g., Rule 10b-5]…will maintain and enhance investor protection in connection with registered securities offerings" (SEC [2005]). However, opponents of the Reform argue that the relaxation of these restrictions through safe harbors will increase managerial incentives to mislead the market (e.g., Morrissey [2007]).[2] This view is echoed in the academic literature, particularly for management forecasts given their forward-looking nature. For example, Lang and Lundholm [2000] suggest firms can use forecasts to hype their stock before issuing equity absent the gun-jumping regulations.

This paper examines whether firms provide more disclosures immediately before equity offerings (i.e., during the quiet period) after the Reform, and whether the change in pre-offering disclosure (if any) is associated with reductions in information asymmetry or market conditioning. Our findings not only speak to the market impact of the Reform, but they also provide insights into the broader question of whether disclosure restrictions are needed before seasoned equity offerings (SEOs). Importantly, our study also contributes to the literature on the relation between voluntary disclosure and information asymmetry. Capturing the effect of voluntary disclosure on information asymmetry and the cost of capital is difficult because of the inherent endogeneity in voluntary disclosure choices—i.e., disclosure changes are unlikely to be

[1] The gun-jumping provisions restrict firms from freely disclosing information before equity offerings. However, these restrictions are somewhat ambiguous and extend over a *vaguely* defined "quiet period" thought to last from the time a firm first contemplates an offering through the completion of the offering. The provisions are intentionally vague to allow the SEC greater latitude in pursuing cases they believe to be violation of gun-jumping rules (Lang and Lundholm [2000]). We provide more details on the gun-jumping rules and the Reform in section 2 and the Appendix.

[2] In this paper, we use the terms 'market conditioning' and 'hyping' interchangeably. We define this process as managers using disclosures to inflate price before offerings to sell shares at an *artificially* high price.

random events—as well as measurement error in typical cost of capital proxies (see Healy and Palepu [2001] and Leuz and Verrecchia [2000]). Our setting allows us to better identify the relation between voluntary disclosure, information asymmetry and the cost of capital. Quiet periods before SEOs naturally promote private information acquisition, leading to information asymmetry among investors. By examining the removal of quiet period disclosure restrictions, we can observe the impact of quasi-exogenous changes in voluntary disclosure on information asymmetry, and thus a firm's cost of capital. To the extent disclosure incentives, firm characteristics, and growth potential before SEOs are similar before and after the Reform, changes in information asymmetry can be attributed to the change in disclosure allowed by the Reform. Further, the SEO setting allows us to capture a more direct cost of (raising) capital, i.e., the negative SEO announcement return.

We begin our analyses by using a difference-in-differences design to examine whether the Reform leads to more pre-SEO disclosures. Specifically, we examine the post-Reform change in disclosure behavior of SEO firms before their SEOs and benchmark the pre-SEO disclosure behavior of SEO firms to (i) their own disclosure behavior in the neighboring periods, and (ii) the disclosure behavior of a propensity score matched control sample over identical periods. We focus on two types of disclosure: (i) forward-looking disclosures, proxied by management forecasts, and (ii) factual information, proxied by firm-initiated press releases (excluding forecasts). We find that before the Reform, equity offering firms reduce their disclosure frequency in the 90 days before the SEO filing date (hereafter, the 'pre-SEO period'). This evidence is consistent with firms observing the quiet period before SEOs mandated by gun jumping rules. After the Reform, we find that firms increase their pre-SEO disclosure frequency to levels observed in non-SEO periods. In economic terms, SEO firms provide approximately 36% more pre-SEO forecasts and 17% more pre-SEO press releases following the Reform.

We then investigate whether managers use their pre-SEO voluntary disclosures to condition the market or to reduce information asymmetry. To identify market-conditioning

behavior, we first examine whether there is a disproportionate increase in the amount of good news released by managers in the pre-SEO period relative to neighboring periods and the matched control sample.[3] We then investigate whether the stock price increases around the pre-SEO good-news disclosures are *unwarranted* by examining the association between the pre-SEO good news and post-SEO abnormal returns. If the good news disclosures during the pre-SEO period are related to managerial hyping, we should observe a negative association between the pre-SEO good news and the post-SEO abnormal returns. Our results indicate that firms provide disproportionately more good news forecasts and press releases during the pre-SEO period after the Reform. However, we find no evidence of an association between pre-SEO good news disclosures and post-SEO abnormal returns. These results suggest that pre-SEO voluntary disclosures are not associated with market conditioning behavior.[4]

Next, we investigate whether the changes in pre-SEO voluntary disclosures are associated with changes in information asymmetry. Specifically, we examine the change in the adverse selection component of bid-ask spreads, market depths (i.e., order size), and analyst forecast accuracy during the pre-SEO period after the Reform. Using a difference-in-differences design similar to that used in our previous analyses, we find that the Reform leads to a significant decrease (increase) in pre-offering spreads (depths and analyst accuracy). In terms of economic magnitudes, our coefficients suggest that spreads decrease by approximately 16.7% and depth and analyst forecast accuracy increase by approximately 8% and 15% in pre-SEO periods after the Reform. Further, the information asymmetry levels in pre-SEO periods return to normal

[3] In particular, we calculate both the total number of positive-return disclosures relative to the total number of negative-return disclosures and the total magnitude of the stock returns around the disclosures in the pre-SEO period and the two neighboring periods. The intent of this approach is to directly capture the market reaction to the disclosures as opposed to subjectively determining the optimism or pessimism in the disclosures (Lang and Lundholm [2000]), which may or may not relate to price changes since it does not necessarily capture how investors perceive the disclosure. See section 3.2.1 for a more detailed discussion.

[4] The lack of evidence supporting market conditioning behavior could be because either managers do not attempt to hype or investors de-bias managerial disclosures upon SEO announcement. We provide additional evidence supporting the former in section 5.2. We also note that our return reversal tests have limited power due to a small sample size and measurement error in our proxies; thus, any inference must be drawn with caution. We discuss this further in section 5.2.

levels observed in non-SEO periods after the Reform. This is consistent with the Reform allowing firms to provide disclosures that reduce information asymmetry before equity offerings.

To provide stronger evidence that the Reform affects pre-SEO disclosure behavior and information asymmetry, we exploit a regulatory distinction introduced in the Reform between firms considered to be well-known seasoned issuers (WKSIs) and other firms (non-WKSIs). The Reform allows WKSIs to make any disclosures, including "offers" (as defined in Section 5(c) of the Securities Act), *at any time* before and after the filing of a registration statement. Non-WKSIs, on the other hand, are allowed to release any information as long as it is *more than 30 days* before the registration statement is filed and the disclosure does not reference the equity offering. However, in the 30-days immediately before SEO filings, non-WKSIs are prohibited from making Section 5(c) "offers." Given that the SEC interprets "offers" very broadly to include any disclosure that arouses public interest, the disclosures made by non-WKSIs in the 30 days preceding SEO filing are more susceptible to claims of gun-jumping violations. We find that WKSIs disclose more information up to the SEO filing date, whereas non-WKSIs do not disclose information in the 30 days immediately preceding SEO filings. Rather, non-WKSIs increase disclosure up until the 30 days before SEO filings. Further, we find that the change in pre-SEO disclosure frequency is associated with a change in information asymmetry for WKSIs and non-WKSIs. Specifically, the reduction in information asymmetry for WKSIs and non-WKSIs coincides in time with the increases in disclosure (i.e., non-WKSIs have a reduction in information asymmetry up until the 30 days before the SEO filing, but not in the 30 days immediately preceding the SEO filing, whereas WKSIs have reduced information asymmetry up through the SEO filing). These results provide strong evidence that the Reform increased pre-SEO disclosure behavior and thus lowered pre-SEO information asymmetry.

Finally, we examine whether the Reform reduced the cost of raising capital as evidenced by changes in the SEO announcement returns (Korajczyk, Lucas, and McDonald [1991]; Lang

and Lundholm [2000]). Prior research finds robust evidence that the announcement of an SEO induces a negative 2-3% return, on average, which is interpreted as the cost of adverse selection due to information asymmetry between managers and investors (Myers and Majluf [1984]; Ritter [2003]; Eckbo, Masulis, and Norli [2007]). However, if firms reduce information asymmetry through disclosure before SEO announcements, the announcement returns should be less negative after the Reform. We find that the SEO announcement return is approximately 0.7% less negative after the Reform, consistent with a large reduction in the cost of issuing equity capital following the enactment of the Reform.

In sum, we find robust evidence that firms increase their voluntary disclosure before SEOs following the Reform and the increased disclosure reduces pre-SEO information asymmetry and the overall cost of raising capital. Although we cannot definitively show that firms do not hype their stock using pre-SEO disclosures, we note that both the reduction in information asymmetry and cost of capital are difficult to reconcile with hyping behavior, and as such, complement our direct tests showing no evidence of pre-SEO hyping.

Our findings provide several contributions. First, our evidence informs the debate on the market impact of the Reform, which is considered by some to be the "most dramatic change in the way US securities are marketed since the introduction of the 1933 Securities Act." (EuroWeek, Oct. 29, 2004) Our results support the SEC's removal of the restrictions designed to combat market conditioning. Although firms provide more frequent voluntary disclosures, we find no evidence of market conditioning, but rather a reduction in information asymmetry and the cost of raising capital (i.e., less negative offering announcement returns).

Second, our evidence contributes to the voluntary disclosure literature by documenting a reduction in information asymmetry and the cost of raising equity capital following a quasi-exogenous shock to voluntary disclosure restrictions before equity offerings. Further, we examine a more comprehensive set of firm disclosures, i.e., management forecasts and press

releases, to document the economic consequences of voluntary disclosure. Healy and Palepu [2001] note that prior studies often use solely management forecasts as a voluntary disclosure proxy, but point out that the "findings may not generalize to other forms of voluntary disclosure." We extend the literature on the economic consequences of voluntary disclosure by examining both press releases and management forecasts.

Finally, we contribute to the literature on the role of voluntary disclosure before SEOs. Prior research shows that firms in the early 1980s (Frankel, McNichols and Wilson, [1995]) and 1992 (Lang and Lundholm [2000]) are no more likely to provide management forecasts before an equity offering than they are to do so in other periods. However, Lang and Lundholm [2000] find increased disclosure of factual business information and optimism in press releases before equity offerings. As Lang and Lundholm [2000] note, the lack of evidence related to higher forecast frequency before SEOs may simply be a result of the explicit discouragement in the gun jumping rules. We contribute to these studies by showing that the relaxation of the gun jumping rules by the Reform results in both more frequent forecasts and more firm-initiated press releases and that these disclosures are associated with reductions in information asymmetry.[5]

The remainder of the paper is organized as follows: section 2 discusses the background and hypotheses development; section 3 discusses research design; section 4 presents the sample selection; section 5 presents the empirical results and we conclude the paper in section 6.

[5] Lang and Lundholm [2000] find evidence of pre-SEO hyping in 1992; however, we find no evidence of pre-SEO hyping in our sample period. Unfortunately, because the authors hand collect the disclosures for the 41 small, industrial firms in 1992, we do not replicate and reconcile our results to theirs using their approach. However, we note that Shroff, Sun, White and Zhang [2013] provide evidence that helps reconcile our findings with Lang and Lundholm [2000]. Specifically, they document a shift in hyping behavior following the enactment of the Sarbanes-Oxley Act in 2002. They note that the Reform suggests that improvements in firms' information environment brought about by advances in mandatory disclosure rules, namely SOX, and broader information dissemination have helped discipline managers from hyping (SEC [2005]). They go on to show that firms hype their stock before the enactment of SOX, which is consistent with Lang and Lundholm [2000]. However, after SOX, they find no evidence of hyping and conclude that the new information environment may have disciplined hyping, as the SEC suggests.

2. Background

2.1. DISCLOSURE REGIME CHANGE

2.1.1. Pre-Reform Disclosure Regime

Seasoned equity offerings can provide incentives for managers to inflate prices through firm disclosures to extract rents from purchasing investors at issuance. Recognizing the ripe setting for adverse selection, Congress included rules (known as 'gun-jumping' laws) in Section 5(c) of the Securities Act of 1933 that prohibit firms from conditioning the market by significantly restricting their disclosure activity prior to equity offerings.

Section 5 (c) of the Securities Act prohibits any 'offer' to sell a security prior to filing a registration statement with the SEC. Since the time of this regulation, the definition of 'offer' has grown to include *any* act that might "contribute to conditioning the public mind or arousing public interest in the issuer" (SEC release no. 3844). The restriction period is known as the 'quiet period' and, although not defined by federal securities laws, is thought to run from the time an issuer contemplates an offering until the sale is completed (Lang and Lundholm [2000]). Further, intent of disclosure is irrelevant, as the SEC views any disclosure that has the effect of conditioning the market as a violation of Section 5(c). As a result, it was difficult to determine what constituted a violation of these rules, which led firms to reduce the frequency of even their regular disclosures before equity offerings to minimize the risk of violating gun jumping provisions (SEC [1958]).[6]

Although the SEC permitted firms to issue regularly disclosed information regarding 'factual business and financial developments' before the Reform, it discouraged atypical

[6] In referring to the ambiguity surrounding gun-jumping rules at the 1958 Investment Bankers Association Annual Convention, then-SEC Chairman, Edward Gadsby, states "From the very nature of the statute, which attributes very great importance to the subjective intent of the parties, it is completely impossible to lay down hard and fast rules for general application to this question." (SEC [1958], p. 13) In the same speech, Edward Gadsby refers to the concern that firms are withholding regularly released information for fear of violating gun-jumping provisions. Specifically, he states that, "It has also been indicated to us that, in spite of our repeated efforts to clarify our understanding of the effect which the provisions of Section 5 have upon such [i.e., disclosure] activities, *there still remain serious doubts as to whether a distributor or underwriter is safe in publishing the customary analyses of outstanding security issues.* We have said before, and I repeat here that we have never raised any questions in this regard, so long as the organization which is publishing such reports is not engaged at the same time in the sale of unregistered securities." (SEC [1958], p. 8)

disclosures. For example, Choi and Pritchard [2008] discuss that shifting an existing advertising campaign from a trade journal into the *Wall Street Journal* during the quiet period may be problematic under the Securities Act Release No. 5180 [October, 1971]. Moreover, the Commission discouraged firms from disclosing soft and unverifiable information (e.g., forward-looking information) during the quiet period.[7] Thus, offering firms faced a conflict between raising equity capital on favorable terms and gun-jumping laws.

2.1.2. Post-Reform Disclosure Regime

In 2005, the SEC enacted the Securities Offering Reform, which relaxes gun-jumping restrictions. The Reform provides increased certainty regarding when gun-jumping provisions will be *inapplicable* to firms' communication. Specifically, Rule 163A provides a safe harbor for *any* communication made up to 30 days prior to the filing of the registration statement as long as firms do not refer to the securities offering, thereby clarifying when the 'quiet period' begins. Further, Rule 168 clarifies the meaning of regularly released factual business communication and forward-looking information, thereby reducing litigation risk associated with the disclosure of both regularly released factual and forward-looking information.[8]

In providing its rationale for the Reform, the SEC states that "[T]he primary benefit that the rules seek to achieve is an increased flow of information to investors during a registered offering. While much of the Commission's recent rulemaking is intended to encourage reporting issuers to provide materially accurate and complete information to the market on a more current basis, the Securities Act's constraints on communications [i.e., gun jumping provisions] during an offering cause issuers to be concerned about the treatment of their ongoing communications and whether their customary disclosures will be considered an impermissible offer of securities…" (SEC [2005], p. 281). The SEC adds that increased information flow promotes

[7] See Choi and Pritchard [2008, Chapter 7] for more details on the offering process and regulation therein.
[8] We describe the relevant sections of the Reform in the Appendix.

more efficient capital markets by allowing investors to more accurately value securities while current liability and disclosure rules will maintain investor protection around offerings.

Opponents of the Reform argue that the gun-jumping restrictions protect investors from managers conditioning the market before offerings, and the relaxation of these restrictions will increase managerial incentives to mislead the market. For example, Morrissey [2007, p. 576] suggests, "Forward-looking statements do exactly what the SEC had historically not wanted issuers to do before filing a registration statement: condition the market to purchase the securities to be issued." Further, in providing an *ex ante* opinion regarding the then-proposed Reform, Lang and Lundholm [2000, p.648] offer that their evidence suggests that "firms may be tempted to increase the use of forecasts before issuing equity absent the gun-jumping regulations."

2.2. PRIOR RESEARCH AND HYPOTHESES DEVELOPMENT

Information asymmetry among investors creates trading frictions by introducing adverse selection, leading to lower liquidity (Bagehot [1971]; Copeland and Galai [1983], Kyle [1985], and Glosten and Milgrom [1985]; Leuz and Verrecchia [2000]). This illiquidity is priced by the market, increasing a firm's cost of capital (Amihud and Mendelson [1986]; Brennan and Subrahmanyam [1996]). Analytical studies propose that disclosure can reduce information asymmetry, and lower the cost of capital. Diamond [1985] shows that shareholder welfare can be improved when firms disclose information, as the public disclosure reduces private information acquisition costs by some investors, thereby reducing information asymmetry among investors. As Diamond indicates [1985, p. 1073], "public information makes traders' beliefs more homogeneous and reduces the magnitude of speculative positions which informed traders take." Further, Diamond and Verrecchia [1991] show that disclosure can lower a firm's cost of capital by reducing information asymmetry and improving the firm's future liquidity.[9] Collectively, this

[9] An alternative relation between disclosure and information asymmetry is proposed by Kim and Verrecchia [1994], who indicate that public disclosures can increase information asymmetry in the *short-term* (i.e., less than two days),

indicates that a lack of disclosure (e.g., a pre-offering quiet period) can create incentives for some investors to privately acquire information, thereby increasing information asymmetry and thus the cost of capital (e.g., issuing equity at discounted prices).[10] By increasing their disclosure, firms can combat these market frictions and reduce their cost of capital.

Despite the incentives to increase disclosure activity before SEOs, prior to 2005, gun-jumping laws restricted firms' disclosure activity. For example, Frankel, McNichols, and Wilson [1995] find no evidence of an increase in the likelihood of a forecast before equity offerings and suggest that this behavior can be explained by litigation risk arising from gun jumping rules. Consistent with Frankel et al. [1995], Lang and Lundholm [2000] find no evidence that firms increase their forecasting frequency prior to equity offerings even though they find evidence that firms increase the disclosure of factual information. If firms shied away from disclosing information before equity offerings for fear of violating gun-jumping rules, we should observe an increase in disclosure activity following the relaxation of these rules.

However, ex ante it is unclear whether firms will actually provide more pre-offering disclosure after the Reform. First, as the SEC indicates in the Reform, disclosure regulation, such as Reg. FD and SOX, significantly increased mandatory disclosure requirements. In particular, material information must be disclosed when known. Thus, any relevant information remaining to be disclosed before an offering could be insignificant. Second, although the Reform relaxes gun-jumping rules, there is still some ambiguity regarding what constitutes appropriate disclosures and whether these disclosures can lead to gun jumping violations, especially for non-WKSIs.[11] Moreover, anti-fraud laws (i.e. Rule 10b-5) continue to penalize disclosure violations.

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as investors with better processing abilities are able to extract more information from disclosures than are less capable investors. However, our analyses focus on information asymmetry over longer periods (i.e., >90 days).

[10] To reduce the cost of raising capital, firms can make offerings in periods of low information asymmetry, such as after earnings announcements (Korajczyk, Lucas and McDonald [1991]). In additional analyses tabulated in the online appendix of this paper, we find that the Reform does not lead to changes in the timing of SEOs relative to earnings releases (see Figure OA1 in the online appendix).

[11] For example, non-WKSIs are allowed, under Rule 163A, to continue the regular release of factual and forward-looking information, *provided they do not refer to the equity offering less than 30 days before the registration*

Given the high costs of violating both gun jumping rules and anti-fraud rules, firms may refrain from increasing disclosure even after the Reform. The above discussion leads to our first hypothesis.

> *H_1: Equity offering firms increase their disclosure frequency immediately before their offering after the enactment of the 2005 Securities Offering Reform.*

While there is some empirical support for the negative relation between disclosure and information asymmetry with respect to a *commitment* to increased disclosure (Leuz and Verrecchia [2000]), it is less clear whether *voluntary* disclosure can reduce information asymmetry, as managers can be strategic when choosing their disclosures.[12] For example, prior studies argue and find evidence consistent with managers strategically using voluntary disclosure as a tool to influence the market's expectation of firm value. In particular, Barclay and Smith [1988] show that managers can alter the normal flow of information to the market through spurring or delaying the release of news. Brockman, Khurana, and Martin [2008] demonstrate that managers increase bad news disclosure when they have incentive to dampen stock price prior to open market repurchases, and increase good news disclosure after their open market repurchases. These studies show that voluntary disclosures can be opportunistic, and thus not credible. Therefore, whether or not voluntary disclosures before SEOs lead to a decrease information asymmetry is an empirical question.

> *H_{2a}: Equity offering firms' pre-SEO voluntary disclosure behavior following the Reform is associated with market conditioning.*

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statement is filed. However, if a firm's management gives an interview prior to the 30-day period, they will not be able to rely on the safe harbor if the interview is published during the 30-day period. This has led many to take the following view by the global law firm, Latham & Watkins, LLP (Latham and Watkins [2005], page 8), "In short, because situations like this are all too easy to envision, we believe practice with respect to pre-filing publicity will not change significantly as a result of Rule 163A, and we do not expect to change our advice to non-WKSI issuers to *be cautious in their public communications prior to the filing of a registration statement*."

[12] Leuz and Verrecchia [2000, p. 94] point out that, "[T]he distinction between a commitment and a voluntary disclosure is that the former is a decision by the firm about what it will disclose *before* it knows the content of the information (i.e., ex ante), whereas the latter is a decision by the firm made *after* it observes the content (i.e., ex post)...only a commitment requires that information be disclosed *regardless* of its content…"

H_{2b}: Equity offering firms' pre-SEO voluntary disclosure behavior following the Reform is associated with a reduction in pre-SEO information asymmetry.

3. Research Design

3.1. EMPIRICAL METHOD

To test our hypotheses, we compare the disclosure behavior of SEO firms in the three months before an SEO to (i) the SEO firms' disclosure behavior in the neighboring periods and (ii) the disclosure behavior of matched non-SEO control firms over the same periods. In addition, we employ a difference-in-differences design that examines *changes* in disclosure behavior of SEO firms following the Reform relative to that for matched firms and neighboring disclosure windows. Our research design enables us to isolate the effect of the Reform on the disclosure behavior of SEO firms by controlling for (i) the possibility that the disclosures of an SEO firm are systematically different than that of a firm not issuing equity and (ii) potential time period effects in firms' disclosure behavior before SEOs that affect both SEO and non-SEO firms.

We use propensity score matching to identify a sample of non-SEO firms similar to the SEO firms in terms of their likelihood of issuing equity. We match on the following variables, as measured at the beginning of the SEO filing quarter: (i) market value of equity, (ii) Tobin's Q, (iii) return on assets, (iv) sales growth, (v) cash holdings, (vi) firm age, (vii) common stock dividends paid, and (viii) cumulative abnormal returns in the prior fiscal quarter. Tobin's Q, return on assets, and sales growth are proxies for growth opportunities. Firm size (i.e., the market value of equity), firm age, cash holdings, and dividends paid are proxies for financing constraints. We match on growth opportunities and financing constraints to capture differences in firms' need for, and ability to raise, equity financing. Specifically, we match firms on growth opportunities because high growth firms require more external financing and are likely to access equity markets more frequently (Frankel, McNichols, and Wilson [1995]; Jo and Kim [2007]). However, to the extent a firm is financially constrained, it is less likely to be able to raise equity financing in a cost effective manner. We also match firms on past returns to allow for the

possibility that firms time the equity market when the cost of capital is low or their equity is overvalued (Baker and Wurgler [2002]).

Our matching procedure relies on a nearest neighbor matching of propensity scores (see Rosenbaum and Rubin [1983]; Wooldridge [2002]). In particular, we employ a logistic regression at the firm-quarter level, where we regress a binary variable indicating whether or not a particular firm issues equity on the above firm characteristics. The logistic regression is estimated on the entire Compustat population with data from 2003 to 2008 and provides us with a firm's propensity to issue equity in each quarter. For each SEO firm in our sample, we identify a non-SEO firm with the closest propensity score that is not issuing equity, but operating in the same industry and year. Our matching procedure results in no significant difference between our SEO firm and non-SEO firm samples with respect to the matched variables (see section 4).[13]

We choose the research design described above recognizing the endogeneity in firms' disclosure choices and their equity offering choice. In particular, a firm's decision to issue equity and the change in their disclosure behavior could be driven by a third factor, a positive net present value project that becomes available to the firm (or some similar news that the manager is privy to). We address this issue by comparing the disclosure behavior of SEO firms to observably similar non-SEO firms using the Reform as a quasi-exogenous shock to SEO firms' disclosure incentives. Any change in the disclosure behavior of SEO firms relative to non-SEO firms indicates that the Reform at least partly affects firms' disclosure behavior.

3.2. EMPIRICAL PROXIES AND DISCUSSION

3.2.1. Disclosure Frequency

We examine two types of voluntary disclosure—management forecasts and firm-initiated press releases (excluding forecasts)—intended to proxy for forward looking and factual business

[13] An important limitation of the matching procedure is that it controls only for selection on observables. Thus, unobservable differences among the SEO firms and non-SEO firms can compromise our identification strategy if those unobservable differences are correlated with disclosure incentives. However, in our setting, any unobservable differences not only have to be correlated with disclosure incentives, but also with the enactment of the Reform to affect our inferences.

information, respectively, because the Reform relaxed restrictions on these disclosures.[14] We examine management forecasts and press releases separately because gun-jumping rules are stricter for the disclosure of forward-looking information. However, our inferences are unchanged if we do not distinguish between these disclosure forms and simply examine voluntary disclosure frequency. We assume changes in firms' disclosures related to forthcoming offerings happen in the three months prior to the SEO filing date. Following Rogers and Van Buskirk [2009], we measure *Forecast Frequency* (*Press Release Frequency*) as the annualized number of management forecasts (press releases) in the three-month window before an SEO, i.e., pre-SEO window, and in the 365-day intervals around the pre-SEO window, i.e., neighboring windows (see Figure 1). We assume that *Forecast Frequency* (*Press Release Frequency*) is zero if a firm is covered in the database but does not issue a forecast (press release) in the pre-SEO window or the neighboring windows.

We also examine whether firms provide more 'good-news' disclosures in the pre-SEO window following the Reform using two measures of good-news disclosure. Our first measure is the *Proportion of GN*, which captures the number of good news disclosures relative to the number of bad news disclosures in the pre-SEO period. A disclosure is considered to provide good (bad) news if it induces a positive (negative) cumulative abnormal return in the three-day window [-1, 1] around the disclosure date, where abnormal return is the firm's return minus the return of the CRSP value-weighted index. The second measure of good news disclosure is the *Sum of SRET*, which is the aggregate cumulative abnormal returns for the three-day window [-1, 1] around firms' disclosures during the pre-SEO period. Therefore, the *Proportion of GN* captures the relative frequency of good news issued by managers, and the *Sum of SRET* captures the aggregate magnitude of news in firms' disclosures. When a firm provides no forecasts or

[14] Although press-releases can contain non-factual information, such as qualitative information about the firms' products, marketing campaigns, subjective interpretations of quarterly/annual earnings releases, etc., we believe our classification is appropriate because these disclosures fall within the scope of 'factual business information' as described in the Reform (see SEC [2005]; p. 56). Further, obtaining a more refined proxy for factual information by identifying purely factual press-releases poses a considerable empirical challenge.

issues no press releases in a disclosure window (i.e., the pre-SEO window or the neighboring window), we set the variable as zero.

Our focus on the short window return around the disclosure announcements provides us several benefits. First, it directly captures investors' reaction to the disclosures as opposed to subjectively determining the optimism or pessimism in the disclosures (Lang and Lundholm [2000]). Second, our measure captures the impact of qualitative information as well as various types of forecasts, including point forecasts, range forecasts and qualitative forecasts conveyed during the disclosure announcements. Third, the disclosure announcement return also captures forecast biases linked to potential reversals in the future when testing for evidence of market conditioning, while avoiding issues related to calculating forecast errors from observed earnings realizations.[15]

3.2.2. Market Conditioning

To identify market conditioning, we check for (i) any changes in the propensity to issue good news relative to bad news and/or changes in the magnitude of good news conveyed to the market before an SEO following the enactment of the 2005 Reform, and (ii) any reversal in the stock price after the SEO that is associated with the pre-SEO disclosures, as the effect of managerial hyping unravels. We measure abnormal returns (*AR*) as market-adjusted returns, where we calculate the market return as the return on the CRSP value-weighted market index (Rangan [1998]; Teoh et al. [1998]; Jo and Kim [2007]). Following Lang and Lundholm [2000], returns are compounded over the 18 months following the SEO issuance date. To capture the

[15] An alternative approach to capture hyping is to examine forecast bias using realized earnings. However, observed forecast bias (i.e., earnings forecast minus realized earnings) is a function of two variables that are at least somewhat under managers' control. That is, managers can bias forecasts, then manage to that earnings number, so that the empirically observed forecast error is zero. Prior research finds that firms manage earnings both before and after an SEO (Rangan [1998]; Teoh, Welch, and Wong [1998]; Shivakumar [2000]; Cohen and Zarowin [2010]). Further, prior research provides strong evidence that managers deliberately try to meet or beat their earnings forecast by managing earnings (Kasznik [1999]). Graham, Harvey, and Rajgopal [2005] find that "CFOs dislike the prospect of coming up short on their numbers, particularly if they are guided numbers…" (p. 42). Such incentives to meet management-issued earnings forecasts are likely to be even stronger immediately before an SEO, as there is increased litigation risk. Therefore, examining forecast bias to infer managerial hyping is problematic.

extent to which managers engage in hyping behavior before the SEO, we link subsequent returns (*AR*) with the relative frequency of good news disclosed and the aggregate news disclosed in the pre-SEO window (i.e., *Proportion of GN* and *Sum of SRET*).[16]

3.2.3. Information Asymmetry

We use three proxies for information asymmetry. Our first proxy is the adverse selection component of the average daily bid-ask spread (*ASC_Spread*). *ASC_Spread* measures the extent to which unexpected order flow affects prices and is increasing in information asymmetry (Brennan and Subrahmanyam [1996], Armstrong, Core, Taylor, and Verrecchia [2011], Akins, Ng, and Verdi [2012]). We measure *ASC_Spread* using the procedure described in the appendix of Armstrong et al. [2011].

Our second proxy for information asymmetry is the average daily depth (*Market Depth*), or order size, because liquidity suppliers can address adverse selection concerns by adjusting spread and/or the number of shares they are willing to trade (Leuz and Wysocki [2008], Lee, Mucklow, and Ready [1993]). *Market Depth* is calculated as the average sum of the dollar offer size and the dollar bid size of each quote. We obtain trade-by-trade and quote data from the TAQ database to compute *ASC_Spread* and *Market Depth*.

Our third proxy for information asymmetry is the average analyst earnings forecast accuracy (*Analyst Forecast Accuracy*). An analyst's ability to forecast a firm's earnings is a function of the firm's information environment. Firms that are more transparent about their operations and their disclosures have less information asymmetry between analysts and managers (and among analysts), leading to more accurate earnings forecasts by the average analyst (Barron, Kim, Lim, and Stevens [1998]; Hope [2003]). *Analyst Forecast Accuracy* is

[16] In additional analyses tabulated in Table OA2 in the online appendix, we also verify the robustness of our inferences to using (i) the *Sum of SRET* conditional on SRET being positive, (ii) decile ranks of the *Sum of SRET*, and (iii) the total frequency of good news disclosure (rather than the proportion of good news disclosures). These alternative proxies allow the relation between pre-SEO good news disclosures and post-SEO abnormal returns to be non-linear.

computed as minus one times the absolute value of analyst consensus earnings per share (EPS) forecast minus the actual EPS divided by the absolute value actual EPS.

4. Data, Sample Selection, and Summary Statistics

We obtain management forecast announcements from First Call, firm-initiated press releases from RavenPack, seasoned equity offering from Security Data Company (SDC) Platinum, financial information from Compustat, stock returns from CRSP, analyst EPS forecasts and actual EPS data from I/B/E/S, and daily trade-by-trade and quote data from TAQ. Our sample period begins in 2003 to avoid confounding effects of Regulation Fair Disclosure and the Sarbanes-Oxley Act on firms' disclosure behavior. We end our sample period in 2008, because we require 18 months of stock returns data following SEOs.

We begin our sample construction by identifying the SEOs in SDC with non-missing filing dates and issuance dates that are no more than 90 days apart. We require SEO firms to have financial data on Compustat and stock returns data on CRSP for the three-month period prior to the SEO filing month. This procedure leaves us with 839 SEO events over the period 2003 to 2008. We drop 47 SEO events for which we are unable to obtain a matched firm, leaving us with 792 SEO events and 792 matched non-SEO firms.

To test our predictions, we compare the disclosure behavior of our sample firms—both SEO and matched firms—in the pre-SEO window to their disclosure behavior in the two neighboring windows (see Figure 1). Therefore, our unit of analysis is a 'disclosure-window' centered on the pre-SEO window. We require each observation to have CRSP and Compustat data for at least one of the two neighboring windows around the pre-SEO window. This procedure leaves us with a final sample of 4,651 disclosure-window observations.

We merge the 4,651 observations with First Call and RavenPack to obtain data on the frequency of management forecasts and press releases in each disclosure window.[17,18] Following

[17] Chuk, Matsumoto and Miller [2013] find that First Call's CIG forecast sample is different from a hand-collected random sample of Compustat firms in terms of coverage and forecast announcement timing and that these differences are systematically related to analyst following and institutional ownership. We note that our research design makes it unlikely that these database limitations affect our inferences. Specifically, our research design

Cheng and Lo [2006] and Brockman et al. [2008], we include all forecast announcements, regardless of whether it is an earnings forecast or a forecast of other summary measures, such as cash flows or revenue, and regardless of whether the forecasts are for a quarterly or annual period. We treat multiple forecasts made by the same firm on the same day as a single forecast event. For example, earnings forecasts for the following quarter and the following year are treated as a single forecast event. Similarly, we include all (non-forecast) press releases initiated by a firm regardless of the content of the news. We also treat multiple press releases issued by the same firm on the same day as a single press release.

To test for reversals in stock prices after SEOs, we start with the sample of firms used in our disclosure analyses. We find that 48 SEO firms and 76 control firms are missing 18 months of consecutive stock returns following the SEO. We obtain delisting returns for 28 SEO firms and 46 control firms and drop the remaining 50 SEO events (i.e., 48+76–28–46) because of missing returns data for either the SEO firm or the matched control firm. Therefore, our analysis of abnormal stock returns following SEOs is based on 1,484 observations (i.e., 742 SEO firms + 742 matched firms). Table 1 outlines our sample selection process.

Table 2, Panel A provides the descriptive statistics for the matching criteria. As shown, there is no significant difference in the mean values of any of the matching variables for our SEO sample and the matched control sample. Further, Table 2, Panel B shows that the differences in the mean values of the matching variables for our SEO sample and the matched control sample continue to be insignificant when we split the sample into SEOs during the pre-Reform and post-Reform periods. These results indicate that our matching procedure is effective.

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compares the forecasting behavior of SEO firms in the pre-SEO period after the Reform to (i) their forecasting behavior in the neighboring periods, (ii) the forecasting behavior of matched control firms over the same periods, and (iii) the forecasting behavior of both SEO and control firms before the Reform. Therefore, any database biases would have to survive a 'triple difference' to affect our inferences.

[18] RavenPack obtains press coverage data from a number of sources, including Dow Jones Newswires, all editions of the Wall Street Journal and Barrons. To validate the use of RavenPack in our study, we examine the overlap in monthly press release frequency between RavenPack and Factiva (an extensive press release database commonly used by researchers) for a random sample of 50 firms and find that the correlation in press-release frequency is 94.7%. This high correlation is perhaps not surprising given that RavenPack partners with Dow Jones (the creator of Factiva) to obtain press coverage data.

Table 2, Panel C presents the descriptive statistics for variables used in our analyses. Our SEO firms, on average, make 1.43 forecasts and initiate 15.8 press releases annually. However, we find that the average SEO firm provides 3.6 forecasts if we restrict the sample to include only firms that issued at least one forecast in our sample period, which is no different than that for the entire population of firms in the First Call database.[19] The matched firms provide marginally more forecasts and fewer press releases. Table 2 also shows that SEO firms tend to have marginally higher information asymmetry than the matched firm sample. Finally, we find that the market reactions around these disclosures tend to be more positive for SEO firms than for matched firms indicating the SEO firms provide more good news disclosures.

5. Empirical Analyses and Results

We first examine whether the 2005 Reform affects the frequency of pre-SEO disclosures. We then examine whether the change in pre-SEO disclosure frequency is associated with market conditioning or a reduction in information asymmetry. Next, we examine the differential impact of the Reform on WKSIs and non-WKSIs. Finally, we examine the impact of the Reform on the cost of raising capital.

5.1. THE EFFECT OF THE 2005 REFORM ON FIRMS' DISCLOSURE BEHAVIOR

We begin by examining whether the Reform leads to a change in pre-SEO disclosure frequency. Figure 3 provides graphical evidence of changes in disclosure frequency of SEO firms and matched firms in the pre-SEO window and the neighboring windows. Specifically, Figure 3 shows that SEO firms significantly reduce the number of forecasts and press releases issued in the pre-SEO window before the Reform (relative to neighboring periods and the control sample). However, after the Reform, we observe no such reduction in their disclosure frequency in the pre-SEO window. Rather, SEO firms appear to shift disclosures from the neighboring

[19] We find very similar results if we restrict our sample to those firms that issue at least one forecast/press release in the pre-SEO window.

window to the pre-SEO window after the Reform. Next, we estimate the following difference-in-differences regression to test our prediction in a multivariate setting:

$$\begin{aligned} Frequency_{it} = {} & \beta_1 + \beta_2 SEOFIRM_i + \beta_3 SEO_{it} + \beta_4 POSTREFORM_t + \beta_5 SEOFIRM_i \times \\ & SEO_{it} + \beta_6 SEOFIRM_i \times POSTREFORM_t + \beta_7 SEO_{it} \times POSTREFORM_t + \\ & \beta_8 SEOFIRM_i \times SEO_{it} \times POSTREFORM_t + \sum \gamma Controls + \varepsilon_{it} \ , \end{aligned} \quad (1)$$

where *Frequency* is either *Forecast Frequency* or *Press Release Frequency*; *SEOFIRM* is an indicator variable that equals one for firms in the SEO sample and zero for firms in the matched sample. *SEO* is an indicator variable that equals one for the 90-day pre-SEO period for both the SEO firm and its matched control firm, and it equals zero for the two neighboring windows (see Figure 1). *POSTREFORM* is an indicator variable that equals one if the SEO filing date is after 2005 and zero otherwise. *Controls* are a vector of firm characteristics likely associated with a firm's information environment and disclosure behavior.

Our choice of control variables follows prior literature (e.g., Lang and Lundholm [2000], Jo and Kim [2007], and Brockman et al. [2008]). We control for the natural logarithm of the market value of equity (*LSIZE*), market-to-book ratio of equity (*MTB*), return on assets (*ROA*), the number of analysts following the firm (*ANALYST FOLLOWING*) and the percentage of the firms' shares owned by institutional investors (*INST_HOLDING*). *LSIZE*, *MTB*, *ROA* and *ANALYST FOLLOWING* are measured at the fiscal quarter end immediately preceding the disclosure date. *INST_HOLDING* is measured using the most recent data prior to the disclosure announcement. Following Bushee et al. [2010], we also control for differences in firm-specific demand for voluntary disclosure by including the log of one plus the fiscal year-end number of shareholders (*LNOWN*) and the log of quarter-end stock price (*LNPRC*). We include indicator variables for each year and each of the 48 industries in Fama and French [1997] to control for unobserved year and industry attributes that affect firms' disclosure choices. The coefficients of interest in equation (1) are β_5 and β_8, where β_5 captures the pre-SEO disclosure frequency before

the Reform, and β_8 captures the change in pre-SEO disclosure frequency following the Reform *incremental* to the change in the disclosure frequency of matched non-SEO firms.

Table 3 presents the results from estimating equation (1). Consistent with Frankel et al. [1995] and Lang and Lundholm [2000], we find no evidence of a disproportionate increase in forecast frequency in the pre-SEO period relative to neighboring periods and a match set of control firms prior to the Reform. In fact, the coefficient for *SEO*×*SEOFIRM* (β_5) is negative and statistically significant at the 5% level (or better), indicating that SEO firms significantly decrease the number of disclosure made just before an SEO. This decline in voluntary disclosures in the pre-SEO period is consistent with the firms changing their disclosure behavior to avoid violating gun-jumping rules.

After the Reform, SEO firms increase both their forecasting frequency and press-release frequency in the pre-SEO window relative to neighboring windows and the matched control firms. Table 3 shows that the coefficient for *SEO*×*SEOFIRM*×*POSTREFORM* (β_8) is positive and significant at the 5% level for both forecast frequency and press-release frequency, suggesting that relaxing gun jumping rules induces firms to increase their pre-SEO disclosures. The coefficients indicate that following the Reform, SEO firms provide 0.51 additional pre-SEO forecasts than they did before the Reform, on average. This represents approximately a 36% increase in pre-SEO forecasts. Similarly, the coefficient for press releases indicates that SEO firms issue 2.71 (17%) more press releases in the pre-SEO period following the Reform.

Finally, in untabulated F-tests we find that following the Reform, the forecast frequency and press release frequency of SEO firms in the pre-SEO window are no different than those in the neighboring windows (*p*-value=0.38 and 0.37).[20] Collectively, these results indicate that the Reform led to an economically and statistically significant increase in voluntary disclosure frequency before SEOs, consistent with the SEC's intent to encourage firms to increase disclosure before equity offerings.

[20] This inference is based on the results from an F-test, where the null hypothesis is that the sum of the coefficients for *SEO* x *SEOFIRM* and *SEO* x *SEOFIRM* x *POSTREFORM* is zero.

The coefficients for the control variables in Table 3 are generally consistent with expectations. Specifically, larger firms, firms with higher analyst following, and firm with higher institutional ownership tend to disclose more (Lang and Lundholm [1996]). Further, consistent with Miller [2002], firm with better past performance (i.e., ROA) tend to issue more forecasts.

5.2. THE EFFECT OF THE REFORM ON MARKET CONDITIONING

Our hypothesis is that firms increase their pre-SEO disclosure to either hype the stock or to reduce information asymmetry before the SEO. If firms use pre-SEO disclosures to hype their stock price, we should observe more good news in the pre-SEO period. Further, the pre-SEO disclosure should be negatively associated with post-SEO abnormal returns as the market learns of the mispricing. To examine if SEO firms increase good news disclosure in the pre-SEO period after the Reform, we estimate the following regression to test our prediction:

$$\begin{aligned} GN\_Disclosure_{it} = {} & \beta_1 + \beta_2 SEOFIRM_i + \beta_3 SEO_{it} + \beta_4 POSTREFORM_t + \beta_5 SEOFIRM_i \times \\ & SEO_{it} + \beta_6 SEOFIRM_i \times POSTREFORM_t + \beta_7 SEO_{it} \times POSTREFORM_t + \\ & \beta_8 SEOFIRM_i \times SEO_{it} \times POSTREFORM_t + \sum \gamma Controls + \varepsilon_{it}, \end{aligned} \quad (2)$$

where *GN_Disclosure* is either the relative frequency of good news disclosures (*Proportion of GN*) or the aggregate magnitude of news in firms' disclosures (*sum of SRET*).[21] All other variables are as defined previously. The coefficients of interest are β_5 and β_8, where β_5 captures the pre-SEO good-news frequency (or aggregate news) before the Reform, and β_8 captures the change in pre-SEO good-news frequency (or aggregate news) following the Reform incremental to that observed in the neighboring periods and that for matched non-SEO firms.

Table 4 presents the results from estimating equation (2). We find that the coefficient estimate for β_5 is statistically insignificant for both forms of disclosure, i.e., forecasts and press releases, and both measures of good news, i.e., *Proportion of GN* and *sum of SRET*. Thus, we find no evidence that SEO firms disproportionately increase the amount of good news in the pre-

[21] In additional analyses tabulated in Table OA6 in the online appendix, we find that our inferences are unchanged when we use the frequency of good news disclosure relative to total news, and just the frequency of good news disclosures.

SEO period before the enactment of the Reform. However, Table 4 shows that the coefficient estimate for β_8 is positive and statistically significant at the 5% level (or better) for both forms of disclosure and both measures of good news. These results indicate that following the Reform, SEO firms provide more *price-increasing* disclosures (i.e., good news) in the pre-SEO period relative to neighboring periods and a matched set of control firms.

Next, we examine whether the pre-SEO disclosures are associated with an *unwarranted* increase in the firm's stock price, as evidenced by post-SEO stock market underperformance. In particular, we examine the association between pre-SEO good news disclosures and post-SEO abnormal returns using the following regression to test the managerial hyping hypothesis:

$$\begin{aligned} AR_{it} = {} & \beta_1 + \beta_2 SEOFIRM_i + \beta_3 DISC_{it} + \beta_4 POSTREFORM_t + \beta_5 SEOFIRM_i \times \\ & DISC_{it} + \beta_6 SEOFIRM_i \times POSTREFORM_t + \beta_7 DISC_{it} \times POSTREFORM_t + \\ & \beta_8 SEOFIRM_i \times DISC_{it} \times POSTREFORM_t + \sum \theta Controls + \varepsilon_{it} \ , \end{aligned} \tag{3}$$

where *AR* is abnormal returns in the 18 months following an SEO and *DISC* is either the *Proportion of GN* or the *sum of SRET*.[22] Given that our regressions include interaction terms of continuous variables (i.e., *DISC*), we demean *DISC* to ease the interpretation of interaction terms. All other variables are as defined previously, except *Controls*, which is a vector of control variables that are likely to be associated with a firm's future stock performance. Our control variables include the cumulative abnormal return in the three months before the SEO filing date (*QABRET*), natural log of market value of equity (*LSIZE*), market-to-book ratio of equity (*MTB*), return on assets (*ROA*), the number of forecast announcements or press releases in the pre-SEO window (*FREQ*), and performance-adjusted discretionary accrual (*PDA*).[23] *LSIZE, MTB, ROA*,

[22] To the extent our proxy for abnormal returns completely eliminates any systematic component of stock returns that is expected given the level of risk, there is no benefit to including a control sample. Although we tabulate the results using the benchmark sample as a control group, we note that none of our inferences are affected if we re-estimate our regressions without the control sample (see Table OA3 in the online appendix for these results).

[23] To estimate the performance-adjusted discretionary accruals, we first estimate discretionary accruals using the modified Jones model. We use all the available observations in Compustat to run this model by each quarter and two-digit SIC code industry that have at least 5 observations. We use the residuals, ε_{it}, from these regressions as the proxy for discretionary accruals. We then follow the procedure in Kothari, Leone, and Wasley [2005] to calculate the performance-adjusted discretionary accruals.

and *PDA* are measured at the end of the fiscal quarter preceding the SEO filing date. The coefficient of interest in equation (3) is β_8, which captures the relation between pre-SEO disclosures and post-SEO abnormal returns following the Reform.

Table 5 presents the results from estimating equation (3). We find that the coefficient estimate for β_5 is statistically insignificant for both forms of disclosure and both measures of good news. That is, we find no evidence that the pre-SEO disclosures are associated with post-SEO abnormal stock returns before the Reform. Further, Table 5 shows that the coefficient estimate for β_8 is also statistically insignificant for both forms of disclosure and both measures of good news. And, the results from our F-tests suggest that the sum of the coefficients estimates for $\beta_5 + \beta_8$ in equation (3) is insignificantly different from zero in all our regression specifications (untabulated). These results indicate that there is no evidence that pre-SEO good news forecasts or press releases are associated with post-SEO return reversals.

Although we find no statistically significant evidence of market conditioning behavior after the Reform, we note that the coefficient for *SEOFIRM* × *DISC* × *POSTREFORM* (i.e., β_8) is insignificantly negative in three of the four regressions, pointing in the direction of hyping. Given that our tests are based on a small number of observations (i.e., 1,484 observations) and that abnormal returns are measured with significant noise, the above tests might lack sufficient power to detect market conditioning behavior. As a result, we suggest some caution interpreting these results.

Conditional on our tests having sufficient power, the absence of any relation between pre-SEO disclosures and post-SEO returns could be because either managers do not attempt to condition the market before SEOs or investors de-bias managers' disclosures once they learn of the firm's intention to raise equity. To further investigate whether firms *attempt* to condition the market following the Reform, we examine (i) whether analyst forecasts issued during the pre-SEO period are systematically more optimistic than they are in the neighboring windows and those issued for control firms, and (ii) whether management forecasts are systematically greater

than preceding analyst forecasts in the pre-SEO period relative to the neighboring periods and that of control firms. The idea is that if managers are trying to condition the market before SEOs, they are likely to bias their disclosures upwards to influence analysts to be more optimistic about the firms' future prospects.

We find no statistically significant evidence of market conditioning behavior in either of the tests described above (results are tabulated in Table OA1 in the online appendix). However, we again note that the coefficient for *SEOFIRM* × *DISC* × *POSTREFORM* is insignificantly positive in three of eight regressions we estimate, which points in the direction of pre-SEO hyping behavior. As a result, here again it is plausible that these tests do not have sufficient power to identify market conditioning behavior. In summary, our results suggest that offering firms do not use pre-SEO disclosures to condition the market following the Reform. However, the increase in the frequency of good-news disclosures before SEOs suggests that firms show more willingness to reveal positive business prospects after the Reform and that firms are more likely to raise capital when they have good news (e.g., new growth opportunities).

5.3. THE EFFECT OF REFORM ON INFORMATION ASYMMETRY

In this section, we examine whether pre-SEO information asymmetry is reduced following the 2005 Reform using the following regression:

$$\begin{aligned} INFO\_ASYM_{it} = {} & \beta_1 + \beta_2 SEOFIRM_i + \beta_3 SEO_{it} + \beta_4 POSTREFORM_t + \beta_5 SEOFIRM_i \times \\ & SEO_{it} + \beta_6 SEOFIRM_i \times POSTREFORM_t + \beta_7 SEO_{it} \times POSTREFORM_t + \\ & \beta_8 SEOFIRM_i \times SEO_{it} \times POSTREFORM_t + \sum \gamma Controls + \varepsilon_{it} \ , \end{aligned} \quad (4)$$

where *INFO_ASYM* is either *ASC_Spread*, *Market Depth,* or *Analyst Forecast Accuracy*. *ASC_Spread* is the adverse selection component of average daily bid-ask spread. *Market Depth* is the daily average of each quote's depth, calculated as the sum of the dollar offer size and the dollar bid size. *Analyst Forecast Accuracy* is the average analyst earnings forecast accuracy. All other variables are as defined earlier. The coefficients of interest in equation (4) are β_5 and β_8,

where β_5 captures the pre-SEO information asymmetry before the Reform, and β_8 captures the change in pre-SEO information asymmetry following the Reform.

Table 6 presents the results from estimating equation (4). The coefficient estimate for β_5 is positive and statistically significant at the 5% level when *ASC_Spread* is the dependent variable, and is negative and statistically significant at the 1% level when *Market Depth* and *Analyst Forecast Accuracy* are the dependent variables. These results suggest that pre-SEO information asymmetry was abnormally high before the Reform, and is associated with the decrease in voluntary disclosure frequency in the pre-SEO period before the Reform as observed in Table 3. This is consistent with the quiet period before SEOs providing incentives for investors to acquire private information.[24]

Table 6 also shows that the coefficient for β_8 is negative (positive) and statistically significant at the 5% level when *ASC_Spread* (*Market Depth*; *Analyst Forecast Accuracy*) is the dependent variable, suggesting that the relaxation of gun jumping restrictions helps reduce information asymmetry in the pre-offering period. Further, the results from F-tests (untabulated) suggest that the sum of the coefficients for β_5 and β_8 in equation (4) is insignificantly different from zero (*p*-value = 0.80, 0.89, and 0.78 for spread, depth, and forecast accuracy, respectively), indicating that after the Reform, pre-SEO information asymmetry reduces to that observed in other (non-SEO) periods.[25]

In terms of economic magnitudes, our coefficients suggest that *ASC_Spread* increases by approximately 15% in pre-SEO periods before the Reform and decreases by approximately

[24] Note that we do not examine the direct association between the change in pre-SEO disclosure after the Reform and the change in pre-SEO information asymmetry after the Reform because we do not expect the *sensitivity* of information asymmetry to changes in disclosure to be affected by the Reform. Rather, our prediction is that there will be greater pre-SEO disclosure and a corresponding decrease in pre-SEO information asymmetry. In other words, in a regression of information asymmetry on disclosure frequency, we do not expect the coefficient for disclosure frequency to change after the Reform. Instead, we expect any decrease in the level of information asymmetry after the Reform to be achieved via an increase in disclosure frequency rather than a change in the coefficient on disclosure.

[25] In additional analyses (see Table OA5 in the online appendix), we partition SEO firms into those increasing good news disclosures before SEOs and those increasing bad news disclosures before SEOs and re-estimate our information asymmetry tests. We find that our results hold for both sub-samples of firms, thereby further supporting the notion that good news disclosures are not hyping.

16.7% in pre-SEO periods after the Reform (i.e., to *ASC_Spread* levels observed in non-SEO periods). Similarly, *Market Depth* and *Analyst Forecast Accuracy* decrease by approximately 7.4% and 13.4% in pre-SEO periods before the Reform and return to normal levels observed in non-SEO periods after the Reform. Taken together, these results suggest that after the Reform, firms increased their pre-SEO disclosure frequency, which is associated with a decrease in pre-SEO information asymmetry.

5.4. THE EFFECT OF THE REFORM ACROSS WKSIs AND NON-WKSIs

The Reform creates a new class of equity offering firms – Well Known Seasoned Issuers (WKSIs). To qualify for WKSI status, a firm must be current and timely in filing mandatory reporting requirement under the Securities Exchange Act of 1934 (i.e., its 10K filing, 10Q filing, etc. must be up-to-date). Further, the firm must either have $700 million of worldwide public common equity float or have issued in the immediately preceding three years $1 billion of non-convertible securities, other than common equity, in registered offerings for cash. The SEC argues that WKSIs are large firms that are "well-known" and widely followed by sophisticated market participants, and thus, the investors in these firms need less regulatory protection.

The key regulatory benefit concerning pre-SEO disclosures afforded to WKSIs is that they are allowed any communication, including Section 5(c) "offers," any time prior to the filing of a registration statement (Rule 163). In contrast, non-WKSIs are allowed to release any information as long as it is *more than 30 days* before the registration statement is filed and the disclosure does not reference the equity offering (Rule 163A). However, disclosures by non-WKSIs in the 30-days immediately before SEO filing run the risk of the SEC interpreting them as an "offer" under Section 5(c) of the Securities Act (see the appendix for a detailed discussion). Thus, disclosures by non-WKSIs in the 30-day period before SEO filing are subject to greater litigation risk than their disclosures outside the 30-day window and the disclosures of WKSIs.

We use this regulatory distinction between WKSIs and non-WKSIs introduced in the Reform to further refine our tests and better identify the relation between voluntary disclosure and information asymmetry. Specifically, if the Reform causes firms to increase the amount of information conveyed before SEOs, and thus reduces pre-SEO information asymmetry, we should observe that WKSIs increase disclosure up to the SEO filing date, whereas non-WKSIs do not increase disclosure in the 30-day pre-SEO window, rather, non-WKSIs increase disclosure up until the 30-days before SEO filing.

We classify an issuer as a WKSI if its market capitalization is more than $700 million in the year prior to its equity offering. Although our criterion to identify WKISs is imperfect, the SEC also uses market capitalization as a proxy for public float in evaluating the $700 million threshold and its implications. Further, the SEC states that "…very few issuers that … did not meet the $700 million public float threshold would meet the $1 billion nonconvertible securities threshold … *or* have issued at least $1 billion in non-convertible securities for cash in the past three years." (SEC [2005]; pg. 30) Nevertheless, we verify the robustness of our inferences to using a variety of cut-offs to identify WKSIs (non-WKSIs) ranging from a market capitalization of $700 million to $900 million ($700 million to $550 million).

Table 7 presents our results examining the impact of the Reform on forecast and press release frequencies for WKSIs and non-WKSIs, where the 90-day pre-SEO window is broken into a [-90, -31] day period before the SEO filing and a [-30,-1] day period before the SEO filing.[26] Panel A (B) examines pre-SEO forecasting (press release) frequency. We find no evidence that WKSIs decrease their disclosure frequency in the [-90, -31] day period before SEO filing both before and after the enactment of the Reform. We also find no evidence of a change in disclosure frequency over the same pre-SEO period following the enactment of the Reform.[27]

[26] As mentioned earlier, we annualize disclosure frequencies for all windows to facilitate comparison.

[27] Note that ex ante it is unclear whether WKSIs are likely to decrease their disclosure frequency in the [-90,-31] day window before SEO filing in the pre-Reform period. WKSIs are large firms that are likely to have greater demand from analysts and investors. Further, they have more experience raising capital and closer ties to investment bankers

In contrast, non-WKSIs significantly reduce their disclosure frequency in the [-90, -31] day period before SEO filings in the pre-Reform period, but following the Reform, they significantly increase disclosure in the [-90, -31] day period before SEO filings. The behavior of non-WKSIs is consistent with gun-jumping provisions reducing incentives to disclose information in the pre-Reform regime and a change in these incentives following the Reform. Importantly, we find that both WKSIs and non-WKSIs significantly reduce disclosure frequency in the [-30, -1] day period before SEO filing in the pre-Reform period consistent with the incentives induced by gun-jumping restrictions; further, *only WKSIs increase their disclosure frequency in the [-30, -1] day period before SEO filing after the enactment of the Reform*. Collectively, these results provide strong evidence that the Reform impacts the pre-SEO disclosure behavior of SEO firms.[28]

Finally, we examine whether changes in pre-SEO information asymmetry for WKSIs and non-WKSIs are associated with changes in disclosure behavior. Table 8 Panel A (B; C) presents the results when we measure information asymmetry using *ASC_Spread* (*Market Depth*; *Analyst Forecast Accuracy*). We find that the Reform has no effect on information asymmetry for WKSIs in the [-90, -31] day period before SEO filings either before or after the Reform, which is consistent with the absence of any change in disclosure frequency in these periods (see Table 7). In contrast, we observe a significant increase in information asymmetry for non-WKSIs in the [-90, -31] day period before SEO filings in the pre-Reform period and a significant decrease in information asymmetry in the same period following the Reform, which is again consistent with the change in disclosure frequency for non-WKSIs in these periods (see Table 7). Further, Table 8 shows that both WKSIs and non-WKSIs have significantly higher information asymmetry in

(SEC [2005]), so they have the ability to file their registration statement with the SEC quicker than non-WKSIs, leading to shorter quiet periods. To the extent the [-90,-31] day window encompasses the period *before* the quiet period for WKSIs, we might not empirically observe a decrease in disclosure frequency before the Reform in the [-90,-31] day window.

[28] Interestingly, we note that the coefficient for *SEOFIRM* x *SEO* x *POSTREFORM* is negative (albeit insignificant) for WKSIs in the [-90,-31] day window after the Reform. This coefficient suggests that WKSIs perhaps shifted some of their disclosures from the [-90,-31] day window to the [-30,-1] day window after the Reform to minimize information asymmetry immediately before the SEO. However, given that the coefficients are insignificant at conventional levels, we are cautious drawing any inference.

the [-30, -1] day period before SEO filing in the pre-Reform period. However, following the Reform, WKSIs observe a significant decrease in information asymmetry in the [-30, -1] day period before SEO filing. In contrast, non-WKSIs see no such decrease in information asymmetry. Here again, changes in pre-SEO information asymmetry are associated with changes in pre-SEO disclosure frequency for both WKSIs and non-WKSIs. Collectively, these results provide strong evidence that the Reform significantly affects the pre-SEO disclosure behavior, and thus the pre-SEO information asymmetry of equity offering firms.[29]

5.5. THE IMPACT OF THE REFORM ON THE COST OF FINANCING

Prior research finds robust evidence that firms experience a 2% to 3% decline in the price of their shares at SEO announcements (e.g., Asquith and Mullins [1986]; Korajczyk et al. [1991]; Ritter [2003]; Eckbo et al. [2007]; Lee and Masulis [2009]; Gao and Ritter [2010]). The negative SEO announcement return is interpreted as evidence of adverse selection concerns; that is, the announcement indicates that the firm's equity is not undervalued, and perhaps is overvalued (see, e.g., Eckbo et al. [2007]; Lee and Masulis [2009]; Gao and Ritter [2010], among others). The intuition is that managers are more likely to issue equity as the current stock price rises relative to its intrinsic value (Myers and Majluf [1984] and Krasker [1986]). Rational investors recognize managers' information advantage and interpret an SEO announcement as management's opinion that the stock is not undervalued, which should reduce the stock's market price because the right tail of the market price's probability distribution (i.e., stock undervaluation) is being truncated.

[29] Note that while we have differential predictions for WKSIs and non-WKSIs in our information asymmetry tests, we do not have differential predictions for our return reversal tests, good news disclosure frequency tests, and SEO announcement returns tests (see section 5.5 for the announcement return test). Therefore, we do not tabulate separate results for the WKSI and non-WKSI firms for these tests. That said, for the sake of completeness, we do conduct these tests, and continue to find no evidence that either WKSIs or non-WKSIs condition the market after the Reform. And, we find that both WKSIs and non-WKSIs observe a negative stock price reaction to SEO announcements prior to the Reform and a reduction in the negative reaction after the Reform, consistent with a cost of capital reduction for both sets of firms after the Reform. These results are tabulated in Table OA4 in the online appendix.

By limiting disclosure before the announcement of an SEO, gun-jumping regulation prevented investors from evaluating a firm's true financial health, thereby increasing information asymmetry. To the extent the Reform allows firms to provide more disclosure immediately before SEOs and reduce information asymmetry before the announcement of the SEO, the Reform is likely to reduce the negative SEO announcement effect (i.e., the adverse selection cost), and thus the cost of raising capital. We estimate the following difference-in-differences regression to test our prediction:

$$ANN\_CAR_{it} = \beta_1 + \beta_2 SEOFIRM_i + \beta_3 POSTREFORM_t + \beta_4 SEOFIRM_i \times POSTREFORM_t + \sum \gamma Controls + \varepsilon_{it}, \quad (5)$$

where *ANN_CAR* is the 3-day cumulative market adjusted return around the SEO announcement date.[30] Since non-SEO firms do not have an SEO announcement, we use the 3-day window that we use to compute *ANN_CAR* for SEO firms for its matched control firm. The other variables are as defined previously. In addition to controlling for all the variables included in our earlier regressions, we follow prior research (see e.g., Choe, Masulis, and Nanda [1993]; Jung, Kim, and Stulz [1996]; Purnanandam and Swaminathan [2006]) and also control for the following variables: *SALES_GR* – the percentage change in sales, *CAPEX* – capital expenditures scaled by assets, *CASH* – cash holdings scaled by assets, *PRE_RETURN* – buy and hold returns in the 12 months preceding SEO filing, *SHARE_PER* – the number of shares issued as a percentage of shares outstanding, *SALE* – firm sales scaled by assets, *LEVERAGE* – the sum of short- and long-term debt scaled by assets, and *SEC_OFFER* – an indicator variable equal to one if the SEO contains secondary shares. The inclusion of additional control variables leads to the loss of 54 observations due to missing data. The coefficient of interest in equation (5) is β_4, which captures

[30] We follow prior research (e.g., Jegadeesh, Weinstein, and Welch [1993] and Purnanandam and Swaminathan [2006]) and use the SEO filing dates to proxy for the announcement dates, since SEO announcement dates are not readily available in SDC. Purnanandam and Swaminathan [2006] check a random sample of 300 SEOs and find that approximately 90% of the firms made their SEO announcement on the SEO filing date. The remaining SEO announcements were within a day of the filing date.

the average change in SEO announcement returns following the Reform incremental to that for matched non-SEO firms.

Column 1 in Table 9 presents the results from estimating a base-line model that includes only the control variables used in prior analyses. Column 2 in Table 9 presents the full model that includes the additional control variables described above. The table shows that the coefficient for *SEOFIRM* (β_2) is negative and statistically significant at the 1% level, indicating the stock price of an SEO firm drops by approximately 2.1% at the announcement. This negative reaction is consistent with a long line of prior research (see Ritter [2003] and Eckbo et al. [2007] for surveys of the literature). Importantly, we find that the coefficient estimate for β_4 is positive and statistically significant, indicating that the SEO announcement return is less severe after the Reform. Specifically, we find that the SEO announcement return is 0.7 percentage points less negative, which provides additional support that there is a reduction in information asymmetry before SEO announcements, and hence the cost of issuing equity capital following the Reform.

6. Conclusion

In 2005, the SEC enacted the Securities Offering Reform, which relaxes gun-jumping disclosure rules before equity offerings. The SEC argues that these rules restrict valuable information flow to investors around a highly important corporate event (SEC [2005]). The SEC believes that the relaxation of these restrictions will increase the flow of information from firms to investors, and consequently reduce information asymmetry. However, opponents of the Reform argue that the gun jumping restrictions are meant to protect investors from managers' incentives to condition the market before offerings, and that the relaxation of these restrictions will lead to market conditioning.

This paper examines the impact of the Reform on offering firms' voluntary disclosure behavior and the associated economic consequences. Using a matched-sample difference-in-differences research design, we document a disproportionate increase in the number of forecasts

and press releases in the pre-offering period after the enactment of the Reform. We then examine whether the increased disclosure is associated with market conditioning or a reduction in information asymmetry. Consistent with the SEC's intent, we find that pre-offering information asymmetry decreases following the Reform. Moreover, we find no evidence of managers conditioning the market after the Reform.

In addition to informing the debate as to the impact of the Reform, this paper contributes to the voluntary disclosure literature by examining the effect of a quasi-exogenous shock to voluntary disclosure before equity offerings. By using unique features of our setting, such as the focus on quiet periods (where private information acquisition is likely high), a direct cost of (raising) capital, and the Reform's regulatory disclosure distinction between Well Known Seasoned Issuers (WKSIs) and non-WKSIs, we greatly enhance our empirical identification of the relation between voluntary disclosure and information asymmetry.

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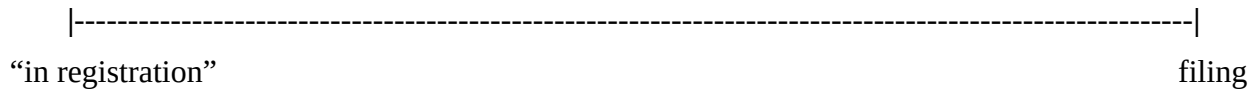
APPENDIX

A. Summary of Restrictions on Pre-Filing Period Communication Before the Reform

Section 5(c) of the 1933 Securities Act restricts firms from making an "offer" to sell a security during the Pre-Filing Period (i.e., period before a registration statement is filed with the SEC). However, the Securities Act is ambiguous about both what constituted an "offer" and when the Pre-Filing Period begins, thus providing the SEC considerable flexibility in enforcing the rules. In particular, SEC Release No. 5180 notes simply that the Pre–Filing Period begins once the company is "in registration" and ends at the filing date.



No Safe Harbors

Similarly, the Securities Act is ambiguous about the meaning of the term "offer." The SEC has long held the view that the term "offer" is broader than communication including an explicit offer of securities for sale. In the SEC's view, "offer" encompasses all communications that may "condition the market" for the securities (see the SEC in *the Matter of Carl M. Loeb, Rhoades & Co.*, February 9, 1959). For example, in a May 2004 interview, the CEO of Salesforce.com, a provider of customer relationship management software, told a reporter that "the S.E.C. prohibits me from making any statements that would hype my I.P.O." The CEO also discussed "the software business and his competitors." His statements were subsequently released in a New York Times article. The SEC deemed these communications as conditioning the market even though the firm did not explicitly offer to sell securities to the public.[31] More generally, Choi and Pritchard [2008, Chapter 7] discuss that any soft information, such as projections of revenue or profits (even if directed toward the firms' customers), can be construed as conditioning the market by the SEC.

This vague guidance has become problematic for Exchange Act reporting issuers who face both periodic disclosure requirements (e.g., 10Ks and 10Q) and a constant stream of questions from financial analysts and the investing public. Since the consequences of violating gun-jumping can be severe,[32] the surrounding uncertainty as to what constitutes an "offer" has in practice forced many issuers to be much more restrictive in their communications before offerings than was ever intended by the Securities Act (SEC [2005]). Further, firms' conservative disclosure directly conflicts with the SEC's push in recent years for reporting companies to make ongoing real-time public disclosures of material information concerning their businesses. The 2005 Securities Offering Reform is intended to address these competing objectives. In particular, the safe harbors in the Reform clarify when firms are considered to be "in registration" and are more explicit on what constitutes an "offer."

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[31] See Laurie J. Flynn and Andrew Ross Sorkin, "Salesforce.com Is Said To Delay Its Public Offering," New York Times, May 19, 2004)

[32] Violation of gun jumping restrictions can cause the SEC to impose a significant delay in the offering or the purchasers of the securities in the offering may acquire a one-year rescission right.

B. Summary of the Pre-Filing Period Safe Harbors Implemented in the Reform

|----------|----------|

"in registration" 30 days prior to filing filing

Safe Harbors introduced in the Reform

|*…….Rule 163A (WKSI & non-WKSI)……*|

|*……...……Rule 168 (WKSI & non-WKSI)…….……..……..…….*>

|*…….…….…… Rule 163 (WKSI only)..……...……*|

Who benefits from the safe harbors?

Issuer Type	***Brief Definition of Issuer Type***	***Applicable Safe Harbors***
Non-reporting Issuers	Issuer that are not required to file Exchange Act reports (e.g., 10Ks, 10Qs, etc.) and are not filing such reports voluntarily.	• Rule 163A • Rule 169
Unseasoned Issuers & Seasoned Issuers	*Unseasoned Issuers* are issuers that are required to file Exchange Act reports but do not satisfy the requirements to use a Form S–3 or Form F–3 for a primary offering of its securities. *Seasoned Issuers* are issuers that are eligible to use Form S–3 or Form F–3 to register primary offerings of securities. *Form S-3* is the most simplified securities registration form used by the SEC. It may only be used by companies that have been required to report under the Securities Exchange Act of 1934 for a minimum of twelve months and have also timely filed all required reports (including 10-Ks, 10-Qs and 8-Ks) during the twelve calendar months and any portion of a month immediately before the filing of the registration statement. *Form F-3* is used by certain foreign private issuers that have a global market capitalization greater than $75 million and that have reported under the 1934 Act for a minimum of twelve months.	• Rule 163A • Rule 168
Well-Known Seasoned Issuers -WKSI	Seasoned issuers that (1) have at least $700 million in worldwide market capitalization held by non-affiliates or (2) have issued $1 billion in aggregate principal amount of non-convertible securities in registered offerings during the past three years and will register only "non-convertible securities, other than common equity, and full and unconditional guarantees." If such an issuer has a public float of $75 million in common equity at the determination date, it can also issue common equity as a WKSI (Choi and Pritchard [2008], p. 425).	• Rule 163A • Rule 168 • Rule 163

Brief Description of the Safe Harbors

Rule 163A: Prior to the Reform, there was some ambiguity as to when the Pre-Filing Period began. The start date of the Pre-Filing Period is important because companies in the Pre–Filing Period enter into a quiet period during which a company and others associated with the offering run the risk of violating gun-jumping provisions (i.e., Section 5(c)) if they communicate about the offering or the company's future prospects. Rule 163A provides a safe harbor for the issuer clarifying when the Pre–Filing Period begins. Specifically, communications made by the issuer, or those working on behalf of an issuer (other than an underwriter or dealer participating in the offering), prior to 30 days before the filing of the registration statement with the SEC are excluded from the definition of an "offer" for purposes of Section 5(c). To be eligible for the safe harbor, the communication should not refer to the offering.

Rule 163: Rule 163 exempts both oral and written communications, including "offers," from Section 5(c) during the Pre–Filing Period. (Underwriters and dealers participating in the offering are prohibited from using Rule 163). Issuers that use Rule 163 to exempt written communication from Section 5(c) must treat such communications as "free writing prospectuses." A free writing prospectus is any written communication that offers to sell or solicits an offer to buy a security that is (or will) be subject to a registration statement and that does not meet the requirements of a Section 10 statutory prospectus.

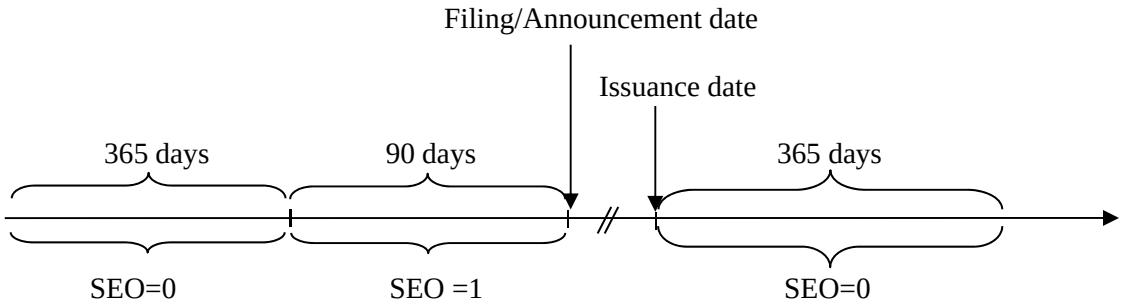
Rule 168: Rule 168 allows most Exchange Act reporting issuers (and those working on their behalf, other than underwriters and dealers participating in the offering) to continue the *regular release* of "factual business information" and "forward-looking information." Information in periodic reports (e.g., a 10-K) and other materials filed with the SEC are included within the safe harbor. Factual business information includes, among other things, factual information about the issuer and its business, advertisements of the issuer's products or services, and factual information contained in the issuer's periodic Exchange Act reports. Forward-looking information that is permitted includes financial projections, statements about the issuer management's plans and the issuer's future economic performance, and any underlying assumptions. Allowing reporting issuers the ability to publish or disseminate certain forward-looking information during a public offering is a dramatic change from the SEC's hostile attitude toward forward-looking information set forth in prior SEC Releases. Although Rule 168 provides an exemption from Section 5(c)'s prohibition on offers in the Pre–Filing period, an important prerequisite to use Rule 168 is that the issuer must have "previously released or disseminated" the same type of information in the "ordinary course of its business" and the information must be "materially consistent in timing, manner and form" with the issuer's similar past releases or disseminations of such information (see Rule 168(d)).[33] The safe harbor does not cover information relating to the offering itself.

Rule 169: Rule 169 of the Securities Act allows for the continuing disclosure of "factual business information" by or on behalf of non-Exchange Act reporting issuers (i.e., most IPO issuers). Rule 169 provides an exemption from Section 5(c)'s prohibition on "offers" in the Pre–Filing Period. However, Rule 169 does not exempt forward-looking information from the definition of an offer. (Information relating to the offering is also ineligible). Since our paper concerns publicly listed firms that comply with Exchange Act reporting requirements, this safe harbor does not apply to the firms in our sample.

[33] If an issuer shifts an existing advertising campaign from a trade journal into the Wall Street Journal during the pre-filing period, the issuer might not be able to rely on Rule 168 because the disclosure might not be perceived as "materially consistent in timing, manner, and form" with the issuer's past releases.

FIGURE 1

Timeline of disclosure announcements and SEO Filings

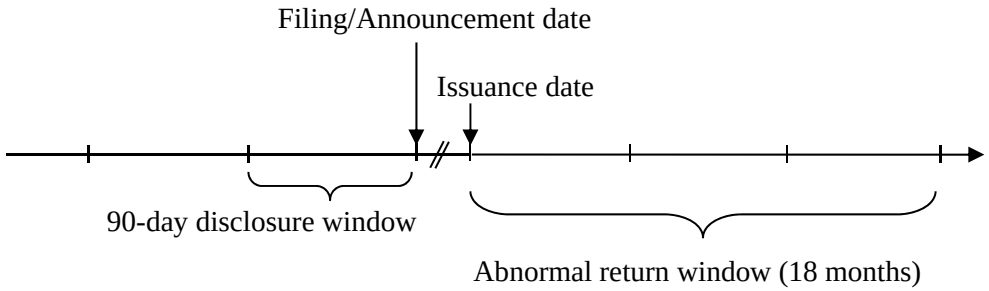


Notes:

1. SEO =1/0 for both SEO firms and match firms for the 90-day pre-SEO window / the two 365-day neighboring windows.
2. This timeline is relevant for Tables 3, 4, and 6.

FIGURE 2

Timeline of disclosure announcements, SEO issuances, and subsequent abnormal returns



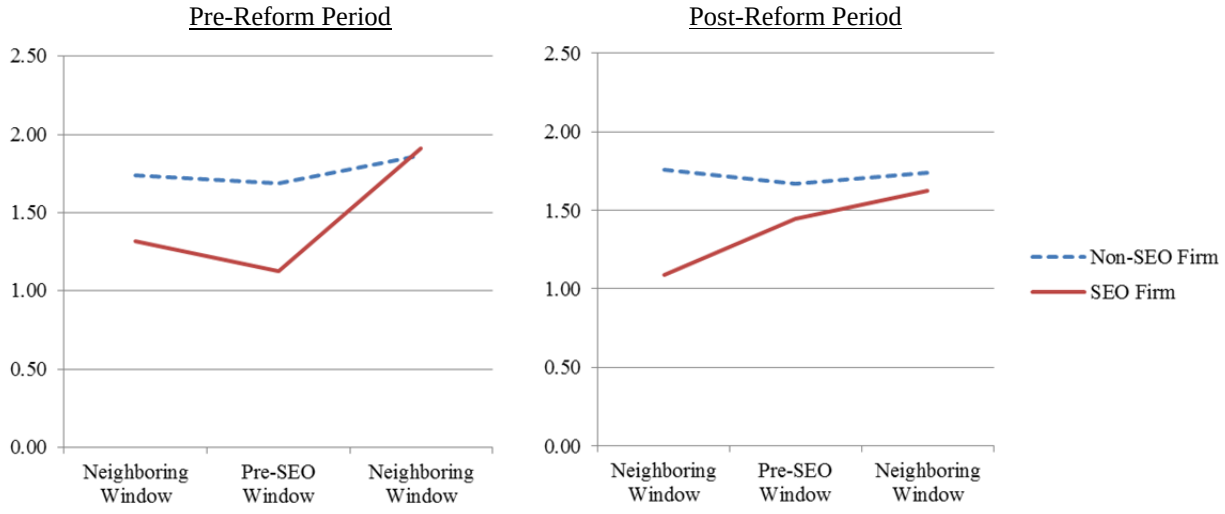
Note: This timeline is for Tables 5.

FIGURE 3

Disclosure Frequency of SEO and Control Firms in the Pre- and Post-Reform Periods

Panel A (B) presents the frequency of forecasts (press releases) provided by SEO firms and a propensity score matched control sample of non-SEO firms. The disclosure frequencies are examined in the pre-SEO window (i.e., the 90-day period before SEO filing) and in the two neighboring windows. Figure 1 provides a graphical description of the SEO window and the neighboring windows.

Panel A: Forecasting Frequency before and after the Reform



Panel B: Press-Release Frequency before and after the Reform

TABLE 1
Sample Selection

No.	**SEO event sample period: 2003-2008**		Observations Dropped	Number of Observations
1.	SEO events from 2003-2008 in the intersection of CRSP & Compustat			839
2.	*Less:* SEO events missing a firm that meets the matching criteria		47	792
3.	SEO events used in the disclosure frequency analyses			792
4.	SEO events plus matched non-SEO firms (No. 3 x 2)	Table 7		1,584
5.	Each SEO firm and its match has a 90-day pre-SEO window and along with one or two neighboring windows. We require both SEO firms and the matched firms to have at least one neighboring window with non-missing data.	Tables - 3, 4, 6, 8, 9		4,651
	SEO events for return reversal analysis: 2003 - 2008		Observations Dropped	Number of Observations
6.	SEO events used in the disclosure frequence analyses			792
7.	*Less:* SEO events missing 18 months of consecutive returns subsequent to issuance		20	772
8.	*Less:* Matched firms missing 18 months of consecutive returns subsequent to issuance		30	742
9.	SEO events plus matched non-SEO firms (No. 8 x 2)	Table 5		1,484

TABLE 2
Descriptive Statistics

This table reports the descriptive statistics for the variables used in our matching procedure and analyses. ***LSIZE*** is the natural logarithm of market value of equity measured at the fiscal quarter end immediately preceding the SEO filing date. ***ROA*** is return on assets measured as income before extraordinary items scaled by total assets at the fiscal quarter end immediately preceding the SEO filing date. ***TOBIN's Q*** is the market value of a firm's equity plus the book value of debt, scaled by the book value of assets at the fiscal quarter end immediately preceding the SEO filing date. ***SALES GROWTH*** is the change in quarterly sales, scaled by lag sales at the fiscal quarter end immediately preceding the SEO filing date. ***ABRET*** is cumulative abnormal returns in the fiscal quarter immediately preceding the SEO filing date, where abnormal return is the firm's return minus the return of the CRSP value weighted index. ***CASH HOLDING*** is cash balance of the firm, scaled by assets measured at the fiscal quarter end immediately preceding the SEO filing date. ***AGE*** is the difference between the current fiscal year and the first year the firm appears on the CRSP database. ***DIVIDEND*** is cash dividends paid, scaled by total assets in the fiscal quarter end immediately preceding the SEO filing date. ***Forecast Frequency*** (***Press Release Frequency***) is the annualized number of management forecasts (press releases) in the 90-day window before an SEO (i.e., pre-SEO window), and in the 365-day intervals around the pre-SEO window (i.e., neighboring windows). If there is no disclosure in the window, then the value is set to zero. ***Proportion of GN – Forecast*** (***Press Release***) is the annualized number of good news forecast (press release) relative to bad news forecasts (press releases) in the pre-SEO window and in the neighboring windows, where a disclosure is considered to provide good (bad) news if it induces a positive (negative) cumulative abnormal return in the three-day window [-1, 1] around the disclosure date. If there is no disclosure in the window, then the value is set to zero. We add one to the numerator and denominator to avoid a zero denominator problem in case firms do not disclose any bad news in a given disclosure window. ***Sum of SRET – Forecast*** (***Press Release***) is the aggregate cumulative abnormal returns in the three-day window [-1, 1] around forecast announcements (press releases) in the pre-SEO window, and in the neighboring windows. If there is no disclosure in the window, then the value is set to zero. ***ASC_Spread*** is the adverse selection component of daily bid-ask spread following the approach in Armstrong, Core, Taylor, and Verrecchia [2011]. ***Market Depth*** is the average sum of each quote's dollar offer size and the dollar bid size. ***Analyst Forecast Accuracy*** is negative one multiplied by the absolute value of analyst consensus earnings forecast minus actual earnings, scaled by actual earnings. ***SEO Announcement Return*** is the 3-day cumulative market adjusted return around the SEO announcement date. ***MTB*** is market to book ratio of equity measured at the fiscal quarter end immediately preceding the SEO filing date. ***ANALYST FOLLOWING*** is the number of analysts in the fiscal quarter end immediately preceding the SEO filing date. ***LNOWN*** is the natural logarithm of one plus the number of shareholders at the fiscal year end immediately preceding the SEO filing date. ***INST_HOLDING*** is the percentage of the firms' shares owned by institutional investors at the calendar quarter end immediately preceding the SEO filing date. ***LNPRC*** is the natural logarithm of stock price at the fiscal quarter end immediately preceding the SEO filing date.

Panel A: Matching Criteria

Matching Variables	SEO Firm Sample	Matched Firm Sample	Difference	*t*-Statistic
Full Sample				
Propensity Score	0.0130	0.0128	0.0003	1.40
LSIZE	6.5611	6.5368	0.0243	0.42
ROA	0.0005	0.0039	-0.0035	-1.27
TOBIN's Q	2.5499	2.3759	0.1740	1.48
SALES GROWTH	0.1529	0.1464	0.0065	0.19
ABRET	0.1416	0.1265	0.0152	1.44
CASH HOLDING	0.1903	0.1755	0.0148	1.60
AGE	10.540	11.216	-0.6759	-1.50
DIVIDEND	0.0123	0.0113	0.0010	0.91
N	792	792		

TABLE 2 - *continued*

Panel B: Matching Criteria in the pre- and post-Reform periods

Matching Variables	SEO Firm Sample	Matched Firm Sample	Difference	*t*-Statistic
Pre-Reform Sample				
Propensity Score	0.0127	0.0126	0.0001	0.58
LSIZE	6.3356	6.3833	-0.0477	-0.63
ROA	-0.0009	0.0006	-0.0015	-0.44
TOBIN's Q	2.3379	2.2009	0.1370	1.53
SALES GROWTH	0.1417	0.1403	0.0014	0.03
ABRET	0.1810	0.1678	0.0131	0.83
CASH HOLDING	0.1842	0.1728	0.0114	0.99
AGE	10.357	10.771	-0.4141	-0.73
DIVIDEND	0.0101	0.0101	0.0000	0.02
N	454	454		
Post-Reform Sample				
Propensity Score	0.0135	0.0130	0.0005	1.42
LSIZE	6.8632	6.7425	0.1208	1.36
ROA	0.0023	0.0084	-0.0061	-1.35
TOBIN's Q	2.8338	2.6102	0.2236	0.90
SALES GROWTH	0.1679	0.1545	0.0134	0.23
ABRET	0.0889	0.0711	0.0178	1.45
CASH HOLDING	0.1985	0.1793	0.0192	1.29
AGE	10.785	11.811	-1.0265	-1.40
DIVIDEND	0.0152	0.0129	0.0023	1.21
N	338	338		

TABLE 2 - *continued*

Panel C: Sample used in Pre-SEO Disclosure Frequency Analyses

Variables	Mean	Stdev	P25	Median	P75	N
SEO Firm Sample						
Forecast Frequency	1.429	2.089	0.000	0.000	3.000	2,333
Press Release Frequency	15.801	14.212	5.000	13.000	23.000	2,333
Proportion of GN - Forecast	1.384	1.297	1.000	1.000	1.000	2,333
Sum of SRET - Forecast	0.005	0.076	0.000	0.000	0.000	2,333
Proportion of GN - Press Release	1.563	1.818	0.846	1.000	1.556	2,333
Sum of SRET - Press Release	0.059	0.215	-0.011	0.018	0.143	2,333
ASC_Spread (%)	4.707	4.302	1.983	3.293	5.600	2,333
Market Depth	206.1	145.9	102.5	167.2	267.4	2,333
Analyst Forecast Accuracy	-0.351	0.585	-0.393	-0.177	-0.087	1,956
SEO Announcement Return	-0.042	0.462	-0.336	-0.055	0.236	742
MTB	5.012	5.463	1.888	2.981	5.798	2,333
ANALYST FOLLOWING	5.145	4.232	2.000	4.000	7.000	2,333
LSIZE	6.564	1.267	5.766	6.435	7.336	2,333
ROA	-0.001	0.050	-0.001	0.009	0.020	2,333
LNOWN	1.030	1.196	0.112	0.472	1.705	2,333
INST_HOLDING	0.554	0.291	0.317	0.557	0.812	2,333
LNPRC	3.052	0.717	2.682	3.135	3.519	2,333
Matched Firm Sample						
Forecast Frequency	1.746	2.461	0.000	0.000	4.000	2,318
Press Release Frequency	16.874	15.645	6.000	14.000	24.000	2,318
Proportion of GN - Forecast	1.196	0.991	1.000	1.000	1.000	2,318
Sum of SRET - Forecast	-0.004	0.091	0.000	0.000	0.000	2,318
Proportion of GN - Press Release	1.365	1.536	0.765	1.000	1.333	2,318
Sum of SRET - Press Release	0.025	0.216	-0.048	0.000	0.106	2,318
ASC_Spread (%)	3.981	4.972	1.342	2.150	4.166	2,318
Market Depth	238.1	156.4	112.8	202.5	335.0	2,318
Analyst Forecast Accuracy	-0.325	0.548	-0.364	-0.150	-0.068	1,785
SEO Announcement Return	0.061	0.584	-0.282	-0.021	0.231	742
MTB	3.711	4.330	1.547	2.390	4.134	2,318
ANALYST FOLLOWING	6.548	6.602	1.000	4.667	9.500	2,318
LSIZE	6.929	1.746	5.784	6.917	7.970	2,318
ROA	0.003	0.045	-0.001	0.010	0.023	2,318
LNOWN	1.438	1.436	0.249	0.984	2.219	2,318
INST_HOLDING	0.609	0.307	0.384	0.691	0.856	2,318
LNPRC	3.047	0.930	2.586	3.212	3.634	2,318

TABLE 3
Disclosure Frequency before SEOs

This table presents the results from estimating equation (1). ***Forecast Frequency*** (***Press Release Frequency***) is the annualized number of management forecasts (press releases) in the 90-day window before an SEO and in the 365-day intervals around the pre-SEO window (see Figure 1). ***SEO*** is an indicator variable that equals one for discloses made in the pre-SEO window, and zero otherwise. ***SEOFIRM*** is an indicator variable that equals one for the SEO firm sample, and zero for the matched firm sample. ***POSTREFORM*** is an indicator variable that equals one if the SEO filing date is after 2005, and zero otherwise. ***MTB*** is market to book ratio of equity measured at the fiscal quarter end immediately preceding the SEO filing date. ***ANALYST FOLLOWING*** is the number of analysts in the fiscal quarter end immediately preceding the SEO filing date. ***LSIZE*** is the natural logarithm of market value of equity measured at the fiscal quarter end immediately preceding the SEO filing date. ***ROA*** is return on assets measured as income before extraordinary items scaled by total assets at the fiscal quarter end immediately preceding the SEO filing date. ***LNOWN*** is the natural logarithm of one plus the number of shareholders at the fiscal year end immediately preceding the SEO filing date. ***INST_HOLDING*** is the percentage of the firms' shares owned by institutional investors at the calendar quarter end immediately preceding the SEO filing date. ***LNPRC*** is the natural logarithm of stock price at the fiscal quarter end immediately preceding the SEO filing date. *Year Indicators* are indicator variables for all but one of the years in our sample. *Industry Indicators* are indicator variables for all but one of the 48 industries in Fama and French [1997]. The standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Dependent Variable:	***Forecast Frequency***		***Press Release Frequency***	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	-0.111	-1.36	-0.388	-0.85
SEOFIRM	0.014	0.12	0.096	0.14
SEOFIRM × *SEO*	-0.344 ***	-2.99	-1.553 **	-2.46
SEOFIRM × *SEO* × *POSTREFORM*	0.513 ***	2.92	2.707 **	2.28
SEO × *POSTREFORM*	0.027	0.21	-0.742	-0.90
SEOFIRM × *POSTREFORM*	-0.118	-0.62	1.083	0.93
POSTREFORM	1.077	1.59	-0.430	-0.16
MTB	-0.026 **	-2.52	-0.028	-0.44
ANALYST FOLLOWING	0.028 **	2.03	0.409 ***	3.52
LSIZE	0.214 ***	3.43	2.408 ***	4.36
ROA	4.332 ***	4.56	-15.261 **	-2.36
LNOWN	0.062	1.28	0.200	0.57
INST_HOLDING	1.116 ***	5.35	3.634 **	2.45
LNPRC	-0.037	-0.42	-0.321	-0.52
Year Indicators	Included		Included	
Industry Indicators	Included		Included	
R-Square	23.4%		22.6%	
No. of Observations	4,651		4,651	

TABLE 4
Good News Disclosures before SEOs

This table presents the results from estimating equation (2) in the paper. In Panel A (B), the ***Proportion of GN*** is the annualized number of good news forecasts (press releases) relative to the number of bad news forecasts (press releases) in the pre-SEO window, and in the neighboring windows, where a disclosure is considered to provide good (bad) news if it induces a positive (negative) cumulative abnormal return in the three-day window [-1, 1] around the disclosure date. ***Sum of SRET*** in Panel A (B) is the aggregate cumulative abnormal returns in the three-day window [-1, 1] around forecast announcements (press releases) in the pre-SEO window and in the neighboring windows. The other variables are as defined in the notes in Tables 2 and 3. *Year Indicators* are indicator variables for all but one of the years in our sample. *Industry Indicators* are indicator variables for all but one of the 48 industries in Fama and French [1997]. The standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Panel A: Analysis of management forecasting frequency before SEOs

Disclosure Measure: **Management Forecasts**

Dependent Variable:	***Proportion of GN***		***Sum of SRET***	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	0.456 ***	5.46	0.004	0.91
SEOFIRM	0.118 ***	2.86	0.009	1.58
SEOFIRM × *SEO*	0.093	0.74	-0.008	-1.25
SEOFIRM × *SEO* × *POSTREFORM*	0.645 ***	4.06	0.017 **	2.14
SEO × *POSTREFORM*	-0.651 ***	-7.27	-0.001	-0.18
SEOFIRM × *POSTREFORM*	-0.073	-1.33	-0.003	-0.46
POSTREFORM	-0.008	-0.04	-0.011	-0.88
MTB	0.001	0.37	0.001 **	2.51
ANALYST FOLLOWING	0.007	1.45	0.000	0.75
LSIZE	0.003	0.15	-0.002	-1.08
ROA	1.219 ***	3.68	-0.022	-0.57
LNOWN	0.018	1.07	0.000	-0.34
INST_HOLDING	0.040	0.53	-0.007	-1.48
LNPRC	0.049 *	1.70	0.008 ***	3.55
Year Indicators	Included		Included	
Industry Indicators	Included		Included	
R-Square	9.0%		2.7%	
No. of Observations	4,651		4,651	

TABLE 4 - *continued*

Panel B: Analysis of press release frequency before SEOs

Disclosure Measure: **Firm Initiated Press Releases**

Dependent Variable:	***Proportion of GN***		***Sum of SRET***	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	0.689 ***	5.70	-0.013	-1.45
SEOFIRM	0.055	1.38	0.015	1.44
SEOFIRM × SEO	0.003	0.02	0.009	0.65
SEOFIRM × SEO × POSTREFORM	0.740 **	2.51	0.044 **	2.03
SEO × POSTREFORM	-0.074	-0.41	0.002	0.16
SEOFIRM × POSTREFORM	-0.017	-0.30	0.016	0.90
POSTREFORM	-0.117	-0.59	-0.003	-0.09
MTB	-0.001	-0.23	0.002 **	2.56
ANALYST FOLLOWING	0.003	0.61	0.002 **	2.25
LSIZE	-0.084 ***	-3.02	-0.012 ***	-2.70
ROA	0.561	0.83	0.151	1.50
LNOWN	-0.006	-0.28	0.003	1.15
INST_HOLDING	-0.271 ***	-2.76	-0.010	-0.74
LNPRC	0.175 ***	3.80	0.028 ***	4.21
Year Indicators	Included		Included	
Industry Indicators	Included		Included	
R-Square	8.4%		4.4%	
No. of Observations	4,651		4,651	

TABLE 5

Analyses of Abnormal Returns following SEOs

This table presents the results from estimating equation (3). ***AR*** is the abnormal returns in the 18 months following the SEO issuance date. ***DISC*** is the *Proportion of GN* or *Sum of SRET*, where ***Proportion of GN*** is the number of good-news forecast announcements (press releases) relative to the number of bad-news forecast announcements (press releases) in the pre-SEO window and ***Sum of SRET*** is the sum of the abnormal returns in the forecast announcement (press release) windows in the pre-SEO period reported in Panel A (B). We demean *DISC* to center the variable on zero. ***SEOFIRM*** is an indicator variable that equals one for the SEO firm sample, and zero for the matched firm sample. ***POSTREFORM*** is an indicator variable that equals one if the SEO filing date is after 2005, and zero otherwise. ***QABRET*** is the cumulative abnormal returns in the three months immediately preceding the SEO filing date, where abnormal return is the firm's return minus the return of the CRSP value weighted index. ***LSIZE*** is the natural logarithm of market value of equity measured at the fiscal quarter end immediately preceding the SEO filing date. ***MTB*** is market to book ratio of equity measured at the fiscal quarter end immediately preceding the SEO filing date. ***ROA*** is return on assets, measured as net income before extraordinary items scaled by total assets at the fiscal quarter end immediately preceding the SEO filing date. ***PDA*** is performance-adjusted discretionary accruals, measured at the fiscal quarter before the SEO filing date. ***FREQ*** is the number of forecast announcements (press releases) in the six months before the SEO filing date. The standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Panel A: Management Forecasts

Dependent Variable:	**18 Month Abnormal Returns (*AR*)**			
Disclosure Measure (DISC):	*Proportion of GN*		*Sum of SRET*	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEOFIRM	-0.072 **	-2.01	-0.075 **	-2.06
DISC	-0.015	-0.58	0.003	0.10
POSTREFORM	-0.068	-0.46	-0.052	-0.35
SEOFIRM × DISC	0.017	0.47	0.015	0.42
SEOFIRM × POSTREFORM	-0.008	-0.14	-0.006	-0.11
DISC × POSTREFORM	0.008	0.21	-0.002	-0.05
SEOFIRM × DISC × POSTREFORM	0.039	0.70	-0.004	-0.08
QABRET	-0.116 ***	-3.42	-0.119 ***	-3.48
LSIZE	0.000	0.02	-0.001	-0.06
MTB	0.000	0.08	0.000	0.05
ROA	0.551 *	1.66	0.563 *	1.69
PDA	-0.192 *	-1.74	-0.190 *	-1.72
FREQ	0.001	0.08	0.000	0.02
Year Indicators	Included		Included	
Industry Indicators	Included		Included	
R-Square	11.3%		11.1%	
No. of Observations	1,484		1,484	

TABLE 5 – *continued*

Panel B: Press Releases

Dependent Variable:	**18 Month Abnormal Returns (*AR*)**			
Disclosure Measure (DISC):	*Proportion of GN*		*Sum of SRET*	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEOFIRM	-0.047 **	-2.09	-0.048 **	-2.16
DISC	0.009	0.61	0.023	1.29
POSTREFORM	-0.094	-1.04	-0.092	-1.01
SEOFIRM × DISC	0.016	0.74	-0.016	-0.71
SEOFIRM × POSTREFORM	0.031	0.90	0.035	1.03
DISC × POSTREFORM	-0.026	-1.11	-0.033	-1.21
SEOFIRM × DISC × POSTREFORM	-0.024	-0.70	-0.012	-0.35
QABRET	-0.078 ***	-3.68	-0.078 ***	-3.56
LSIZE	0.010	1.54	0.009	1.48
MTB	-0.003	-1.47	-0.003	-1.47
ROA	0.717 ***	3.48	0.714 ***	3.46
PDA	-0.119 *	-1.72	-0.116 *	-1.68
FREQ	0.000	0.12	0.000	0.21
Year Indicators	Included		Included	
Industry Indicators	Included		Included	
R-Square	14.4%		14.6%	
No. of Observations	1,484		1,484	

TABLE 6

Analyses of Information Asymmetry prior to SEOs

This table presents the results from estimating equation (4). ***ASC_Spread*** is the adverse selection component of the average daily bid-ask spread, measured using the procedure described in the appendix of Armstrong, Core, Taylor, and Verrecchia [2011]. ***Market Depth*** is the average sum of each quote's dollar offer size and the dollar bid size. ***Analyst Forecast Accuracy*** is minus one times the absolute value of analyst consensus earnings per share (EPS) forecast minus the actual EPS divided by the actual EPS. ***SEO*** is an indicator variable that equals one in the pre-SEO window, and zero otherwise (see Figure 1). ***SEOFIRM*** is an indicator variable that equals one for the SEO firm sample, and zero for the matched firm sample. ***POSTREFORM*** is an indicator variable that equals one if the SEO filing date is after 2005, and zero otherwise. The control variables are as defined in the notes in Tables 2 and 3. *Year Indicators* are indicator variables for all but one of the years in our sample. *Industry Indicators* are indicator variables for all but one of the 48 industries in Fama and French [1997]. The standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Dependent Variable:	***ASC_Spread***		***Market Depth***		***Analyst Forecast Accuracy***	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	0.178	1.09	-3.33	-1.18	0.019	1.41
SEOFIRM	-0.208	-1.30	-6.62	-1.10	0.017	0.87
SEOFIRM × SEO	0.708 **	2.29	-15.27 ***	-3.21	-0.134 ***	-3.24
SEOFIRM × SEO × POSTREFORM	-0.786 **	-2.26	16.45 **	2.18	0.150 **	2.00
SEO × POSTREFORM	-0.153	-0.73	5.55	1.22	0.059	1.11
SEOFIRM × POSTREFORM	-0.027	-0.12	-8.18	-0.92	0.012	0.24
POSTREFORM	-0.068	-0.15	-0.76	-0.04	-0.109	-1.60
MTB	0.001	0.11	-0.05	-0.10	0.001	0.73
ANALYST FOLLOWING	0.032 **	2.12	4.10 ***	5.57	0.004	1.40
LSIZE	-1.495 ***	-17.48	69.49 ***	21.77	0.028 *	1.88
ROA	-8.096 ***	-3.58	-6.17	-0.11	0.159	0.60
LNOWN	0.076	1.51	5.38 **	2.46	0.002	0.22
INST_HOLDING	-3.595 ***	-14.46	-18.98 *	-1.95	-0.040	-0.82
LNPRC	-0.696 ***	-4.95	13.48 ***	2.91	0.101 ***	4.44
Year Indicators	Included		Included		Included	
Industry Indicators	Included		Included		Included	
R-Square	52.5%		64.1%		9.2%	
No. of Observations	4,651		4,651		3,741	

TABLE 7

Disclosure Frequency before SEOs for WKSIs and non-WKSIs

This table presents the results from estimating equation (1) for WKSIs and non-WKSIs with the 90-day pre-SEO window split into [-90,-31] and [-30,-1] windows. WKSIs (non-WKSIs) are identified as firms with a market capitalization of $700 million or more (less than $700 million) in the year before the SEO. All variables are as defined in the notes in Tables 2 and 3. The standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Panel A: Analysis of management forecasting frequency before SEOs by WKSIs and non-WKSIs

Dependent Variable:	***Forecast Frequency***							
Pre-SEO Disclosure Window:	**[-90,-31]**				**[-30,-1]**			
Type of Firms:	*WKSIs*		*non-WKSIs*		*WKSIs*		*non-WKSIs*	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	-0.170	-0.95	-0.225	-1.63	0.650	1.11	-0.526	-1.51
SEOFIRM	0.190	0.89	-0.079	-0.54	0.426	1.12	-0.214	-0.85
SEOFIRM × *SEO*	-0.182	-0.67	-1.021 ***	-5.85	-2.245 ***	-3.15	-1.332 ***	-3.45
SEOFIRM × *SEO* × *POSTREFORM*	-0.074	-0.20	1.346 ***	4.15	3.873 ***	3.82	0.413	0.58
SEO × *POSTREFORM*	0.023	0.09	-0.085	-0.35	-0.647	-0.89	0.929	1.44
SEOFIRM × *POSTREFORM*	-0.437	-1.57	0.122	0.51	-0.702	-1.36	0.146	0.36
POSTREFORM	2.011 *	1.88	0.732	0.55	2.230	1.51	-0.184	-0.13
MTB	-0.014	-0.87	-0.024 **	-2.03	-0.031	-1.04	-0.027	-1.40
ANALYST FOLLOWING	0.001	0.05	0.031	1.62	0.030	0.78	0.040	1.16
LSIZE	0.298 ***	3.28	0.228 ***	2.74	0.347 *	1.83	0.181	1.26
ROA	4.416 **	2.10	4.294 ***	4.33	5.490	1.54	3.159 **	1.98
LNOWN	0.051	0.81	0.044	0.68	0.117	0.93	0.057	0.48
INST_HOLDING	1.032 ***	3.15	1.138 ***	4.66	1.870 ***	2.97	2.305 ***	5.18
LNPRC	-0.130	-0.95	-0.034	-0.36	0.120	0.43	0.092	0.56
Coefficient for WKSIs minus non-WKSIs	Diff. in Coefficient		*p*-Value		Diff. in Coefficient		*p*-Value	
SEOFIRM × *SEO*	0.839		0.009		-0.913		0.217	
SEOFIRM × *SEO* × *POSTREFORM*	-1.419		0.001		3.460		0.002	
Year & Industry Indicators	Included		Included		Included		Included	
R-Square	18.4%		29.0%		12.2%		21.8%	
No. of Observations	2,106		2,545		2,106		2,545	

TABLE 7 - *continued*

Panel B: Analysis of press-release frequency before SEOs by WKSIs and non-WKSIs

Dependent Variable:	***Press Release Frequency***							
Pre-SEO Disclosure Window:	**[-90,-31]**				**[-30,-1]**			
Type of Firms:	*WKSIs*		*non-WKSIs*		*WKSIs*		*non-WKSIs*	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	-0.497	-0.53	-0.625	-0.91	-0.993	-0.82	-0.063	-0.08
SEOFIRM	-0.780	-0.61	1.112	1.41	-1.188	-0.82	1.076	1.37
SEOFIRM × *SEO*	-0.729	-0.55	-3.610 ***	-4.42	-5.491 ***	-3.51	-2.087 **	-2.07
SEOFIRM × *SEO* × *POSTREFORM*	-2.396	-1.14	4.949 ***	2.63	8.860 ***	3.22	-1.494	-0.73
SEO × *POSTREFORM*	1.095	0.76	-1.299	-0.92	0.380	0.21	-1.642	-0.98
SEOFIRM × *POSTREFORM*	-1.403	-0.65	-0.048	-0.03	2.490	1.30	0.323	0.21
POSTREFORM	3.401	0.71	2.725	0.51	0.429	0.10	3.248	0.84
MTB	0.052	0.49	0.014	0.18	-0.016	-0.16	0.057	0.70
ANALYST FOLLOWING	0.469 ***	2.70	0.511 ***	3.85	0.202	1.07	0.564 ***	4.09
LSIZE	3.273 ***	3.47	2.189 ***	3.58	2.915 ***	2.88	1.937 ***	3.07
ROA	-29.372	-1.61	-11.508	-1.53	-33.097 **	-2.17	-12.808 *	-1.67
LNOWN	0.192	0.33	0.162	0.38	0.465	0.87	0.266	0.60
INST_HOLDING	4.875 *	1.84	1.376	0.84	6.133 **	2.45	1.746	1.10
LNPRC	-0.044	-0.03	-0.559	-0.76	-0.545	-0.51	-0.237	-0.33
Coefficient for WKSIs minus non-WKSIs	Diff. in Coefficient		*p*-Value		Diff. in Coefficient		*p*-Value	
SEOFIRM × *SEO*	2.882		0.045		-3.404		0.048	
SEOFIRM × *SEO* × *POSTREFORM*	-7.345		0.005		10.354		0.001	
Year & Industry Indicators	Included		Included		Included		Included	
R-Square	24.7%		22.2%		19.7%		20.9%	
No. of Observations	2,106		2,545		2,106		2,545	

TABLE 8

Analyses of Information Asymmetry prior to SEOs for WKSIs and non-WKSIs

This table presents the results from estimating equation (4) for WKSIs and non-WKSIs with the 90-day pre-SEO window split into [-90,-31] and [-30,-1] windows. WKSIs (non-WKSIs) are identified as firms with a market capitalization of $700 million or more (less than $700 million) in the year before the SEO. All variables are as defined in the notes in Tables 2 and 6. The standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Panel A: Using the Adverse Selection Component of Bid-Ask Spreads as the proxy for Information Asymmetry

Dependent Variable:	***ASC_Spread***							
Pre-SEO Disclosure Window:	**[-90,-31]**				**[-30,-1]**			
Type of Firms:	*WKSIs*		*non-WKSIs*		*WKSIs*		*non-WKSIs*	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	0.202	0.63	0.268	1.30	-0.057	-0.18	0.020	0.08
SEOFIRM	-0.180	-0.94	-0.361	-1.44	-0.333	-1.55	0.036	0.16
SEOFIRM × SEO	-0.307	-0.94	1.090 ***	2.80	0.716 **	2.21	0.888 **	2.09
SEOFIRM × SEO × POSTREFORM	0.232	0.64	-1.006 **	-2.10	-1.156 ***	-2.99	-0.157	-0.26
SEO × POSTREFORM	-0.183	-0.51	-0.318	-1.11	0.483	1.27	-0.311	-1.16
SEOFIRM × POSTREFORM	0.188	0.69	-0.376	-1.08	0.270	0.75	-0.436	-1.45
POSTREFORM	0.002	0.00	0.222	0.42	-0.807	-1.60	-0.368	-0.45
MTB	0.000	-0.01	-0.013	-0.62	-0.002	-0.13	0.010	0.51
ANALYST FOLLOWING	0.020	0.95	0.036	1.62	0.014	0.60	0.013	0.76
LSIZE	-1.092 ***	-9.13	-1.801 ***	-13.12	-0.793 ***	-4.95	-1.181 ***	-9.99
ROA	-7.142 *	-1.91	-8.039 ***	-3.14	-6.515	-1.53	-8.078 ***	-3.40
LNOWN	0.000	0.00	0.159 **	1.98	0.023	0.38	0.094	1.61
INST_HOLDING	-2.584 ***	-7.99	-4.270 ***	-12.49	-1.717 ***	-4.77	-2.643 ***	-9.11
LNPRC	-0.634 ***	-3.42	-0.585 ***	-3.08	-0.939 ***	-3.18	-0.611 ***	-3.54
Coefficient for WKSIs minus non-WKSIs	Diff. in Coefficient		*p*-Value		Diff. in Coefficient		*p*-Value	
SEOFIRM × SEO	-1.397		0.004		-0.171		0.745	
SEOFIRM × SEO × POSTREFORM	1.238		0.017		-0.999		0.044	
Year & Industry Indicators	Included		Included		Included		Included	
R-Square	46.5%		87.4%		35.6%		40.8%	
No. of Observations	2,106		2,545		2,106		2,545	

TABLE 8 - *continued*

Panel B: Using Market Depth as the proxy for Information Asymmetry

Dependent Variable:	***Market Depth***							
Pre-SEO Disclosure Window:	**[-90,-31]**				**[-30,-1]**			
Type of Firms:	*WKSIs*		*non-WKSIs*		*WKSIs*		*non-WKSIs*	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	-4.99	-0.95	-4.91	-1.35	7.96	1.39	6.31	1.50
SEOFIRM	-4.92	-0.49	-8.22	-1.21	-13.05	-1.24	-20.75 **	-2.55
SEOFIRM × *SEO*	-9.52	-1.23	-9.10 **	-2.08	-33.47 ***	-3.29	-11.07 **	-2.19
SEOFIRM × *SEO* × *POSTREFORM*	-3.51	-0.34	21.86 **	2.46	31.04 **	2.05	14.36	1.49
SEO × *POSTREFORM*	11.12	1.49	0.39	0.06	-4.25	-0.52	-8.09	-0.93
SEOFIRM × *POSTREFORM*	-18.78	-1.32	-8.19	-0.73	-7.64	-0.48	8.99	0.64
POSTREFORM	3.72	0.14	-35.51 **	-2.41	4.57	0.18	-46.26 *	-1.75
MTB	-0.08	-0.10	-0.91	-1.56	-0.11	-0.14	-0.78	-1.00
ANALYST FOLLOWING	4.21 ***	4.10	5.36 ***	5.14	5.77 ***	4.20	6.74 ***	3.97
LSIZE	78.21 ***	15.38	72.21 ***	16.11	77.20 ***	13.70	77.61 ***	11.30
ROA	-140.04	-1.01	19.20	0.34	-140.47	-0.95	-27.71	-0.39
LNOWN	3.99	1.30	11.42 ***	3.60	4.42	1.36	13.93 ***	3.33
INST_HOLDING	-0.98	-0.06	-58.36 ***	-5.24	-13.91	-0.76	-76.13 ***	-4.61
LNPRC	13.35 *	1.67	8.83	1.27	18.66 *	1.81	11.60	1.18
Coefficient for WKSIs minus non-WKSIs	Diff. in Coefficient		*p*-Value		Diff. in Coefficient		*p*-Value	
SEOFIRM × *SEO*	-0.415		0.959		-22.403		0.016	
SEOFIRM × *SEO* × *POSTREFORM*	-25.368		0.035		16.678		0.210	
Year & Industry Indicators	Included		Included		Included		Included	
R-Square	61.7%		71.4%		58.1%		68.6%	
No. of Observations	2,106		2,545		2,106		2,545	

TABLE 8 - *continued*

Panel C: Using Analyst Forecast Accuracy as the proxy for Information Asymmetry

Dependent Variable:	***Analyst Forecast Accuracy***							
Pre-SEO Disclosure Window:	**[-90,-31]**				**[-30,-1]**			
Type of Firms:	*WKSIs*		*non-WKSIs*		*WKSIs*		*non-WKSIs*	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEO	0.064	1.17	0.027	1.56	0.006	0.20	0.020	0.51
SEOFIRM	0.085	1.48	0.024	0.74	-0.010	-0.43	0.070	1.17
SEOFIRM × *SEO*	-0.114	-1.56	-0.173 **	-2.32	-0.131 **	-2.47	-0.164 **	-2.03
SEOFIRM × *SEO* × *POSTREFORM*	-0.137	-1.20	0.274 ***	2.57	0.159 **	2.33	0.408	1.17
SEO × *POSTREFORM*	0.012	0.18	0.068	1.40	-0.065	-1.47	-0.298	-0.99
SEOFIRM × *POSTREFORM*	-0.050	-0.67	-0.041	-0.48	-0.027	-0.83	0.080	1.20
POSTREFORM	0.121	1.32	0.011	0.09	0.046	0.60	0.109	0.97
MTB	0.002	0.35	0.001	0.48	0.000	0.20	0.000	0.08
ANALYST FOLLOWING	0.019 ***	3.38	-0.002	-0.42	0.003	1.47	-0.002	-0.54
LSIZE	-0.047	-1.48	0.048 *	1.92	0.023 *	1.64	0.046 *	1.67
ROA	1.994 ***	2.74	-0.265	-0.90	0.934 ***	2.88	-0.755	-1.60
LNOWN	0.011	0.73	-0.003	-0.21	-0.008	-1.06	0.045	1.48
INST_HOLDING	-0.170 **	-2.08	0.034	0.58	-0.089 **	-2.37	0.180	0.87
LNPRC	0.179 ***	3.78	0.108 ***	3.43	0.061 ***	2.84	0.134 ***	3.39
Coefficient for WKSIs minus non-WKSIs	Diff. in Coefficient		*p*-Value		Diff. in Coefficient		*p*-Value	
SEOFIRM × *SEO*	0.059		0.605		0.033		0.739	
SEOFIRM × *SEO* × *POSTREFORM*	-0.410		0.002		-0.249		0.755	
Year & Industry Indicators	Included		Included		Included		Included	
R-Square	12.3%		10.3%		15.2%		6.0%	
No. of Observations	1,764		1,890		1,633		1,712	

TABLE 9

SEO Announcement Returns before and after the Reform

This table presents the results from estimating equation (5). The dependent variable is the 3-day cumulative market adjusted return around the SEO announcement date for both SEO firms and their control firms. ***SEOFIRM*** is an indicator variable that equals one for the SEO firm sample, and zero for the matched firm sample. ***POSTREFORM*** is an indicator variable that equals one if the SEO filing date is after 2005, and zero otherwise. ***SALES_GR*** is the percentage change in sales, ***CAPEX*** is capital expenditures scaled by assets, ***CASH*** is cash holdings scaled by assets, ***PRE_RETURN*** is the buy and hold returns in the 12 months preceding SEO filing, ***SHARE_PER*** is the number of shares issued as a percentage of shares outstanding, ***SALE*** is the firm's sales scaled by assets, ***LEVERAGE*** is the sum of short- and long-term debt scaled by assets, and ***SEC_OFFER*** is an indicator variable equal to one if the SEO contains secondary shares. The other control variables are as defined in the notes in Tables 2 and 3. *Year Indicators* are indicator variables for all but one of the years in our sample. *Industry Indicators* are indicator variables for all but one of the 48 industries in Fama and French [1997]. The standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

Dependent Variable:	***Abnormal Return around SEO Announcement***			
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
SEOFIRM	-0.0212 ***	-8.23	-0.0221 ***	-8.59
SEOFIRM × POSTREFORM	0.0070 **	2.39	0.0094 ***	3.38
POSTREFORM	-0.0043	-0.82	-0.0060	-1.07
MTB	-0.0003	-1.18	-0.0004	-1.36
ANALYST FOLLOWING	0.0000	0.11	0.0000	0.07
LSIZE	-0.0010	-0.65	-0.0014	-0.69
ROA	-0.0150	-0.76	-0.0214	-0.84
LNOWN	0.0004	0.34	0.0003	0.24
INST_HOLDING	0.0011	0.18	-0.0002	-0.03
LNPRC	0.0059 **	2.46	0.0077 **	2.41
SALES_GR			0.0000	-0.50
SALE			-0.0014	-0.27
LEVERAGE			0.0028	0.34
CAPEX			0.0521 **	2.24
CASH			0.0000	0.00
PRE_RETURN			-0.0003	-0.36
SHARE_PER			-0.0044 *	-1.70
SEC_OFFER			-0.0039	-1.21
Year Indicators	Included		Included	
Industry Indicators	Included		Included	
R-Square	7.5%		8.2%	
No. of Observations	1,534		1,480	