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### *Differences in the Information Environment Prior to SEOs under Relaxed Disclosure Regulation*

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**Differences in the information environment prior to seasoned equity offerings under relaxed disclosure regulation**

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### **ABSTRACT**

The Securities Offering Reform (SOR), promulgated by the U.S. Securities and Exchange Commission (SEC) in 2005, represents a major change in the seasoned equity offering (SEO) process. SOR eases disclosure restrictions and reduces uncertainty regarding disclosures allowed prior to an SEO. The SEC argued that SOR would result in an improved information environment and benefit capital formation efficiency. In contrast, critics claimed that SOR would allow firms to hype their stock before an SEO to the detriment of the information environment. It is also possible that SOR is not effective in generating greater disclosure and affecting the information environment during equity capital formation because of ongoing concerns such as the litigious climate in the U.S. This paper is the first to examine differences in disclosure and the information environment at the time of seasoned equity capital formation under SOR. Overall, the results suggest that relaxed disclosure restrictions under SOR are associated with greater disclosure immediately preceding the SEO issue date, and greater disclosure is related to a richer information environment with capital formation benefits. During the month before the SEO issue date under SOR, we find more frequent disclosure of management earnings forecasts and Form 8-K filings, and management earnings forecasts are more accurate. In addition, we find disclosure within a week before the SEO issue date under SOR is associated with greater absolute market-adjusted returns (i.e., information magnitude) and more positive stock returns with no reversal afterward (i.e., capital formation benefits through informative disclosure).

*Keywords:* Securities Offering Reform; Securities regulation; Seasoned equity offerings; Disclosure; Information environment; Shelf registration

*JEL classification:* M41, G38, K22

## **Differences in the information environment prior to seasoned equity offerings under relaxed disclosure regulation**

### **1. Introduction**

*It's a basic precept of American securities law that shareholders should be given the information they need to evaluate their companies.*

- Robert Jackson, professor of law, Columbia University (*New York Times*, April 24, 2013)

The information environment plays a critical role in capital market efficiency. However, the regulatory framework and the litigious climate within the U.S. often result in firms disclosing only information that is required (Cadwalader, Wickersham & Taft LLP, 2005; Rogers and Van Buskirk, 2009). Until recently, disclosure prior to seasoned equity offerings (SEOs) had been limited by the U.S. Securities and Exchange Commission (SEC) even though investor demand for information was high. Section 5(c) of the Securities Act restricted firm disclosure before an SEO to ban any attempts to “condition the market.” The SEC promulgated the Securities Offering Reform (SOR) in 2005 to modernize the SEO process and eliminate restrictions that were no longer viewed as necessary to protect investors yet prevented the dissemination of accurate information.<sup>1</sup> This paper investigates whether SOR is associated with differences in disclosure and a richer information environment during the equity capital formation period (i.e., the period preceding an SEO issue when investors assess the SEO price and decide whether to invest).

SOR is a unique shift in the regulatory environment for SEOs. In addition to removing restrictions on factual and forward-looking disclosures prior to SEOs, SOR provides a safe harbor for disclosures and allows a novel disclosure venue: the free writing prospectus (FWP), which is any written communication that offers to sell securities that are or will be subject to a registration statement and can include factual and forward-looking information. Critics argued

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<sup>1</sup> See the Securities Offering Reform Final Rule at <http://www.sec.gov/rules/final/33-8591fr.pdf>.

that eased restrictions under SOR would result in firms providing opportunistic disclosure to “hype” expectations before an SEO (e.g., Morrissey, 2007). However, the SEC argued that the primary benefit of SOR was to provide greater and timelier information flow when investors decide whether to invest in an SEO (SOR Final Rule, p. 44792). Despite the increased flexibility under SOR, greater disclosure during equity capital formation may not occur for several reasons. Firms may be concerned that greater disclosure could reveal proprietary information (Ali et al., 2014) or establish a disclosure precedent that is difficult to maintain or deviates from a long-standing policy (Graham et al., 2005). Firms may also continue the pre-SOR policy of limiting disclosure during the capital formation period due to liability concerns, such as shareholder litigation or SEC sanctions for conditioning the market (Cadwalader, Wickersham & Taft LLP, 2005). Thus, it is not clear that SOR automatically leads to greater disclosure or an improved information environment prior to SEOs.

We analyze a sample of 360 SEOs issued by well-known seasoned issuers (WKSIs), a new class of issuers established by SOR, from 2002 to 2009. To provide the first evidence of whether disclosure is greater and the information environment is richer under SOR during the capital formation period, we conduct tests using multiple forms of factual and forward-looking disclosure. Specifically, we examine management earnings forecasts (MEFs), FWPs, 8-K filings, and earnings announcements. To capture the capital formation period, we focus on the month (i.e., 30 days) prior to the SEO issue date. The role of disclosure before the issue date is important as a result of changes in the equity offering process, including a shift to shelf registrations and an increase in the distance between the SEO filing and issue dates under SOR (Table 1). In addition to our overall analysis, we separately examine firms with a policy of providing MEFs as well as other disclosures (forecasting sample) and firms with a policy of

providing only disclosures other than MEFs (non-forecasting sample) to investigate whether firms behave differently under relaxed disclosure regulation based on prior disclosure practices.

We conduct three primary tests. First, we test whether SOR is associated with more factual and forward-looking disclosure. Second, we test whether MEF disclosure is indicative of a richer information environment under SOR for the forecasting sample. We examine MEFs to see if they are more accurate (i.e., informative), potentially reducing information asymmetry and litigation risk, or overly optimistic (i.e., opportunistic) as predicted by critics of SOR. Third, we analyze stock prices in two ways to further evaluate the information environment and investigate capital formation benefits. We examine absolute market-adjusted returns to measure the magnitude of information and signed raw returns to investigate whether disclosure is opportunistic or informative.

Overall, the results suggest that relaxed disclosure regulation under SOR is associated with greater disclosure prior to SEOs, which is related to a richer information environment with capital formation benefits. Contrary to criticisms of SOR, we do not find evidence that these disclosures are opportunistic in nature. The use of FWPs in the full sample and a greater proportion of annual MEFs in the forecasting sample under SOR result in a 51% greater proportion of SEOs preceded by guidance disclosure during the capital formation period. The overall frequency of disclosure is 25% greater, and the amount of information provided in the 8-K immediately before the issue date more than doubles in size. Furthermore, the number of days between the last disclosure before an SEO and the issue date is lower under SOR. Also, MEFs immediately preceding the SEO issue date are 68% more accurate under SOR (i.e., have reduced error and bias) and tend to include more downward than upward revisions. In addition, the abnormal magnitude of information reflected in absolute market-adjusted returns is almost twice

as large after SOR, and the difference is driven by SEOs with disclosure within one week before the issue date. Furthermore, stock returns during the capital formation period are greater after SOR for SEOs with disclosure within one week prior to the issue date with no reversal after the issue date, consistent with enhanced capital formation through informative, not opportunistic, disclosure. These results support the SEC's argument that SOR would result in an improved information environment and benefit capital formation efficiency.

Our paper makes several contributions to the literature. First, we contribute to the literature on disclosure and the information environment. Specifically, our paper is the first, to our knowledge, to examine different forms of disclosure, including the FWP, during the equity capital formation period. Second, we contribute to the SEO literature by highlighting changes in the SEO environment that have important implications for future research. For example, we show that the capital formation period is different from the pre-SEO period defined in earlier studies for the majority of SEOs during our more recent sample period. Although earlier studies frequently designate the filing date as the SEO announcement date (e.g., Asquith and Mullins, 1986; Masulis and Korwar, 1986) because few SEOs were shelf-registered, studies covering more recent periods and using the filing date as the SEO announcement date may misinterpret insignificant returns as less negative reactions to SEOs. Less information is conveyed at the filing date as a result of SOR. Finally, we contribute to research on regulatory reform. While other studies on relaxed regulation tend to find negative outcomes, our results indicate that SOR increases information flow and smoothes capital formation.<sup>2</sup> Our paper advances the literature on disclosure, SEOs, and regulatory reform and should be of interest to the SEC and firms that access capital on the secondary market.

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<sup>2</sup> Empirical evidence of negative outcomes is linked to relaxed regulation in disclosure (e.g., Fernandes et al., 2010) and financial markets (e.g., Beck et al., 2010).

The remainder of the paper is organized as follows. Section 2 provides a discussion of SOR and presents our empirical questions. Section 3 describes the data, and Section 4 outlines our research design. Section 5 presents our results. Section 6 concludes the paper.

## **2. Background and empirical questions**

### *2.1 Before the Securities Offering Reform of 2005*

Before SOR, the SEO process was commonly divided into three periods: pre-filing, waiting, and post-effective (see Fig. 1 for shelf registration timeline). The pre-filing period began when a firm contemplated an SEO and ended at the filing date, when the registration statement was filed with the SEC. The waiting period began at the filing date and ended when the SEC declared the registration statement effective. During the post-effective period, a shelf-registered SEO firm usually filed a preliminary prospectus (pre-issue date) before the shares were sold (issue date). The post-effective period was typically short to nonexistent for non-shelf (i.e., traditional) registrations because the filing date, which was also the pre-issue date, and issue date were very close (Bethel and Krigman, 2008).

[Insert Fig. 1 near here]

Prior to the reform, certain communication was prohibited in the pre-filing and waiting periods and was limited in the post-effective period. The pre-filing and waiting periods were covered by disclosure restrictions banning any attempt to condition the market. Any additional disclosures in connection with the SEO, including forward-looking statements, were expressly forbidden with the exception of a prospectus. During the post-effective period, factual and forward-looking disclosure was effectively limited through cumbersome prospectus amendment requirements and liability concerns (Latham & Watkins LLP, 2005). For example, forecasts had



to be filed as part of the prospectus. Many issuers did not want to include a forecast in a prospectus because it could be viewed as conditioning the market.<sup>3</sup> Any disclosure that could be viewed as an offer (e.g., an MEF) was limited to statutory prospectus disclosure. Furthermore, once the final prospectus was prepared, issuers were responsible for ensuring that an investor had received the final prospectus, and the SEC reserved the right to review the final prospectus, which could potentially delay the SEO.

## *2.2 After the Securities Offering Reform of 2005*

SOR became effective December 1, 2005. Although SOR affects all issuers, it provides the most significant changes for a newly established class of issuers, WKSIs, which have a market capitalization of at least \$700 million.<sup>4</sup> The rationale for WKSIs receiving the most flexibility is that these firms are so widely followed that investors need less regulatory protection. WKSIs accounted for 95% of the U.S. market capitalization during 2002 to 2009. Even though WKSIs include the largest SEO firms, 82% of our sample is composed of mid-cap (44.7%) and small-cap (37.5%) firms (untabulated).<sup>5</sup> Instead of restricting disclosure, the SEC argues that disclosure should be encouraged for these firms (SOR Final Rule, p. 44731).

SOR relaxes disclosure restrictions for WKSIs in several ways. First, it removes the waiting period and changes the pre-filing and post-effective periods by dropping communication restrictions throughout the entire SEO process (see Fig. 1). WKSIs may report, in any period,

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<sup>3</sup> Some attorneys post-SOR continued to advise against providing any communications at any time before the SEO that could be viewed as preparing the market for an offering or that had not undergone due diligence in a prospectus (Cadwalader, Wickersham & Taft LLP, 2005).

<sup>4</sup> Alternatively, firms with at least \$1 billion of nonconvertible securities issuances over the past three years qualify as WKSIs.

<sup>5</sup> These figures use the following thresholds for market capitalization: \$0.7 billion to \$1.4 billion are small-cap; \$1.5 billion to \$4.4 billion are mid-cap; \$4.5 billion and above are large-cap.

factual and forward-looking information that the firm regularly releases.<sup>6</sup> Second, SOR provides multiple safe harbors for regularly released factual business and forward-looking information.<sup>7</sup> Third, SOR allows WKSIs to freely communicate (i.e., free write) during any period using an FWP. FWPs include communications in written form and communications via television, radio broadcasts, and certain electronic road show slides or handouts (Pena, 2007).<sup>8</sup> Fourth, for WKSIs, shelf registrations are automatically effective without SEC review, and the filing period for shelf registrations is extended from two to three years. WKSIs can also update or renew the shelf registration without SEC review and are no longer responsible for ensuring that investors receive the final prospectus because filing with the SEC is now viewed as “access equals delivery” (SOR Final Rule, pp. 44784-44785). These changes increase a WKSI’s ability to quickly access capital markets when necessary. Finally, SOR allows firms to omit information (e.g., proposed offering amounts for each type of security) from the shelf registration, which effectively shifts the SEO information event from the filing date to the pre-issue date.<sup>9</sup> As Fig. 1 indicates, the shelf registration Form S-3ASR allows WKSIs to register to offer securities at any time without stating detailed information about the SEO or paying registration fees, which would provide some indication of the offering amount.<sup>10</sup>

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<sup>6</sup> In the SOR Final Rule, the SEC clarifies that regularly released forecasts include scheduled forecasts as well as unscheduled or episodic forecasts. The firm could satisfy the regularly released condition as long as the company has released one prior forecast (SOR Final Rule, p. 44737). However, Cadwalader, Wickersham & Taft LLP, a large international law firm, included the following statement in its August 4, 2005, memo explaining SOR: “The safe harbors do not establish any minimum time period to satisfy the ‘regularly released’ element of the Final Rules. While the SEC has stated that one prior release or dissemination could establish a track record if such communication is the industry norm, we believe that commencing a practice for the purpose of meeting this requirement of the safe harbor will have significant risk until there is more clarification on this point” (Cadwalader, Wickersham & Taft LLP, p. 6).

<sup>7</sup> Under SOR’s safe harbor, WKSIs are not liable for any forward-looking statement as long as it is accompanied by certain cautionary language and the WKSI did not have knowledge that the statement was false.

<sup>8</sup> FWP filings are not required for traditional live road shows in which the SEO firm and underwriters meet potential investors.

<sup>9</sup> Autore et al. (2008) report that 85% of firms filing a shelf registration never issue equity.

<sup>10</sup> For example, firms are not required to state the size of the offering or indicate the specific security that will be issued at the filing date. Before SOR, the shelf registration included the amount that firms expected to issue over the

### *2.3 Empirical tests*

We investigate whether SOR is associated with greater disclosure and a richer information environment during the capital formation period through three primary tests. First, we investigate whether SOR is associated with more factual and forward-looking disclosure by comparing different measures of disclosure activity (disclosure occurrence, frequency, 8-K size, and timing) during the capital formation period before and after SOR was promulgated. Prior research provides several reasons for occurrence, frequency, and size of disclosure to be greater during this period: deter certain types of litigation (e.g., Field et al., 2005), reduce underpricing (e.g., Li and Zhuang, 2012), lower equity costs (e.g., Botosan, 1997), lower information asymmetry (e.g., Diamond and Verrecchia, 1991), continue a prior commitment to disclosure (e.g., Graham et al., 2005), and condition the market (e.g., Lang and Lundholm, 2000). On the one hand, disclosure should increase with relaxed disclosure restrictions if the benefits of greater disclosure outweigh the costs under SOR. Moreover, a firm concerned with omitting material information may provide greater disclosure (SOR Final Rule, pp. 44795–44796). On the other hand, firms may choose to maintain their existing limited disclosure policy and thus not provide greater disclosure during the capital formation period under the new rules. Firms may be concerned with inadvertent material misstatements of factual or forward-looking information leading to litigation. Legal firms may also advise firms to disclose no more than what is required during the capital formation period (Cadwalader, Wickersham & Taft LLP, 2005).

We also examine the proximity between disclosure of MEFs, FWPs, 8-Ks, and earnings announcements and the SEO issue date to investigate whether firms alter the disclosure or SEO

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next two years and the registration fees paid on this amount. Moreover, many pre-SOR firms in our sample list only one or two types of securities, such as common stock and debt securities. Many WKSIs in our post-SOR sample list numerous securities in their shelf registration that have never been issued. Thus, investors do not know how many shares of equity a firm may issue until the firm files the preliminary prospectus, which (if one is filed) discloses the SEO size but not price, or the final prospectus.

timing, or both, to affect the distance (i.e., number of days) under SOR. Although firms have specific deadlines for reporting items on an 8-K, evidence by Segal and Segal (2013) shows that managers engage in strategic timing. Furthermore, the results in Korajczyk et al. (1991) suggest that firms, especially non-forecasting firms, strategically time SEOs just after earnings announcements because they prefer issuing equity when investors are most informed about firm quality. However, firms may be less dependent upon earnings announcements (i.e., greater distance) since they can provide additional disclosure prior to an SEO under SOR.

Second, we examine whether more MEFs within the capital formation period is indicative of a richer information environment under SOR by investigating the accuracy of MEFs. Firms have dueling incentives to provide accurate MEFs prior to an SEO. Firms may be able to issue stock at a higher price following opportunistic disclosure (Lang and Lundholm, 2000). However, Li and Zhuang (2012) find that highly accurate MEFs reduce the cost of an SEO. MEF accuracy during the month prior to an SEO may also be subject to heightened scrutiny and litigation risk despite the new safe harbor provisions. Improved accuracy would be consistent with informative voluntary disclosure during the capital formation period, while worse accuracy would be consistent with opportunistic voluntary disclosure as predicted by SOR's critics (e.g., Morrissey, 2007).

Finally, we examine two aspects of the information environment reflected in stock prices. First, we examine whether the magnitude of information, measured as cumulative absolute market-adjusted returns, is greater during the capital formation period. All else equal, if disclosure during the capital formation period is associated with greater information, absolute market-adjusted returns should be larger during the month prior to the SEO under SOR. If a larger information magnitude results from greater disclosure immediately preceding the issue

date, then the information magnitude should become larger as the issue date approaches and for firms providing disclosure within one week prior to the SEO. Second, we examine whether SOR is associated with capital formation benefits by cumulating signed raw returns during the capital formation period. To the extent that SOR is associated with increased offering flexibility through enhanced shelf registration and communication mechanisms, SOR should be associated with capital formation benefits reflected in higher cumulative stock returns during the capital formation period, i.e., a larger increase in stock price prior to the issue date. We examine returns following the SEO to determine whether any capital formation benefits are associated with opportunistic or informative disclosure under SOR. Greater stock returns prior to the issue with no reversal afterward would be consistent with more informative disclosure and a richer information environment during equity capital formation. Greater stock returns prior to the issue with a reversal afterward would be consistent with more opportunistic disclosure and a poorer information environment during equity capital formation under SOR.

#### *2.4 Capital formation period*

We define the capital formation period as the one-month (i.e., 30-day) period before the SEO issue date in our tests for several reasons. First, it includes the SEO period when investors assess the SEO price and decide to invest. Prior literature indicates that firms using disclosure to influence market expectations time the disclosure immediately preceding a pricing event (e.g., Brockman et al., 2008; Cheng and Lo, 2006; Aboody and Kasznik, 2000). Thus, this period is when disclosure is most likely to influence capital formation (e.g., Korajczyk et al., 1991). Second, although most regulations are written with respect to the filing date, disclosure was also effectively limited before the issue date, possibly as a result of cumbersome and uncertain

prospectus amendment requirements or firms viewing the prospectus amendment as a new registration statement. Ruland et al. (1990) find that few firms issue equity within one month of a forecast even though firms are likely to issue equity within three months of a forecast. Marquardt and Wiedman (1998) state that gun-jumping laws discourage forecasts in the period before an SEO. Third, although the SEC notes in its comments on the quiet period that federal securities laws do not define the term, it uses a 30-day period prior to the filing date in SOR when establishing bright-line disclosure restrictions for non-WKSIs.

### **3. Data and sample selection**

#### *3.1 Disclosures analyzed*

We study multiple forms of disclosure to investigate factual and forward-looking information provided during the equity capital formation period. We examine two types of forward-looking disclosure, termed “guidance” disclosure in this paper: MEFs and forward-looking FWP. MEFs are one of the most informative voluntary disclosures (Beyer et al., 2010), and we can directly measure accuracy for MEFs. An annual (quarterly) MEF is a firm-issued point or range forecast of annual (quarterly) earnings.<sup>11</sup> An FWP is a novel disclosure introduced with SOR.<sup>12</sup>

To broadly examine how SOR affects different types of firms, we consider two additional types of factual and forward-looking disclosure: earnings announcements and 8-Ks.<sup>13</sup> This

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<sup>11</sup> Similar to Gong et al. (2009) we include only point and range forecasts, which constitute 94% of MEFs in the First Call database during our sample period. Forecast errors are not as clearly defined for other forms of forecasts. We use the mid-point of range forecasts to examine our accuracy research question and replace point forecasts with the mid-point when the point forecast is outside the forecast range to correct First Call input errors.

<sup>12</sup> Although we focus on FWPs with forward-looking information, firms may also file an FWP after issuing any shelf-registered security to update the prospectus. We exclude these FWPs because they summarize information available in the final prospectus and are not forward-looking in nature.

<sup>13</sup> Examining 8-Ks allows us to look at a fuller set of disclosures. 8-Ks may include press releases of an earnings announcement or MEF, but they also typically contain additional information. Our separate results for each of these

approach allows us to study non-forecasting firms with a policy of providing disclosure besides MEFs and more thoroughly examine other forms of disclosure by forecasting firms. Firms have less discretion over whether and when to provide earnings announcements and 8-Ks than MEFs but may provide both factual and forward-looking information in these disclosures. Earnings announcements and 8-Ks are two of the primary mediums for ongoing and periodic disclosure for publicly listed firms. The earnings announcement date is a particularly important event for resolving information asymmetry prior to an SEO (Korajczyk et al., 1991). 8-Ks are intended to maintain the accuracy and adequacy of information disclosed by firms by providing a continuous stream of disclosure to investors around significant or material corporate events. They constitute more than half of all SEC filings by public firms and are associated with informative disclosure that are complementary to periodic reports (Lerman and Livnat, 2010; Drake et al., 2014). In addition, the size of information in 8-Ks can be directly measured. Hanley and Hoberg (2013) find the size of information releases prior to equity offerings impacts the cost of capital. For our analysis, we measure the size of the last 8-K filed prior to the SEO issue date.<sup>14</sup> To control for potential bias created by SEC changes to 8-K disclosure requirements in 2004, we also measure 8-K abnormal size as the SEO firm 8-K size less the median non-SEO WKSIs 8-K size during the same period.<sup>15</sup>

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types of disclosures indicate that our 8-K results are not driven by the inclusion of earnings announcements and MEFs in the 8-K sample. Few firms provide an MEF, and we see no shift in the earnings announcements.

<sup>14</sup> We expect the 8-K file size to be highly correlated with the amount of information provided. Other studies use word counts to proxy for disclosure size (e.g., Francis et al., 2002). For robustness, we conduct a word count on 30 randomly selected 8-Ks around SOR. File size is 86% correlated with the number of words in both periods.

<sup>15</sup> The SEC changed the 8-K disclosure requirements effective August 23, 2004 [see Lerman and Livnat (2010) for a more detailed discussion of these changes], which may impact the size of the 8-K independently from SOR. To be considered a non-SEO WKSIs for our additional 8-K size measurements, a firm must meet the WKSIs criteria for market capitalization (\$700 million) and must not conduct an SEO during the same calendar year as the sample firm.

### *3.2 Sample selection*

We obtain data on SEOs for January 1, 2002 through December 31, 2009 from the Securities Data Company (SDC) Global New Issues database. MEFs and actual earnings are from First Call.<sup>16</sup> 8-K and FWP disclosures are from the Wharton Research Data Services (WRDS) SEC Analytics Suite and from the Electronic Data-Gathering, Analysis, and Retrieval (EDGAR) system. Earnings announcement dates and financial data are from Compustat. Stock return data are from the Center for Research in Security Prices (CRSP), and institutional ownership data are from the Thomson Reuters 13F Holdings Database. Analyst earnings forecasts are from the Institutional Brokers' Estimate System (I/B/E/S).

We verify offering details through a firm's registration statement, preliminary prospectus, and final prospectus, all of which are collected from EDGAR. We identify WKSIs as SEO firms that have been publicly traded for at least one year and whose market value of equity for the calendar year-end before the offering is at least \$700 million. These criteria correctly identify over 99% of firms that file as WKSIs after SOR. We exclude pure secondary offerings (in which 100% of the shares are sold by individuals in the secondary market and the firm raises no capital), rights offerings, offerings by regulated firms (i.e., financials and utilities) due to their different disclosure requirements, and offerings by non-U.S. firms. Finally, we exclude 27 firms with missing data from CRSP or Compustat and three firms without coverage in First Call.<sup>17</sup> The final sample contains 360 SEOs issued by 243 unique firms.<sup>18</sup> We designate SEOs with issue dates from January 1, 2002 to November 30, 2005 as pre-SOR and SEOs with issue dates from

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<sup>16</sup> Our focus on WKSIs after 2001 reduces the potential First Call bias identified by Chuk et al. (2013). They find the number of MEFs using First Call may be biased downward when examining earlier time periods and firms that are small and not as widely followed, but they find little evidence of bias after the 1990s and for firms that are large or more widely followed.

<sup>17</sup> We exclude one observation in which the stock price is less than \$1.00 at the beginning of the fiscal year.

<sup>18</sup> Although only 25 WKSIs issue equity both before and after SOR, we repeat our analysis for this subsample and find qualitatively similar results.



December 1, 2005 through December 31, 2009 as post-SOR, providing a four-year period on either side of SOR.<sup>19</sup>

## 4. Research design

### 4.1 Occurrence, frequency, 8-K size, and distance

For our first test examining whether more factual and forward-looking disclosure exists during the capital formation period under SOR, we specify the following equation:

$$Y = \alpha + \beta_1 SOR + \beta_2 \ln(\text{market capitalization}) + \beta_3 \text{Institutional ownership} \\ + \beta_4 \text{Residual analyst following} + \beta_5 \text{Analyst dispersion} + \beta_6 \text{Litigation risk} \\ + \beta_7 \text{Book-to-market} + \beta_8 \text{Loss} + \beta_9 \text{Firm risk} + \varepsilon. \quad (1)$$

We estimate Eq. (1) for each of our dependent variables ( $Y$ ), which are measures of occurrence, frequency, 8-K size, and distance. We employ a probit regression to estimate Eq. (1) for occurrence because ordinary least squares (OLS) is an inefficient estimation technique when the dependent variable is binary rather than continuous (Aldrich and Nelson, 1984). We estimate Eq. (1) for frequency, size, and distance using OLS.<sup>20</sup> We examine occurrence for SEOs when the firm provides an annual MEF as well as for those that provide any guidance disclosure. We study frequency before an SEO for the number of guidance disclosures, 8-Ks, and total disclosures. We consider 8-K size for the last 8-K within the capital formation period. Finally, we examine distance, which is the number of days between the last disclosure (guidance, 8-K, and any of the disclosures we capture) and the SEO issue date. Our variable of interest,  $SOR$ , is equal to one for observations in which the SEO issue date is on or after December 1, 2005. We

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<sup>19</sup> Six SEOs are issued in December 2005 and are included in the post-SOR sample.

<sup>20</sup> We also estimate Eq. (1) for frequency using an OLS regression with the natural log of frequency, a Tobit regression, a Poisson regression, and a negative binomial regression. Our results are robust to each alternative specification.

include control variables found to be associated with disclosure.<sup>21</sup> Full definitions are presented in the Appendix. With the exception of fiscal period end earnings, all measures are calculated at least 30 days prior to the issue date. We use robust standard errors clustered at the firm level throughout our analysis.

#### 4.2 Management earnings forecast accuracy

Our second test examines the richness of the information environment associated with differences in MEF disclosure under SOR by measuring MEF accuracy. Focusing on MEFs provided during the month prior to the SEO issue date, we estimate accuracy as follows. We measure MEF *error* as the absolute value of the difference and *bias* as the signed difference between the firm's last earnings per share forecast (annual or annualized quarterly) and the actual earnings per share, scaled by the stock price at prior fiscal year-end.<sup>22</sup> Similar to Ajinkya et al. (2005), we use actual earnings data from First Call to ensure consistency with MEFs. In addition, First Call's earnings data reflect street (or core) earnings, which are of higher quality than GAAP earnings for valuation purposes (Gu and Chen, 2004).

We test MEF accuracy controlling for other factors that may influence forecast accuracy using the following equation:

$$\begin{aligned}
 Z = & \alpha + \beta_1 SOR + \beta_2 \ln(\text{market capitalization}) + \beta_3 \text{Institutional ownership} \\
 & + \beta_4 \text{Residual analyst following} + \beta_5 \text{Analyst dispersion} + \beta_6 \text{Litigation risk} \\
 & + \beta_7 \text{Book-to-market} + \beta_8 \text{Loss} + \beta_9 \text{Firm risk} + \beta_{10} \text{Horizon} + \epsilon.
 \end{aligned} \tag{2}$$

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<sup>21</sup> Prior research (e.g., Ajinkya et al., 2005) often includes major auditor as an additional control variable. The biggest four audit firms audit 96% of our sample. As a result, we exclude this control variable. Because the number of analysts following a firm is highly correlated with firm size, we regress *analyst following* on  $\ln(\text{market capitalization})$  and retain the residuals as *residual analyst following*. This allows us to control for the component of analyst following not explained by firm size (Chang et al., 2006). We use *analyst following* as a robustness check and obtain similar results (not tabulated).

<sup>22</sup> We repeat the analysis scaling by earnings per share and obtain similar results (not tabulated).

We estimate Eq. (2) for both of our accuracy dependent variables ( $Z$ ): *error* and *bias*, which are measured for the last MEF for firms providing an MEF during the specified period prior to the SEO issue date. Similar to Eq. (1), our variable of interest, *SOR*, is equal to one if the issue date is on or after December 1, 2005.

#### 4.3 Information magnitude and stock returns

For our third test, we examine stock returns in two ways to provide additional analysis of the information environment during equity capital formation under *SOR*. First, we measure the magnitude of information released with disclosure by analyzing the absolute value of market-adjusted returns similar to previous studies (e.g., Francis et al., 2002; Bailey et al., 2006). Specifically, we measure *magnitude* as the cumulative absolute daily returns net of the return on the CRSP value-weighted index over the  $[-20,0]$  trading day period to proxy for the magnitude of information reflected in stock prices during the capital formation period, with day 0 being the volume-based corrected issue date.<sup>23</sup> This 21-trading-day window closely corresponds to the one-month disclosure window used in our disclosure tests. Thus, *magnitude*  $[-20,0]$  captures all information reflected in stock prices (Tetlock, 2010) during the capital formation period, including information conveyed by the disclosures we examine. Although Henry and Koski (2010) find no evidence of manipulative short selling prior to shelf-registered SEOs, presumably because anticipating when these SEOs will occur is difficult, we focus on abnormal information magnitude to control for factors other than capital formation disclosure, such as increased trading

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<sup>23</sup> For analysis of returns during the period surrounding an SEO, we employ a volume-based correction methodology because late day or overnight deals may result in processing the trading volume on the following trading day (i.e., the day after the issue date in SDC). Following Corwin (2003), we adjust the issue day later by one day when the trading volume on the day after the issue date in SDC is more than double the trading volume on the SDC issue date and when it is more than two times the mean trading volume over the past 250 trading days. The issue day is corrected for 65% of our sample.

volume, that may influence *magnitude* during the period surrounding an SEO. We define *abnormal magnitude* as *magnitude*  $[-20,0]$  less *magnitude*  $[+1,+20]$ .

Second, we examine signed stock returns to explore whether SOR is associated with capital formation benefits and more informative or opportunistic disclosure. We cumulate the signed raw daily stock returns (*return*) during the  $[-20,0]$  trading day period to measure how information is incorporated into the stock price during the capital formation period. Because SOR impacts the shelf registration process in addition to permissible disclosure, *return* is likely to be a lower bound for the net effect of increased disclosure under SOR as the information content of a shelf registration, or SEO announcement, shifts from the filing date to the pre-issue date. Thus, a negative SEO announcement return is more likely to be included in *return* under SOR. Similar to *abnormal magnitude*, we measure capital formation benefits through *abnormal return*, defined as *return*  $[-20,0]$  less *return*  $[+1,+20]$ . We further examine the period after the SEO issue date, *return*  $[+1,+20]$ , to distinguish between informative and opportunistic disclosure. A greater *return* during the capital formation period followed by a reversal after the issue date post-SOR would be consistent with opportunistic disclosure under SOR. Conversely, a greater *return* with no reversal afterward would be consistent with informative disclosure.<sup>24</sup>

#### 4.4 Comparison with other studies

Our research design differs from other studies in important ways. First, we use the issue date as the SEO date in response to changes in the SEO environment. Earlier studies on pre-SEO disclosure (e.g., Marquardt and Wiedman, 1998; Lang and Lundholm, 2000) refer to the filing, or registration, date as the SEO announcement date because their samples are composed of non-

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<sup>24</sup> To help ensure that our post-SOR period captures any potential reversal due to opportunistic disclosure, we extend the post-SOR period to +60 trading days, i.e., one additional quarter. Results are robust.

shelf (traditional) offerings. In non-shelf offerings, firms convey information about the upcoming SEO on the registration date, and the issue date usually occurs soon after registration (Bethel and Krigman, 2008). In contrast, over 80% of our sample issues equity from a shelf registration, and the filing date predates the issue date by 257 days on average (Table 1).<sup>25</sup> Second, we examine numerous properties of disclosure during the one-month period prior to the SEO issue date. In addition to MEFs and earnings releases, we study other forms of disclosure, namely, 8-Ks and FWP. To our knowledge, this study is the first to examine these forms of disclosure and the first to examine the accuracy of MEFs provided during the capital formation period. Finally, we analyze the forecasting and non-forecasting samples separately to provide insight into pre-SEO disclosure activity for firms with and firms without a recent history of forecasting. Li and Zhuang (2012) examine management forecasts, primarily in the form of MEFs, during the 24- and 12-month period prior to the filing date for SEOs in a more recent period, 1997 to 2006. They find that management forecasts are associated with less underpricing in SEOs by smaller firms but that no significant relation exists in SEOs by larger firms. The insignificant results for large firms may result from either the potential misidentification of the capital formation period or the influence of both guidance and non-guidance disclosure on the information environment. Shroff et al. (2013) examine disclosure before and after SOR. However, their focus is more similar to Lang and Lundholm (2000) and Li and Zhuang (2012). Shroff et al. focus on the pre-filing period, include two forms of disclosure (forecasts and press releases), and use a restricted

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<sup>25</sup> Henry and Koski (2010) and Autore et al. (2008) discuss the importance and challenges of identifying announcement dates for SEOs, especially for shelf registrations. Consistent with these studies, we find no significant market reaction at the filing of shelf registrations. The median three-day abnormal pre-issue return is -3.2%, which is consistent with estimates of the announcement returns for shelf-registered SEOs during previous periods (e.g., Autore et al., 2008). Because most SEOs are now shelf-registered, future researchers will want to focus on the pre-issue date or issue date and not the filing date as the appropriate information event.

sample with predominantly smaller firms, which remain subject to some disclosure restrictions under SOR.

## 5. Results

### 5.1 Descriptive statistics

Table 1, Panel A presents the distribution of SEOs according to the issuing firm's MEF policy. We classify SEOs according to whether the firm has chosen to provide at least one annual or quarterly point or range MEF, or both, within one year before the issue date (forecasting sample) or whether the issuing firm has chosen not to provide an MEF (non-forecasting sample).<sup>26</sup> Managers issue MEFs within one year of 126 SEOs, or 35% of the sample.<sup>27</sup> Thirty-eight percent (33%) of SEOs are in the forecasting sample pre-SOR (post-SOR). This is consistent with firms maintaining an established forecasting policy under SOR. Thus, greater use of MEFs during the capital formation period under SOR is likely to be confined to firms with a previous regular release of MEFs (i.e., forecasting firms).

[Insert Table 1 near here]

Panel B presents SEO characteristics. The percentage of shelf-registered SEOs by WKSIs increases during our sample period from 75% pre-SOR to 87% post-SOR.<sup>28</sup> Moreover, the average number of days between the filing and issue dates increases from 196 days pre-SOR to 298 days post-SOR. In fact, the filing date predates the issue date by at least 90 days for 55% of the SEOs in our sample, indicating that over half our sample would be excluded using

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<sup>26</sup> We find in our sample that forecasting disclosure policy tends to be static over time. This approach therefore allows for a reasonable time period to identify a firm's existing MEF policy and minimizes any bias resulting from limited coverage in First Call prior to our sample period.

<sup>27</sup> This proportion is consistent with other studies (e.g., Beyer et al., 2010; Chuk et al., 2013).

<sup>28</sup> We spoke with a chief financial officer of a Fortune 500 company who indicated that, with the ease of shelf registration, his company employs a non-shelf offering only when the use of proceeds falls outside ordinary use.

restrictions commonly imposed in studies focusing on the filing date (e.g., Lang and Lundholm, 2000; Shroff et al., 2013).<sup>29</sup> The average number of days between the filing of a preliminary prospectus (pre-issue date) and the issue date drops from three to two. Thus, information provided at the shelf registration is more likely to be dated, and underwriters could have less time to perform sufficient due diligence when the equity is issued post-SOR (Blackwell et al., 1990; Coffee, 2005). The average proceeds raised increases from \$287 million pre-SOR to \$394 million post-SOR. However, the average SEO size represents just over 12% of the SEO firm's market value of equity in both periods. Panel C presents the average annual number of 8-Ks filed by WKSIs issuing equity during the fiscal year. Non-forecasting firms appear to rely more heavily upon 8-Ks throughout the year than the forecasting firms, but the number of 8-Ks is greater for both groups over time.

Table 2 presents descriptive statistics for our control variables. Mean values are presented for the pre- and post-SOR full, forecasting, and non-forecasting samples. The average market capitalization, analyst following, and percentage of firms reporting a loss at fiscal year-end are similar in both periods. Institutional ownership and firm risk are greater in all post-SOR samples. However, the proportion of observations in high litigation risk industries is similar in the forecasting sample and lower in the non-forecasting sample post-SOR. The non-forecasting sample is also made up of smaller firms that are more likely to report a loss, have slightly greater analyst following, and have greater analyst forecast dispersion post-SOR.

[Insert Table 2 near here]

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<sup>29</sup> The increased distance between the filing and issue dates is not confined to WKSIs. For example, in SDC the filing date predates the issue date during our sample period by at least 90 days for 40% of SEOs by seasoned issuers, firms that are smaller than WKSIs and receive fewer benefits under SOR.

## *5.2 Results for occurrence, frequency, 8-K size, and distance*

Our first test investigates the various ways firms may use relaxed disclosure restrictions under SOR to provide more information in the capital formation period. Although we do not expect disclosure to decrease under SOR, we use a conservative two-tailed test to present consistent statistics throughout the paper. Table 3 presents univariate results for occurrence (Panel A), frequency (Panel B), 8-K size (Panel C), and distance (Panel D). Occurrence, frequency, and 8-K size are each set equal to zero when no disclosure occurs during the one-month period prior to the issue date.<sup>30</sup> No greater occurrence of MEFs is found during the capital formation period in the post-SOR full sample. However, annual MEFs are significantly more likely to occur in the post-SOR forecasting sample relative to the pre-SOR forecasting sample (45.1% versus 27.3%), and 12.7% of the post-SOR forecasting sample provide an FWP. For the post-SOR non-forecasting sample, 7.6% file an FWP during the month before an SEO. This may indicate that firms not typically providing MEFs choose to provide guidance disclosure via an FWP under SOR as opposed to changing forecasting policy.

[Insert Table 3 near here]

Total disclosure frequency is 25% larger post-SOR relative to pre-SOR (3.08 versus 2.46). Total disclosure consists of MEFs, FWPs, 8-Ks, and earnings announcements. For the post-SOR forecasting sample, higher frequency of total disclosure (3.58 versus 2.71) is driven by the higher frequency of annual MEFs (0.59 versus 0.31) and 8-Ks (1.92 versus 1.58) and the use

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<sup>30</sup> Our univariate and multivariate results for frequency and 8-K size are robust to excluding firms without disclosure during the one-month period prior to the issue date (i.e., excluding zeroes).



of FWPs.<sup>31</sup> For the post-SOR non-forecasting sample, total disclosure frequency is greater (2.83 versus 2.31) as a result of more frequent 8-Ks (2.23 versus 1.82) as well as the use of FWPs.

8-K size and 8-K abnormal size are significantly greater post-SOR relative to pre-SOR (5.97 versus 2.54 and 5.17 versus 2.21, respectively). The differences are also economically significant in the forecasting and non-forecasting samples. However, the statistical significance weakens in the smaller samples. The difference in size is significant in both samples in a one-tailed test but is only significant in the forecasting sample in a more conservative two-tailed test.

Although distance cannot be measured for FWPs pre-SOR, they have the shortest distance during the post-SOR capital formation period, averaging 3.15 days. The distance between the last disclosure of any type during the capital formation period and the issue date is significantly shorter post-SOR (6.15 versus 7.85 days). The shorter distance is primarily found for guidance (i.e., MEF or FWP) in the post-SOR forecasting sample and for 8-Ks in the post-SOR non-forecasting sample. The distance during the capital formation period is 4.85 days shorter in the post-SOR forecasting sample for last guidance and is 1.78 days shorter in the post-SOR non-forecasting sample for last 8-K.

Overall, the results in Table 3 indicate that SEO firms are providing more information during the capital formation period under SOR. We find that a higher proportion of SEOs in the post-SOR forecasting sample is preceded by an annual MEF in the month before the issue date, and we find SEOs in both the forecasting and non-forecasting samples are preceded by FWPs post-SOR. Frequency and size of 8-Ks are greater in the post-SOR full sample. Pre-SEO disclosure is also closer before the issue date. However, the shorter distance results from closer MEFs in the forecasting sample and closer 8-Ks in the non-forecasting sample post-SOR.

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<sup>31</sup> In untabulated results, we verify that the MEF results are not due to general trends in forecasting earnings. In contrast to our results, we find the average annual frequency of quarterly MEFs decreases by 27% and the average annual frequency of annual MEFs remains fairly constant in First Call from the pre- to post-SOR period.

The multivariate results in Panel A of Table 4 are consistent with the univariate results for occurrence, frequency, and 8-K size. The significantly positive coefficient on *SOR* for the forecasting sample in Columns 1–2 indicate that the likelihood of providing an annual MEF ( $p = 0.09$ ) as well as guidance ( $p = 0.06$ ) during the capital formation period is greater under *SOR*.<sup>32</sup> In addition, Column 3 indicates guidance frequency in the capital formation period is greater under *SOR* ( $p = 0.04$ ). Overall, the sign of the coefficients on the control variables loading significantly are consistent with previous studies. The significantly positive coefficients on *SOR* ( $p = 0.01$ ) in Columns 4–5 for the full sample show that both 8-Ks and total disclosures are more frequent during the capital formation period under *SOR*. The significantly positive coefficients on *SOR* in Columns 6–7 for the full sample indicate that 8-K size of the last 8-K preceding the SEO during the capital formation period is significantly larger under *SOR*, even when controlling for median size during the same period for WKSIs not issuing equity.

[Insert Table 4 near here]

The multivariate results in Panel B provide additional evidence of shorter distance under *SOR* for the last disclosure prior to the SEO issue date. Columns 1–3 present results for last disclosure restricted to the capital formation period. The distance for last guidance is significantly shorter (-5.63 days,  $p = 0.03$ ) and distance for last disclosure of any type is weakly shorter (-1.06 days,  $p = 0.20$ ) under *SOR*. The results in Columns 1–3 only partially capture the relation between distance and *SOR* because the capital formation period restriction excludes the last disclosure for a portion of the sample and does not account for the disproportionate representation of the post-*SOR* sample. Columns 4–6 remove the capital formation period

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<sup>32</sup> In untabulated results for the full sample, the coefficient on *SOR* is not significant in a two-tailed test when occurrence refers to an annual MEF ( $p = 0.17$ ) but becomes significant when occurrence refers to an annual MEF or FWP ( $p = 0.01$ ). Thus, greater guidance disclosure in the full sample during the capital formation period under *SOR* stems from the use of FWPs and greater use of annual MEFs during the month prior to the SEO issue date.

restriction and present results for last disclosure within one year prior to the issue date. When removing the restriction, distance is significantly shorter for last 8-K (-6.91 days,  $p = 0.02$ ) and last disclosure of any type (-3.72 days,  $p = 0.04$ ) under SOR. Overall, the results in Table 4 support the univariate results and indicate that SEO firms are providing more, shorter distance disclosure, and thus more information, during the month before the SEO issue date.<sup>33</sup>

### 5.3 Results for management earnings forecast accuracy

Table 5 presents univariate results for our second test. Panel A presents error and bias results for the last MEF (annual or annualized quarterly) within the one-month period prior to an SEO to see if MEFs most likely to influence capital formation are more or less accurate post-SOR.<sup>34</sup> The average forecast error is 70% lower under SOR (0.72% versus 2.43%;  $p < 0.01$ ). In addition, average forecast bias is 83% smaller (1.33% versus 0.23%;  $p = 0.09$ ).

[Insert Table 5 near here]

To further explore the source of greater forecast accuracy, Panel B (C) presents the accuracy results for the first and the last annual (quarterly) MEF, along with forecast horizons. Here, *first annual (quarterly) MEF* is the first annual (quarterly) MEF provided during the one year prior to the SEO issue date, and *last annual (quarterly) MEF* is the last annual (quarterly) MEF provided during the month before the SEO issue date. We also present the difference in the first and last annual (quarterly) MEF before and after SOR to see if firms are increasing or decreasing their forecast accuracy as the SEO issue date approaches.

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<sup>33</sup> In untabulated results, we re-estimate all of our equations including additional measures that proxy for litigation risk (Kim and Skinner, 2012) to help ensure the SOR variable does not proxy for increased litigation risk. Our results for SOR remain robust when we include these additional measures. Results are also robust to the inclusion of SOR interacted with *litigation risk*. The interaction is insignificant in the re-estimation of Table 4.

<sup>34</sup> We use annual MEF measures if a firm provides both annual and quarterly MEFs during the one-month period prior to an SEO.

The results indicate that greater accuracy for the last MEF under SOR is primarily driven by increasing accuracy from first to last annual MEF and by maintaining as opposed to decreasing accuracy from first to last quarterly MEF as the issue date approaches. For example, error drops significantly ( $p = 0.01$ ) from the first (1.36%) to the last (0.77%) annual MEF post-SOR but not pre-SOR. Likewise, bias decreases significantly from 0.71% to 0.32% post-SOR but not pre-SOR. Thus, while accuracy is somewhat greater for the first annual MEF under SOR, the significant improvement occurs with the last annual MEF within one month prior to the SEO issue date. Moreover, the last annual MEF averages 175 days prior to the fiscal year-end post-SOR and is not significantly closer to the fiscal year-end than the last annual MEF pre-SOR. With quarterly MEFs, error and bias for the last forecast post-SOR are also significantly lower than for the last forecast pre-SOR. However, quarterly MEF accuracy is similar for the first and the last quarterly MEFs post-SOR. Conversely, accuracy appears to deteriorate between the first and the last quarterly MEF pre-SOR. For example, pre-SOR error (bias) increases from 1.36% (0.51%) for the first to 2.34% (1.06%) for the last quarterly MEF. The pre-SOR increase in error (0.98%) is significantly greater than the post-SOR decrease (-0.09%) at the 10% level. Horizon is similar for the pre- and post-SOR last quarterly MEF. While greater accuracy does not appear to be attributed to shorter last MEF horizon, we control for horizon in a multivariate setting.<sup>35</sup>

Table 6 presents the multivariate results for MEF accuracy. While we focus on accuracy of last MEFs during the capital formation period in Columns 1 and 3, we also include last MEFs that are not updated in the capital formation period in Columns 2 and 4 to determine if results are similar. We find *SOR* is associated with significantly lower *error* and *bias* for the last MEF during the one month and one year prior to the SEO issue date ( $p = 0.03$  and  $0.03$  for *error*;  $p =$

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<sup>35</sup> In untabulated results, we perform the same analysis without restricting the last forecast to the prior month before the SEO. We find similar results for annual MEFs. However, we find no greater accuracy for quarterly MEFs when they are not restricted to the prior one-month period.

0.06 and 0.01 for *bias*).<sup>36</sup> Overall, we find no evidence that managers increase MEF optimism under SOR. In fact, the results suggest that managers provide less optimistic and more accurate MEFs before an SEO post-SOR, despite the temptation of temporarily influencing stock prices through rosy forecasts. In untabulated results, we find that MEFs provided during the month before the issue date post-SOR have a greater proportion of downward revisions, which gives additional evidence against opportunistic MEFs. Falling profits during the 2008 financial crisis do not appear to explain the downward revisions. Less than 6% of the post-SOR subsample with downward revisions, i.e., SEOs with last MEFs lower than first MEFs, have issue dates in 2008. Further, we find that post-SOR downward revisers tend to raise larger SEO proceeds and have greater firm risk, both of which are associated with greater litigation risk. These results suggest instead that firms may be correcting expectations downward prior to an SEO to mitigate litigation risk.<sup>37</sup> Although managers may delay releasing bad news, on average (Kothari et al., 2009), fear of litigation may prompt revising MEFs downward prior to an SEO (Skinner, 1994).

[Insert Table 6 near here]

#### 5.4 Results for information magnitude and stock returns

For our third test, Fig. 2 plots the cumulative *magnitude* (i.e., absolute market-adjusted returns) beginning 20 trading days before and ending on the SEO issue date, which approximates the capital formation period, for the pre- and post-SOR periods. Consistent with greater information reflected in stock prices as the issue date approaches under SOR, the cumulative

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<sup>36</sup> In untabulated results, we interact *SOR* with *litigation risk*. All results are robust, and the interaction is significant only when estimating *bias* for MEFs provided during the prior month. The coefficients on *SOR* and *litigation risk* remain negative and significant while the interaction is significantly positive, indicating *SOR* and *litigation risk* are both associated with lower *bias* but the lower *bias* after SOR is outside litigation risk industries.

<sup>37</sup> Previous studies find increased earnings management prior to SEOs (e.g., Cohen and Zarowin, 2010). We do not believe earnings management is responsible for greater accuracy under SOR for two reasons. First, street earnings provide more accurate operating earnings for valuation. Second, we find a greater incidence of downward revisions instead of upward revisions prior to the SEO.

*magnitude* post-SOR plot lies above the pre-SOR plot, and the gap widens as the issue date approaches. The univariate results in Table 7, Panel A, indicate that the post-SOR *magnitude* [-20,0] of 55.20% is 47% greater at issue than the pre-SOR value of 37.56% ( $p < 0.01$ ). Moreover, the post-SOR *abnormal magnitude* of 16.02% is 87% greater than the pre-SOR value of 8.55%, indicating that the magnitude of information during the capital formation period is significantly greater under SOR even when adjusting for factors other than capital formation disclosure that may influence *magnitude* during the period surrounding an SEO.

[Insert Fig. 2 and Table 7 near here]

Panel B compares *magnitude* for the pre-SOR full sample with post-SOR subsamples based on whether the SEO is preceded by any type of disclosure or an 8-K within one week, defined as five days, to see if the increasing magnitude of information as the issue date approaches post-SOR in Fig. 2 is related to disclosure immediately preceding the issue date. Taken together, the results for *magnitude* [-20,0] and *abnormal magnitude* provide additional support that greater information (i.e., absolute market-adjusted returns) during the capital formation period under SOR is associated with disclosure. *Magnitude* [-20,0] is significantly greater post-SOR regardless of whether SEOs have short distance disclosure (i.e., disclosure within one week before the issue date). However, *abnormal magnitude* is significantly greater only when SEOs have short distance disclosure. Average *abnormal magnitude* is 20.08% (21.02%) when an SEO is immediately preceded by any form of disclosure (an 8-K) post-SOR compared with 8.55% for the pre-SOR sample.<sup>38</sup>

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<sup>38</sup> We analyze the content distribution of the various items reported on the last 8-K filed within a week prior to the issue date (*short distance 8-K*) post-SOR to provide a contextual analysis of these communications (untabulated). We find over 80% of these 8-Ks include Financial Statements and Exhibits (Item 9.01), and about 20% include one or more of the following: Regulation FD Disclosure (Item 7.01), Results of Operations and Financial Condition (Item 2.02), and Entry into a Material Definitive Agreement (Item 1.01), the last of which includes underwriting agreements related to the SEO. More than half include Other Events (Item 8.01). The SEC encourages firms to disclose information on Item 8.01 that is of importance to security holders, but disclosure of these items is not

Fig. 3 provides additional evidence that greater *magnitude* post-SOR is related to 8-Ks during the capital formation period. The figure plots three-day  $[-1,+1]$  *magnitude* aggregated for all 8-K filing dates during the capital formation period pre- and post-SOR. Similar to Fig. 2, it shows that 8-Ks are associated with greater information magnitude being reflected in stock prices post-SOR with the difference increasing as the SEO issue date approaches.

[Insert Fig. 3 near here]

Results for *return* are presented in Table 8.<sup>39</sup> Overall, *abnormal return* (Panel A) is more than five times greater under SOR (4.72% versus 0.85%). The difference is significantly greater in a one-tailed (two-tailed) test for the full (non-forecasting) sample. Greater *abnormal return* results from greater *return*  $[-20,0]$ , 5.03% versus 2.45%, combined with a lower positive drift after the issue, *return*  $[+1,+20]$  of 0.31% versus 1.60%. Similar to the results for *magnitude*, greater *abnormal return* is driven by SEOs preceded by any form of disclosure or 8-Ks within one week. *Abnormal return* (Panel B) is significantly greater in a two-tailed test for the post-SOR subsamples with any disclosure or an 8-K immediately preceding the SEO (7.48% and 7.93% versus 0.85% pre-SOR), while the differences are insignificant for the post-SOR subsamples with no disclosure or no 8-K within one week (1.88% and 1.88% versus 0.85% pre-SOR). Furthermore, greater *abnormal return* in the post-SOR subsamples is primarily driven by greater positive stock returns during the capital formation period (*return*  $[-20,0]$  of 8.36% and 9.36% versus 2.45% pre-SOR). No evidence exists of reversal after the issue date in these subsamples (*return*  $[+1,+20]$  is 0.88% and 1.43%). Higher stock returns during the capital

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mandatory (Lerman and Livnat, 2010; Segal and Segal, 2013). We find that Other Events on these 8-Ks include information such as press releases, MEFs, and other forward-looking information. These results suggest firms are providing a variety of information that appears to be important to equity investors during the capital formation period under SOR.

<sup>39</sup> We use raw returns because we are interested in the net effects for the firms. However, we find similar results when we use cumulative market-adjusted returns. In untabulated results, we also control for size and book-to-market in a multivariate setting and continue to find significant results for SOR interacted with short distance disclosure.

formation period with no reversal afterward is consistent with greater capital formation benefits through more informative disclosure and a richer information environment under SOR.

[Insert Table 8 near here]

## **6. Conclusion**

This paper is the first to examine differences in disclosure and the information environment at the time of seasoned equity capital formation under the Securities Offering Reform, which relaxes disclosure restrictions prior to an SEO. We examine whether SOR is associated with more factual and forward-looking disclosure by examining 8-K file size and the occurrence, frequency, and timing of multiple forms of disclosure for a sample of WKSIs, who are the most economically significant issuers and receive the greatest benefits under SOR. We also investigate whether SOR is associated with a more informative or opportunistic information environment by analyzing management earnings forecast accuracy as well as cumulative absolute market-adjusted returns and cumulative signed raw returns.

Our research design differs from other studies in important ways. First, we use the issue date rather than the filing date as the SEO date in response to changes in the registration process under SOR. Second, we examine multiple forms of disclosure during the one-month period prior to the SEO issue date, i.e., the capital formation period. In addition to MEFs and earnings releases, we analyze 8-Ks and a new form of disclosure introduced with SOR, free writing prospectuses. Finally, our sample includes non-forecasting firms in addition to forecasting firms, which allows us to provide insight into capital formation period disclosure by both firms with and firms without a history of forecasting.



We find greater forward-looking and factual disclosure during the equity capital formation period under SOR. However, despite the predictions by critics of SOR, we find no evidence that relaxed disclosure restrictions under SOR are associated with opportunistic disclosure. Within the post-SOR forecasting sample, MEFs are more accurate, and greater disclosure and closer proximity are strongest for guidance disclosure. In contrast, greater disclosure and closer proximity in the post-SOR non-forecasting sample are primarily driven by 8-K disclosure, though some non-forecasting firms do provide guidance disclosure through the newly permitted FWPs. We also find that greater absolute market-adjusted returns under SOR are highest in the non-forecasting sample and for SEOs with an 8-K filed within a week of the issue date. Moreover, significantly more positive stock returns are evident during the capital formation period with no reversal afterward for SEOs with an 8-K filed within a week of the issue date. This is of particular interest given that the majority of SEO firms continue to provide no MEFs under SOR. One caveat to our results is that the power of certain tests may be limited by sample size during our sample period. As the period since SOR lengthens, two fruitful areas for future research would be to investigate whether disclosure under SOR changes over time and whether SOR affects a firm's ability to raise capital in different economic cycles.

Overall, the results in this paper suggest that relaxed disclosure restrictions and reduced regulatory uncertainty under SOR are associated with greater disclosure immediately preceding the SEO issue date, when investors assess the SEO price and decide whether to invest. Disclosure during this time, especially 8-K disclosure, is related to a richer information environment with capital formation benefits. Thus, our paper contributes to the literature on disclosure, SEOs, and regulation.

## Appendix. Variable definitions and other key terms

Variable	Definition
<i>Abnormal magnitude</i>	The <i>magnitude</i> over trading days [-20,0] less the <i>magnitude</i> over trading days [+1,+20].
<i>Abnormal return</i>	The <i>return</i> over trading days [-20,0] less the <i>return</i> over trading days [+1,+20].
<i>Analyst dispersion</i>	The standard deviation of analysts' annual earnings estimates divided by the absolute value of the median analyst earnings forecast. <i>Analyst dispersion</i> is calculated using the last reported analyst estimates in Institutional Brokers' Estimate System (I/B/E/S) for the month-end at least 30 days prior to the seasoned equity offering (SEO) issue date.
<i>Analyst following</i>	The number of analysts providing annual forecasts at the month ending at least 30 days prior to the SEO issue date.
<i>Annual MEF</i>	A firm-issued point or median of the range forecast of annual earnings.
<i>Bias</i>	The firm's <i>annual MEF</i> or <i>quarterly MEF</i> minus the actual earnings, divided by the stock price at the beginning of the fiscal period, annualized.
<i>Book-to-market</i>	The book value of common equity divided by the market value of common equity at the fiscal year-end prior to the SEO issue date. <i>Book-to-market</i> is set to the minimum sample value for two observations with missing values.
<i>Closest disclosure</i>	The number of days between the last disclosure of the following type prior to the SEO issue date: <i>annual MEF</i> , <i>quarterly MEF</i> , <i>FWP</i> , <i>8-K</i> , or <i>earnings announcement</i> .
<i>Distance</i>	The number of days between the specified disclosure and the SEO issue date.
<i>Earnings announcement</i>	The periodic announcement of quarterly or annual earnings during the 30 days prior to the SEO issue date.
<i>Error</i>	The absolute value of the firm's <i>annual MEF</i> or <i>quarterly MEF</i> minus the actual earnings, divided by the stock price at the beginning of the fiscal period, annualized.
<i>Firm risk</i>	The standard deviation of the firm's daily returns over the period [-250,-20] trading days to the SEO issue date.
<i>First annual MEF</i>	The <i>annual MEF</i> issued farthest from the SEO within 365 days of the SEO issue date.
<i>First quarterly MEF</i>	The <i>quarterly MEF</i> issued farthest from the SEO within 365 days of the SEO issue date.
<i>Frequency</i>	The number of the specified disclosures during the month prior to the SEO issue date.
<i>Forecasting</i>	An indicator variable equal to one if the firm provides an <i>annual MEF</i> or <i>quarterly MEF</i> during the 365 days prior to the SEO issue date.
<i>FWP</i>	A free writing prospectus is an SEC filing of communication. <i>FWPs</i> can include any written communication in printed form and other communication via television, radio broadcasts, and certain electronic road shows (Pena, 2007).
<i>Guidance</i>	A forward-looking disclosure in the form of an <i>MEF</i> or <i>FWP</i> .
<i>Horizon</i>	The number of days between the <i>annual MEF</i> or <i>quarterly MEF</i> and the fiscal period end, annualized.
<i>Institutional ownership</i>	The percentage of the firm's outstanding shares held by institutions at the quarter-end prior to the SEO issue date.
<i>Last annual MEF</i>	The <i>annual MEF</i> issued closest to the SEO within 30 days of the SEO issue date.
<i>Last MEF</i>	The last <i>quarterly MEF</i> or <i>annual MEF</i> within 30 days of the SEO issue date.

<i>Last quarterly MEF</i>	The <i>quarterly MEF</i> issued closest to the SEO within 30 days of the SEO issue date.
<i>Litigation risk</i>	An indicator variable equal to one if the SEO firm operates in the following high litigation risk industries (standard industrial classification codes): biotechnology (2833–2836), research and development services (8731–8734), programming (7371–7379), computers (3570–3577), electronics (3600–3674), or retailing (5200–5961).
<i>Ln(market capitalization)</i>	The natural log of the market value of common equity at fiscal year-end prior to the SEO issue date.
<i>Loss</i>	An indicator variable equal to one if the firm reports a loss in the current fiscal year.
<i>Magnitude</i>	The absolute value of the daily return net of the return on the CRSP value-weighted index cumulated over the specified trading days [-20,0] and [+0,+20], with day 0 being the volume-based corrected issue date (Corwin, 2003).
<i>Market capitalization</i>	The market value of common equity at the fiscal year-end prior to the SEO issue date, in billions of dollars.
<i>MEF</i>	A management earnings forecast; a firm-issued point or median of range forecast of annual or quarterly earnings.
<i>Non-forecasting</i>	An indicator variable equal to one if the firm does not provide an <i>annual MEF</i> or <i>quarterly MEF</i> during the 365 days prior to the SEO issue date.
<i>Non-SEO 8-K size</i>	The median <i>8-K size</i> for non-SEO well-known seasoned issuers (WKSIs) during the same period. Non-SEO WKSIs meet the WKSI market capitalization criteria but do not conduct an SEO during the same calendar year.
<i>Occurrence</i>	An indicator variable equal to one if the firm issues the specified voluntary disclosure ( <i>annual MEF</i> , <i>quarterly MEF</i> , or <i>FWP</i> ) within 30 days prior to the SEO issue date.
<i>Pre-issue days</i>	The number of days between the filing of a preliminary prospectus (pre-issue date) and the SEO issue date.
<i>Quarterly MEF</i>	A firm-issued point or median of range forecast of quarterly earnings.
<i>Registration days</i>	The number of days between the filing of a registration statement and the SEO issue date.
<i>Residual analyst following</i>	The residual value after regressing <i>analyst following</i> on <i>Ln(market capitalization)</i> .
<i>Return</i>	The raw daily return cumulated over the specified trading days [-20,0] and [+0,+20], with day 0 being the volume-based corrected issue date (Corwin, 2003).
<i>SEO proceeds</i>	The gross proceeds from the seasoned equity offering before underwriting.
<i>SEO size</i>	The <i>SEO proceeds</i> scaled by <i>market capitalization</i> at the fiscal year-end prior to the SEO issue date.
<i>Shelf</i>	An indicator variable equal to one if the SEO is offered from a shelf registration.
<i>Short distance 8-K</i>	An indicator variable equal to one if the firm provides an 8-K during the five days prior to the SEO issue date.
<i>Short distance disclosure</i>	An indicator variable equal to one if the firm provides any of the following disclosures during the five days prior to the SEO issue date: <i>annual MEF</i> , <i>quarterly MEF</i> , <i>FWP</i> , <i>8-K</i> , or <i>earnings announcement</i> .
<i>SOR</i>	An indicator variable equal to one if the SEO issue date is on or after December 1, 2005, when SOR became effective.
<i>Total disclosure</i>	The aggregate number of <i>annual MEFs</i> , <i>quarterly MEFs</i> , <i>FWPs</i> , <i>8-Ks</i> , and <i>earnings announcements</i> within 30 days of the SEO issue date.
<i>8-K abnormal size</i>	The SEO firm's <i>8-K size</i> less the median <i>non-SEO 8-K size</i> .
<i>8-K size</i>	The size in megabytes of the last 8-K during the 30 days prior to the SEO issue date; otherwise set to zero.

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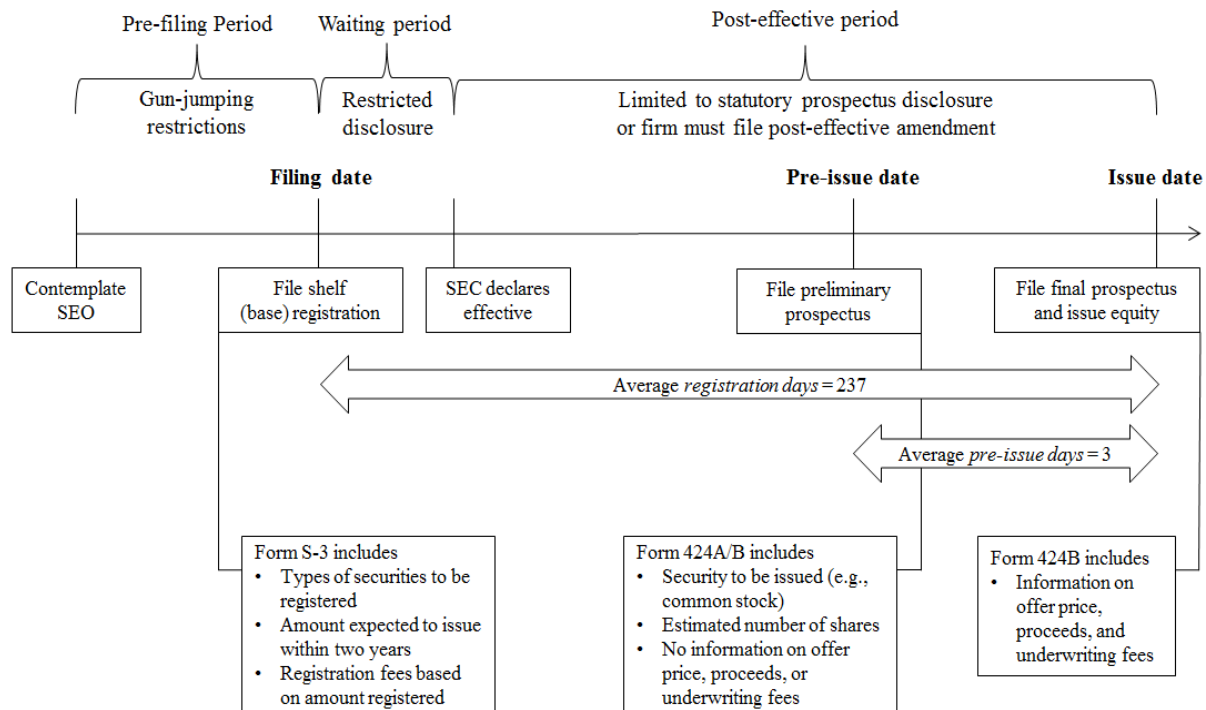
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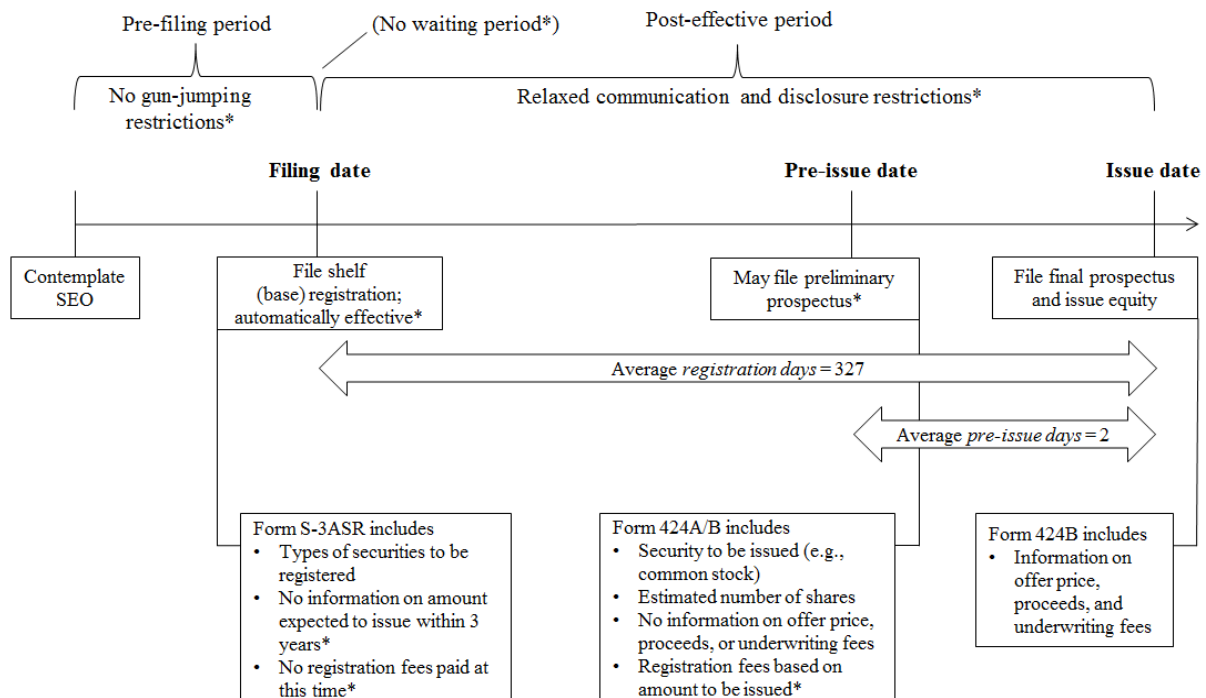
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**Fig. 1. Timeline of shelf registration and issue before and after the Securities Offering Reform (SOR)**

### Pre-SOR

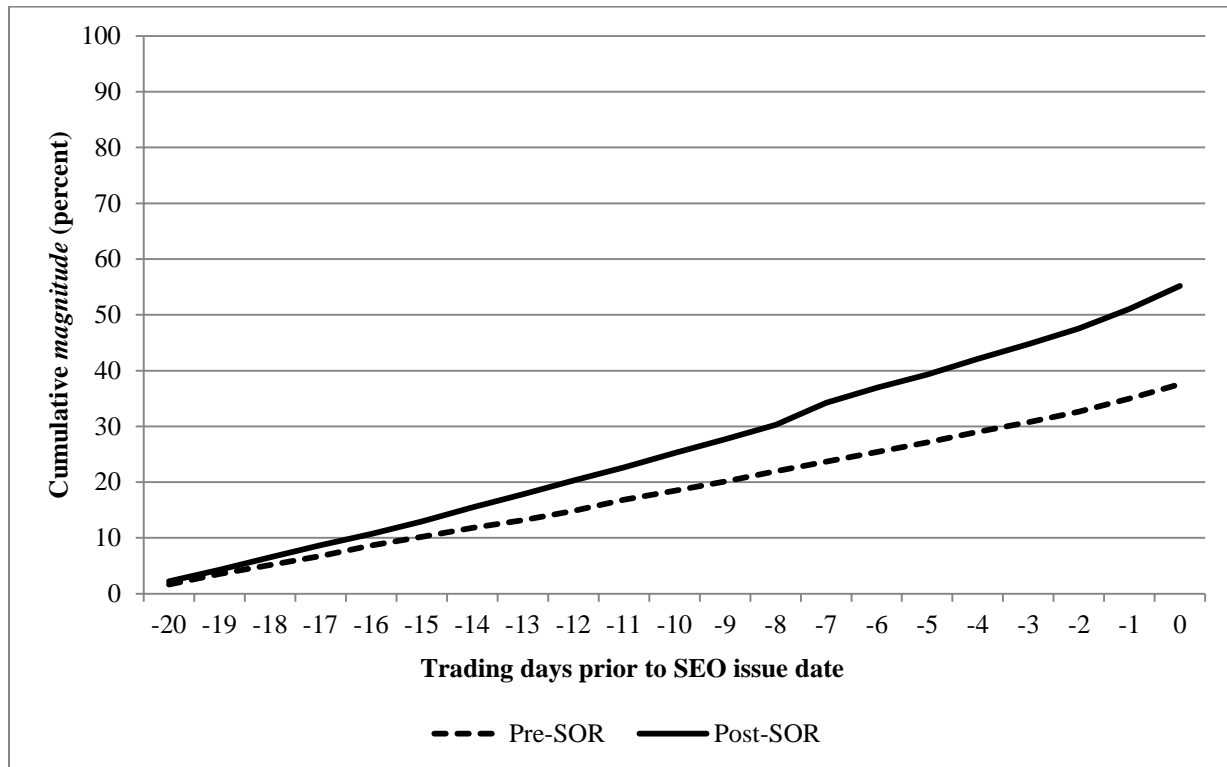


### Post-SOR



\* Denotes changes from pre-SOR.

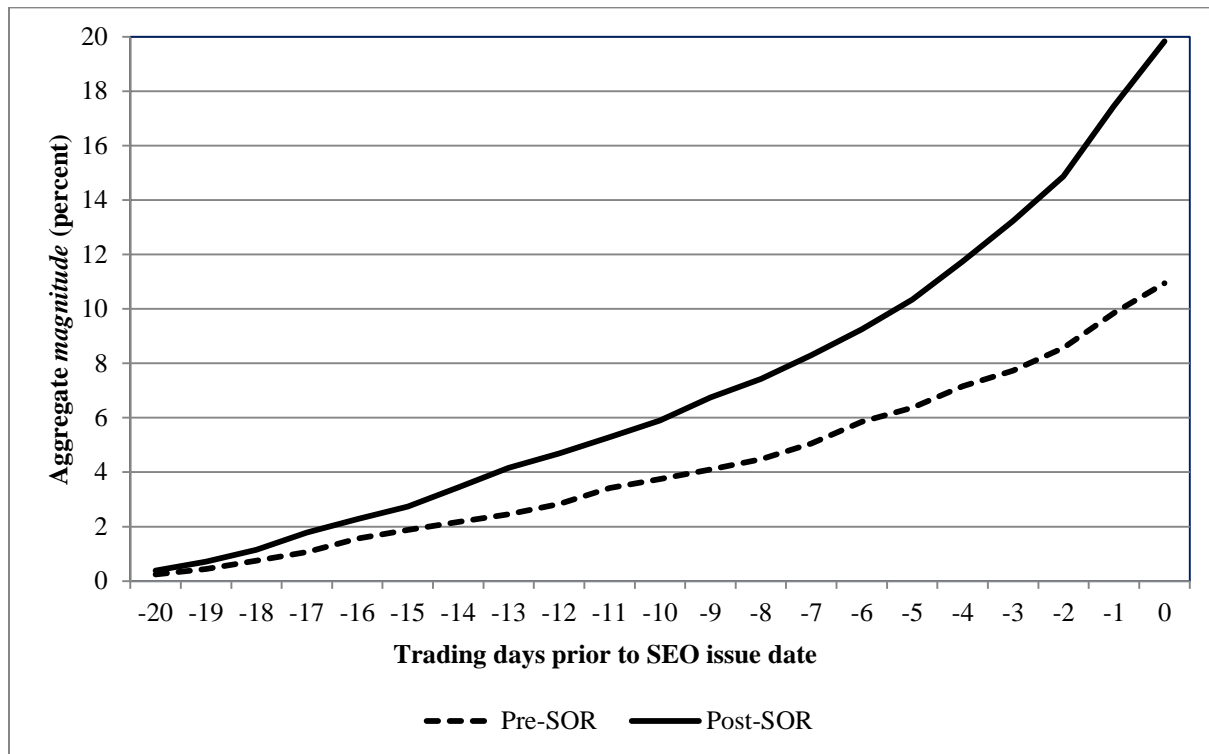
**Fig. 2. Cumulative magnitude over one month prior to seasoned equity offering (SEO)**



This figure presents the cumulative *magnitude* beginning 20 trading days prior to the SEO issue date, before and after the Securities Offering Reform (SOR). *Magnitude* is calculated as the absolute value of daily return net of the return on the CRSP value-weighted index.



**Fig. 3. Aggregate magnitude for all 8-Ks filed during one month prior to seasoned equity offering (SEO)**



The figure plots three-day  $[-1,+1]$  *magnitude* aggregated for all 8-K filing dates beginning 20 trading days prior to the SEO issue date before and after the Securities Offering Reform (SOR). Three-day *magnitude* is calculated as the cumulative three-day  $[-1,+1]$  absolute value of daily returns net of the returns on the CRSP value-weighted index.

**Table 1. Sample distribution and offering characteristics**

**Panel A. Distribution of SEOs by calendar year**

<b>Sample</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Pre-SOR</b>	<b>Post-SOR</b>	<b>Full Sample Period</b>
Forecasting	16	15	15	12	17	15	12	24	55	71	126
Non-forecasting	14	23	30	26	19	31	36	55	90	144	234
<b>Full Sample</b>	<b>30</b>	<b>38</b>	<b>45</b>	<b>38</b>	<b>36</b>	<b>46</b>	<b>48</b>	<b>79</b>	<b>145</b>	<b>215</b>	<b>360</b>

**Panel B. Offering characteristics for SEOs by calendar year**

<b>Variable</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Pre-SOR</b>	<b>Post-SOR</b>	<b>Full Sample Period</b>
<i>Shelf</i> (percent)	50.0	76.3	82.2	89.5	86.1	82.6	91.7	86.1	75.2	87.0	82.2
<i>Registration days</i>	62.1	187.8	213.6	266.1	245.5	164.7	392.6	361.8	196.0	298.4	257.1
<i>Pre-issue days</i>	3.4	3.7	3.5	2.6	1.8	3.8	2.0	1.1	3.3	2.0	2.6
<i>SEO proceeds</i> (millions of dollars)	237.2	223.2	356.4	340.0	280.5	350.8	623.9	323.5	287.2	393.7	350.8
<i>SEO size</i> (percent)	10.6	13.7	12.7	12.3	11.4	14.0	9.8	13.1	12.3	12.4	12.3

**Panel C. Average number of 8-Ks filed during SEO fiscal year**

<b>Sample</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Pre-SOR</b>	<b>Post-SOR</b>	<b>Full Sample Period</b>
Forecasting	6.4	12.8	13.3	19.4	15.9	14.1	16.6	17.0	12.8	16.0	14.4
Non-forecasting	9.9	13.5	14.3	22.3	19.3	18.9	19.0	19.0	15.5	19.0	17.7
<b>Full Sample</b>	<b>8.1</b>	<b>13.0</b>	<b>14.4</b>	<b>21.6</b>	<b>17.7</b>	<b>17.0</b>	<b>18.5</b>	<b>18.3</b>	<b>14.6</b>	<b>17.9</b>	<b>16.5</b>

This table presents the distribution values for our full sample of 360 seasoned equity offerings (SEOs) between 2002 and 2009. The Securities Offering Reform (SOR) became effective December 1, 2005. Panels A and B are presented at the SEO level and Panel C is presented at the issuer-year level. We designate SEOs issued between January 1, 2002 and November 30 2005 as pre-SOR, and SEOs issued between December 1, 2005 and December 31, 2009 as post-SOR. Three SEOs in the 2005 forecasting sample and three SEOs in the 2005 non-forecasting sample occur in December 2005. These SEOs are included in the 2005 and post-SOR columns. The final column presents the total number in Panel A and the average values in Panels B and C for the full sample period. The forecasting (non-forecasting) sample contains SEOs in which the firm has chosen (not) to provide at least one annual or quarterly point or range management earnings forecast (MEF), or both, within one year before the SEO issue date. All variables are defined in the Appendix.

**Table 2. Descriptive statistics before and after the Securities Offering Reform (SOR)**

<b>Variable</b>	<b>Full sample</b>		<b>Forecasting</b>		<b>Non-forecasting</b>	
	<b>Pre-SOR (N = 145)</b>	<b>Post-SOR (N = 215)</b>	<b>Pre-SOR (N = 55)</b>	<b>Post-SOR (N = 71)</b>	<b>Pre-SOR (N = 90)</b>	<b>Post-SOR (N = 144)</b>
<i>Market capitalization</i> (billions of dollars)	5,225.06	6,013.71	8,886.59	8,503.31	2,987.46	4,786.20
<i>Institutional ownership</i> (percent)	61.80	72.62***	67.09	75.00*	58.56	71.44***
<i>Analyst following</i>	10.39	10.87	9.35	10.11	11.02	11.22
<i>Analyst dispersion</i> (percent)	14.08	22.18**	14.46	7.97	13.84	29.19***
<i>Litigation risk</i> (percent)	31.72	22.33**	25.45	22.54	35.56	22.22**
<i>Book-to-market</i>	0.38	0.44	0.41	0.44	0.36	0.44**
<i>Loss</i> (percent)	28.97	35.35	16.36	16.90	36.67	44.44
<i>Firm risk</i> (percent)	2.52	3.76***	2.73	3.23*	2.80	4.02***

This table presents the mean values of descriptive statistics for our control variables. The forecasting (non-forecasting) sample contains seasoned equity offerings (SEOs) in which the firm has chosen (not) to provide at least one annual or quarterly point or range management earnings forecast (MEF), or both, within one year before the SEO issue date. The full sample contains both the forecasting and non-forecasting samples. \*\*\*, \*\*, and \* indicate that the difference in means is significant at the 1%, 5%, and 10% level, respectively, using a standard two-tailed *t*-test. All variables are defined in the Appendix.

**Table 3. Univariate comparison of disclosure before and after the Securities Offering Reform (SOR)**

Variable	Full sample		Forecasting		Non-forecasting	
	Pre-SOR (N = 145)	Post-SOR (N = 215)	Pre-SOR (N = 55)	Post-SOR (N = 71)	Pre-SOR (N = 90)	Post-SOR (N = 144)
<b>Panel A. Occurrence of guidance disclosure during one month prior to SEO</b>						
<i>Annual MEF</i>	10.34	14.88	27.27	45.07**	—	—
<i>Quarterly MEF</i>	12.41	11.63	32.73	35.31	—	—
<i>All MEF</i>	17.24	19.53	45.45	59.15	—	—
<i>FWP</i>	N/A	9.30	N/A	12.68	N/A	7.64
<i>Guidance</i>	17.24	26.05**	45.45	63.38**	—	7.64***
<b>Panel B. Frequency of disclosure during one month prior to SEO</b>						
<i>Total disclosure</i>	2.46	3.08***	2.71	3.58**	2.31	2.83**
<i>Annual MEF</i>	0.12	0.20	0.31	0.59**	—	—
<i>Quarterly MEF</i>	0.14	0.17	0.38	0.51	—	—
<i>All MEF</i>	0.26	0.36	0.69	1.10*	—	—
<i>FWP</i>	N/A	0.11	N/A	0.13	N/A	0.10
<i>Guidance</i>	0.26	0.47**	0.69	1.23**	—	0.10**
<i>Earnings announcement</i>	0.47	0.48	0.44	0.44	0.49	0.51
<i>8-K</i>	1.73	2.13***	1.58	1.92*	1.82	2.23**
<b>Panel C. Size of Form 8-K disclosure during one month prior to SEO</b>						
<i>8-K size</i>	2.54	5.97**	2.97	8.30*	2.29	4.81
<i>8-K abnormal size</i>	2.21	5.17*	2.67	7.54	1.94	3.99
<b>Panel D. Distance between last disclosure and SEO issue date for prior one-month</b>						
<i>Annual MEF</i>	—	—	14.73	11.88	—	—
<i>Quarterly MEF</i>	—	—	14.94	9.04**	—	—
<i>All MEF</i>	—	—	14.56	10.52*	—	—
<i>FWP</i>	N/A	3.15	N/A	2.78	N/A	3.45
<i>Guidance</i>	—	—	14.56	9.71**	—	—
<i>Earnings announcement</i>	14.40	13.46	13.29	14.39	15.00	13.07
<i>8-K</i>	8.13	6.84	8.60	8.37	7.83	6.05*
<i>Closest disclosure</i>	7.85	6.15**	8.24	6.72	7.60	5.86*

This table presents mean values for multiple forms of disclosure before and after SOR. The forecasting (non-forecasting) sample contains seasoned equity offerings (SEOs) in which the firm has chosen (not) to provide at least one annual or quarterly point or range management earnings forecast (MEF), or both, within one year before the SEO issue date. The full sample contains both the forecasting and non-forecasting samples. Panel D is for the subgroup of SEO firms with the respective type of disclosure in the prior one-month period. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively, using a standard two-tailed *t*-test. N/A = not applicable. All variables are defined in the Appendix.

**Table 4. Multivariate analysis of disclosure before and after the Securities Offering Reform (SOR)**

<b>Panel A. Occurrence, frequency, and 8-K size during one-month period prior to SEO issue date</b>							
<b>Variable</b>	Occurrence of annual MEF	Occurrence of guidance	Frequency of guidance	Frequency of 8-Ks	Frequency of total disclosure	File size of last 8-K	File size of last 8-K
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	-1.89** (0.05)	-1.25 (0.18)	-0.02 (0.98)	0.85 (0.14)	1.54** (0.05)	-12.16 (0.21)	-12.23 (0.20)
<i>SOR</i>	0.43* (0.09)	0.47* (0.06)	0.48** (0.04)	0.38*** (0.01)	0.55*** (0.01)	1.98* (0.06)	4.92** (0.04)
<i>Ln(market capitalization)</i>	0.10 (0.32)	-0.02 (0.83)	-0.02 (0.87)	0.14* (0.09)	0.10 (0.34)	1.51 (0.13)	1.73 (0.11)
<i>Institutional ownership</i>	1.10** (0.04)	1.13** (0.01)	1.07** (0.01)	-0.19 (0.45)	0.36 (0.30)	2.35 (0.31)	1.89 (0.39)
<i>Residual analyst following</i>	-0.02 (0.46)	-0.06** (0.04)	-0.04** (0.05)	0.04* (0.10)	0.02 (0.46)	0.01 (0.95)	0.02 (0.91)
<i>Analyst dispersion</i>	-4.74* (0.06)	0.76 (0.19)	0.38 (0.29)	-0.11 (0.51)	-0.14 (0.60)	5.15 (0.34)	4.97 (0.35)
<i>Litigation risk</i>	-0.20 (0.51)	0.25 (0.41)	-0.02 (0.91)	-0.17 (0.32)	-0.10 (0.67)	-1.14 (0.36)	-1.06 (0.42)
<i>Book-to-market</i>	0.18 (0.47)	0.71** (0.03)	0.24 (0.10)	-0.15 (0.31)	-0.01 (0.98)	3.27 (0.30)	3.63 (0.27)
<i>Loss</i>	-0.36 (0.34)	-0.68* (0.07)	-0.41* (0.08)	0.08 (0.62)	-0.27 (0.19)	-2.22** (0.04)	-2.20** (0.05)
<i>Firm risk</i>	1.56 (0.86)	3.91 (0.64)	0.41 (0.94)	1.59 (0.65)	3.40 (0.49)	33.24 (0.24)	64.09 (0.11)
<i>Non-SEO 8-K size</i>							-6.90 (0.14)
Sample	Forecasting	Forecasting	Forecasting	Full	Full	Full	Full
Regression	Probit	Probit	OLS	OLS	OLS	OLS	OLS
Observations	126	126	126	360	360	358	358
Pseudo $R^2$	0.150	0.120					
$R^2$			0.10	0.06	0.04	0.06	0.08
Adjusted $R^2$			0.03	0.03	0.02	0.04	0.05

Table 4 (continued)

Panel B. Distance between last disclosure and SEO issue date by disclosure type						
Variable	Distance of last guidance	Distance of last 8-K	Distance of closest disclosure	Distance of last guidance	Distance of last 8-K	Distance of closest disclosure
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	24.56*** (0.00)	15.95*** (0.00)	16.47*** (0.00)	101.49 (0.19)	16.84* (0.08)	16.90** (0.01)
<i>SOR</i>	-5.63** (0.03)	-0.83 (0.33)	-1.06 (0.20)	-16.93 (0.27)	-6.91** (0.02)	-3.72** (0.04)
<i>Ln(market capitalization)</i>	-1.12 (0.18)	-1.04*** (0.00)	-1.02*** (0.00)	5.09 (0.59)	0.17 (0.88)	-0.43 (0.60)
<i>Institutional ownership</i>	3.50 (0.46)	0.82 (0.58)	0.02 (0.99)	-53.22* (0.08)	2.06 (0.59)	-0.17 (0.95)
<i>Residual analyst following</i>	0.01 (0.96)	-0.23*** (0.01)	-0.18** (0.03)	2.99 (0.21)	-0.46** (0.02)	-0.29* (0.06)
<i>Analyst dispersion</i>	-1.62 (0.64)	-0.53 (0.60)	-0.35 (0.70)	-32.70 (0.18)	-1.57 (0.53)	-1.56 (0.41)
<i>Litigation risk</i>	-0.87 (0.70)	0.20 (0.83)	0.27 (0.76)	-6.68 (0.73)	1.52 (0.62)	2.16 (0.26)
<i>Book-to-market</i>	0.23 (0.85)	0.34 (0.69)	-0.31 (0.65)	-6.33 (0.48)	-3.72 (0.45)	0.42 (0.73)
<i>Loss</i>	-0.20 (0.96)	-0.96 (0.35)	-0.85 (0.37)	53.99** (0.05)	1.64 (0.49)	2.26 (0.25)
<i>Firm risk</i>	-115.17* (0.06)	-13.58 (0.52)	-22.99 (0.23)	-695.96 (0.11)	-47.50 (0.24)	-63.60** (0.04)
Restricted to one month	Yes	Yes	Yes	No	No	No
Regression	OLS	OLS	OLS	OLS	OLS	OLS
Observations	81	322	332	146	358	360
$R^2$	0.18	0.06	0.06	0.10	0.06	0.05
Adjusted $R^2$	0.08	0.03	0.04	0.04	0.03	0.03

In Panel A, the forecasting (non-forecasting) sample contains seasoned equity offerings (SEOs) in which the firm has chosen (not) to provide at least one annual or quarterly point or range management earnings forecast (MEF), or both, within one year before the SEO issue date. The full sample contains both the forecasting and non-forecasting samples. In Panel B, Columns 1–3 (4–6) contain SEOs in which the firm provides a specified disclosure within one month (one year) before the SEO issue date.  $p$ -values in parentheses are based on robust standard errors clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively, from a two-tailed test. All variables are defined in the Appendix.

**Table 5. Univariate comparison of error and bias in management earnings forecasts (MEFs) before and after the Securities Offering Reform (SOR)**

<b>Panel A. Last MEF during one month prior to SEO</b>			
<b>Variable</b>	<b>Pre-SOR (N = 25)</b>	<b>Post-SOR (N = 42)</b>	<b>p-value</b>
<i>Error</i>	2.43	0.72	0.00***
<i>Bias</i>	1.33	0.23	0.09*
<b>Panel B. First annual MEF during one year versus last annual MEF during one month prior to SEO</b>			
<b>Variable</b>	<b>Pre-SOR (N = 18)</b>	<b>Post-SOR (N = 35)</b>	<b>p-value</b>
<b>Error</b>			
<i>First annual MEF</i>	2.66	1.36	0.08*
<i>Last annual MEF</i>	2.47	0.77	0.01***
<i>Difference</i>	-0.20	-0.59***	0.39
<b>Bias</b>			
<i>First annual MEF</i>	1.82	0.71	0.20
<i>Last annual MEF</i>	1.78	0.32	0.05**
<i>Difference</i>	-0.03	-0.40*	0.46
<b>Horizon</b>			
<i>First annual MEF</i>	331.39	338.37	0.85
<i>Last annual MEF</i>	215.67	174.94	0.20
<b>Panel C. First quarterly MEF during one year versus last quarterly MEF during one month prior to SEO</b>			
<b>Variable</b>	<b>Pre-SOR (N = 21)</b>	<b>Post-SOR (N = 29)</b>	<b>p-value</b>
<b>Error</b>			
<i>First quarterly MEF</i>	1.36	0.93	0.30
<i>Last quarterly MEF</i>	2.34	0.84	0.03**
<i>Difference</i>	0.98	-0.09	0.06*
<b>Bias</b>			
<i>First quarterly MEF</i>	0.51	-0.27	0.14
<i>Last quarterly MEF</i>	1.06	-0.39	0.07*
<i>Difference</i>	0.55	-0.12	0.31
<b>Horizon</b>			
<i>First quarterly MEF</i>	43.19	29.17	0.17
<i>Last quarterly MEF</i>	34.33	30.66	0.69

Panel A presents the mean values of *error* and *bias* for seasoned equity offerings (SEOs) in which the firm provides an MEF within one month before the SEO issue date. *Error* and *bias* are annualized for quarterly MEFs. Values for annual MEFs are used if both annual and quarterly MEFs are provided. Panels B and C present the mean values of the *first annual* or *quarterly MEF* provided within one year before the SEO issue date and the *last annual* or *quarterly MEF* provided within one month before the SEO issue date. In Columns 1–2, \*\*\*, \*\*, and \* indicate if difference in first and last error or bias is significantly different from zero at the 1%, 5%, and 10% level, respectively, using a standard two-tailed *t*-test. In Column 3, \*\*\*, \*\*, and \* indicate if difference in pre- and post-SOR means is significant at the 1%, 5%, and 10% level, respectively, using a standard two-tailed *t*-test. Variables are defined in the Appendix.

**Table 6. Multivariate analysis of error and bias in management earnings forecasts (MEFs) before and after the Securities Offering Reform (SOR)**

Variable	MEF error	MEF error	MEF bias	MEF bias
	(1)	(2)	(3)	(4)
Constant	-0.15 (0.93)	0.61 (0.67)	-3.03 (0.14)	-2.00 (0.20)
<i>SOR</i>	-1.56** (0.03)	-1.04** (0.03)	-1.49* (0.06)	-1.36*** (0.01)
<i>Ln(market capitalization)</i>	0.25 (0.26)	0.01 (0.97)	0.43* (0.08)	0.27 (0.16)
<i>Institutional ownership</i>	-0.01 (0.99)	1.23 (0.12)	1.37 (0.33)	1.36 (0.17)
<i>Residual analyst following</i>	0.09* (0.09)	-0.03 (0.53)	0.09 (0.15)	0.05 (0.43)
<i>Analyst dispersion</i>	-0.27 (0.81)	0.91 (0.43)	-2.31** (0.05)	-1.89** (0.04)
<i>Litigation risk</i>	-0.66 (0.11)	-0.87*** (0.01)	-1.08** (0.03)	-1.03*** (0.01)
<i>Book-to-market</i>	1.56* (0.10)	0.54 (0.21)	1.89* (0.07)	0.72 (0.12)
<i>Loss</i>	-0.02 (0.98)	0.92 (0.25)	-0.38 (0.75)	1.14 (0.20)
<i>Firm risk</i>	-2.40 (0.92)	-9.34 (0.41)	2.93 (0.91)	1.77 (0.89)
<i>Horizon</i>	0.46 (0.53)	0.72** (0.02)	-0.18 (0.84)	0.34 (0.51)
Sample	Forecasting	Forecasting	Forecasting	Forecasting
Restricted to one month	Yes	No	Yes	No
Regression	OLS	OLS	OLS	OLS
Observations	67	126	67	126
$R^2$	0.25	0.18	0.24	0.15
Adjusted $R^2$	0.12	0.10	0.10	0.07

The forecasting sample in Columns 1 and 3 (2 and 4) contains seasoned equity offerings (SEOs) in which the firm has chosen to provide at least one annual or quarterly point or range MEF, or both, within one month (one year) before the SEO issue date. *Error* and *bias* are based on the last annual or annualized quarterly MEF provided during the specified time period. *p*-values in parentheses are based on robust standard errors clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively, from a two-tailed test. Variables are defined in the Appendix.



**Table 7. Magnitude of information reflected in absolute market-adjusted returns before and after the Securities Offering Reform (SOR)**

<b>Panel A. Pre- and post-SOR magnitude</b>						
<b>Variable</b>	<b>Full sample</b>		<b>Forecasting</b>		<b>Non-forecasting</b>	
	<b>Pre-SOR (N = 145)</b>	<b>Post-SOR (N = 215)</b>	<b>Pre-SOR (N = 55)</b>	<b>Post-SOR (N = 71)</b>	<b>Pre-SOR (N = 90)</b>	<b>Post-SOR (N = 144)</b>
<i>Magnitude</i> [-20,0]	37.56	55.20*** (0.00)	36.50	43.32* (0.06)	38.22	61.06*** (0.00)
<i>Magnitude</i> [1,+20]	29.06	39.18*** (0.00)	27.55	31.17 (0.18)	29.91	43.13*** (0.00)
<i>Abnormal magnitude</i>	8.55	16.02*** (0.00)	8.95	12.16 (0.22)	8.30	17.93*** (0.00)
<b>Panel B. Pre-SOR magnitude and post-SOR magnitude by disclosure within one week of the SEO issue date</b>						
<b>Variable</b>	<b>Pre-SOR Full sample (N = 145)</b>	<b>Post-SOR Short distance disclosure</b>		<b>Post-SOR Short distance 8-K</b>		
		<b>Yes (N = 109)</b>	<b>No (N = 106)</b>	<b>Yes (N = 101)</b>	<b>No (N = 114)</b>	
<i>Magnitude</i> [-20,0]	37.56	58.31*** (0.00)	52.01*** (0.00)	59.36*** (0.00)	51.51*** (0.00)	
<i>Magnitude</i> [1,+20]	29.06	38.23*** (0.00)	40.16*** (0.00)	38.35*** (0.00)	39.92*** (0.00)	
<i>Abnormal magnitude</i>	8.55	20.08*** (0.00)	11.85 (0.22)	21.02*** (0.00)	11.60 (0.24)	

The forecasting (non-forecasting) sample contains seasoned equity offerings (SEOs) in which the firm has chosen (not) to provide at least one management earnings forecast (MEF) within one year before the SEO issue date. *Magnitude* is the cumulative absolute value of daily return net of the CRSP value-weighted index return over the specified trading days, with day 0 being the volume-based corrected SEO issue date (Corwin, 2003). *Abnormal magnitude* is *magnitude* [-20, 0] less *magnitude* [+1,+20]. Panel A tests for statistical differences between mean values of *magnitude* for the stated pre- and post-SOR samples. Panel B tests for statistical differences between mean values of *magnitude* for the stated post-SOR subsample and the pre-SOR full sample. *Short distance disclosure* (8-K) contains SEOs in which the firm provides any form of disclosure (an 8-K) within one week prior to the SEO issue date. \*\*\*, \*\*, and \* indicate significant differences at the 1%, 5%, and 10% level, respectively, using a standard two-tailed *t*-test. *p*-values from these tests are displayed in parentheses. Variables are defined in the Appendix.

**Table 8. Stock returns before and after the Securities Offering Reform (SOR)**

Panel A. Pre- and post-SOR return						
Variable	Full sample		Forecasting		Non-forecasting	
	Pre-SOR (N = 145)	Post-SOR (N = 215)	Pre-SOR (N = 55)	Post-SOR (N = 71)	Pre-SOR (N = 90)	Post-SOR (N = 144)
Return [-20,0]	2.45	5.03 (0.25)	2.00	0.72 (0.57)	2.72	7.16 (0.17)
Return [1,+20]	1.60	0.31 (0.30)	1.18	-0.71 (0.31)	1.85	0.82 (0.53)
Abnormal return	0.85	4.72 (0.11)	0.82	1.43 (0.82)	0.87	6.34* (0.10)

Panel B. Pre-SOR return and post-SOR return by disclosure within one week of the SEO issue date						
Variable	Pre-SOR	Post-SOR		Post-SOR		
	Full sample	Short distance disclosure		Short distance 8-K		
	(N = 145)	Yes (N = 109)	No (N = 106)	Yes (N = 101)	No (N = 114)	
Return [-20,0]	2.45	8.36* (0.09)	1.61 (0.72)	9.36* (0.07)	1.20 (0.59)	
Return [1,+20]	1.60	0.88 (0.65)	-0.27 (0.22)	1.43 (0.92)	-0.38 (0.14)	
Abnormal return	0.85	7.48* (0.06)	1.88 (0.72)	7.93* (0.06)	1.88 (0.70)	

The forecasting (non-forecasting) sample contains seasoned equity offerings (SEOs) in which the firm has chosen (not) to provide at least one annual or quarterly point or range management earnings forecast (MEF), or both, within one year before the SEO issue date. *Return* is the cumulative raw daily returns over the specified number of trading days, with day 0 being the volume-based corrected SEO issue date (Corwin, 2003). *Abnormal return* is *return* [-20,0] less *return* [+1,+20]. Panel A tests for statistical differences between mean values of *return* for the stated pre- and post-SOR samples. Panel B tests for statistical differences between mean values of *return* for the stated post-SOR subsample and the pre-SOR full sample. *Short distance disclosure* (8-K) contains SEOs in which the firm provides any form of disclosure (an 8-K) within one week prior to the SEO issue date. \*\*\*, \*\*, and \* indicate significant differences at the 1%, 5%, and 10% level, respectively, using a standard two-tailed *t*-test. *p*-values from these tests are displayed in parentheses. Variables are defined in the Appendix.