The debt-equity choice when regulatory thresholds are based on equity values: Evidence from SOX 404

David P. Weber
University of Connecticut

Yanhua Sunny Yang
University of Connecticut

May 2017

Abstract
We study the effects of regulatory requirements that are tiered by equity values on firms' subsequent financing choices. When larger market values of equity result in being subject to costly regulation, firms have incentives to shift their sources of financing toward debt and away from equity. We use the Sarbanes-Oxley Act of 2002 (SOX) as a setting to provide evidence of such incentives. Smaller firms were granted several reprieves and eventually exempted from the internal control requirements of SOX Section 404, which many consider the most costly and onerous aspect of SOX. Using a difference-in-differences design, we show that relative to control firms, firms just below the regulatory threshold have increased propensities to issue debt, decreased propensities to issue equity, and increased leverage levels in the post-SOX period. These results are consistent with firms altering their financing choices and capital structures to maintain their exempt status and demonstrate an unintended consequence of tiered regulatory regimes.

We appreciate helpful comments from Mike Dambra, Joe Golec, Ross Jennings, Bjorn Jorgensen, Todd Kravet, Sarah Rice, Kecia Smith, Terry Warfield, Jenny Zha, and seminar participants at University of Connecticut, Hong Kong Polytechnic University, Texas A&M University, University of Wisconsin, and the 2015 AAA Annual Meeting.

I. INTRODUCTION

The scaling of regulation for firms of different sizes is a longstanding feature of many regulatory regimes and has become increasingly common in recent years (e.g., Bradford 2004; Gates and Leuschner 2007; Anginer et al. 2012; Schwartz 2014). Within the context of U.S. securities regulation, tiered requirements and exemptions for smaller firms date back to the original federal securities regulations of the 1930s, and compliance thresholds are often linked to the market value of firms' common equity (ACSPC 2006; Dixon et al. 2007). Such exemptions have recently taken on increased prominence as smaller firms have been granted multiple reprieves from the internal control reporting requirements of Section 404 of the Sarbanes-Oxley Act of 2002 (SOX 404 hereafter), which many view as the most costly and controversial aspect of SOX. In this paper we use the setting of SOX 404 to provide evidence of an unintended consequence of basing regulatory thresholds on equity values: it creates incentives for firms to shift their sources of finance away from common equity and toward debt.

SOX 404 requires management and the financial statement auditor to formally document, test, and report publicly in the annual Form 10-K on the effectiveness of internal controls over financial reporting. The costs of complying with this requirement are substantial and include a significant fixed component, making them especially burdensome for small firms (e.g., Engel et al. 2007; Kamar et al. 2007; SEC 2009b; Alexander et al. 2013). As a result, the Securities and Exchange Commission (SEC) delayed the implementation of SOX 404 several times and the Dodd-Frank Act of 2010 eventually granted a permanent exemption from the auditor attestation requirement for non-accelerated filers, which are firms with public float of less than $75

million.[1] Consistent with SOX 404 imposing net costs on such firms, Zhang (2007) and Iliev (2010) document positive stock market reactions for non-accelerated filers around announcement dates of the various delays in SOX 404 implementation.

The costs of complying with SOX 404 create incentives for firms to retain their status as non-accelerated filers. Prior literature documents that some non-accelerated filers retain their status by depressing the overall size of the firm (reducing investments, increasing payouts, managing earnings down; Gao et al. 2009, Nondorf et al. 2012) or by manipulating reported public float (Gao 2016). As we detail in Section II, these activities either result in firms staying small—thus being prohibitively costly for firms with valuable growth opportunities—or are limited to firms with particular ownership structures and certain levels of market capitalization. As Gao et al. (2009, 500) point out: "[O]nly firms that believe the costs of Section 404 compliance outweigh the benefits of the future growth opportunities" are likely to stay small. This suggests that when the benefits of growth opportunities are high, firms are unlikely to stay small. Prior literature does not address how firms can pursue growth opportunities while avoiding SOX 404. We propose that strategic financing choices provide a mechanism to achieve these dual objectives.

The role for financing choices stems from the fact that the SOX 404 threshold is based on one particular source of financing rather than a measure of overall firm size. Only common equity affects public float (and thus non-accelerated filer status). This focus on common equity creates the possibility of using strategic financing choices to fund growth opportunities without

[1] Public float is the aggregate market value of a company's outstanding common equity held by non-affiliates. An affiliate is "a person that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with" the issuer (17 CFR 240.12b-2).

triggering SOX 404 compliance. To the extent firms can fund growth with debt instead of equity, they need not stay small to avoid SOX 404.

The traditional tradeoff theory from finance views financing choices as a balancing of various costs and benefits of debt versus equity (e.g., financial distress, tax, and agency considerations; see Graham and Leary 2011 for a review). The SOX 404 exemption can affect that balance and the resulting financing choices of firms near the threshold. When these firms compare alternative sources of external financing to fund growth, the regulatory threshold is likely to make additional common equity relatively more costly and additional debt relatively less costly. Consistent with that view, we expect the tiered structure of SOX 404 to increase the likelihood that non-accelerated filers fund growth by issuing debt instead of equity.

Funding growth with debt, however, can also entail costs. Deadweight costs of financial distress, asset substitution and debt overhang problems, and loss of flexibility from covenant restrictions all tend to increase with debt usage, particularly for firms with valuable investment opportunities (Jensen and Meckling 1976; Myers 1977; Jensen 1986; van Binsbergen et al. 2010). Such costs potentially offset the benefits of avoiding SOX 404. Managers of high growth firms may also view crossing the threshold in the relatively near term as inevitable, reducing the value of avoidance. How firms balance these various tradeoffs against exemption from SOX 404 is ultimately an empirical question.

We provide evidence on this question by comparing the sources of finance used by non-accelerated filers in the post-SOX era to those of a control sample of accelerated filers. The $75 million compliance threshold applies asymmetrically to accelerated and non-accelerated filers. Once classified as an accelerated filer, a firm remains an accelerated filer (and hence subject to SOX 404) unless it subsequently satisfies more stringent requirements that apply for exiting

accelerated filer status (detailed in Section II). Therefore, the incentives for non-accelerated filers created by the $75 million threshold do not apply to accelerated filers, and accelerated filers provide a useful control group.

Our post-SOX test period begins in June 2003, just after the first float-based deferral of SOX 404 was announced by the SEC, and runs through 2012, the most recent data at the time of our analysis. We also use a pre-SOX control period, spanning 1996 (when 10-K filings become available in the SEC's EDGAR system) through 2001 (prior to the legislative activity that led to SOX). Our empirical tests are then based on a difference-in-differences design where we examine how differences between the financing choices of non-accelerated filers and control firms change from the pre-SOX period to the post-SOX period.

We focus our main tests on firms with public float between $50 million and $100 million, to ensure that the non-accelerated filers and control firms are reasonably similar in size (Iliev 2010). We also limit the sample to firms that access significant amounts of external capital (greater than 5 percent of total assets), to isolate financing choices that are most likely intended to fund growth and investment (Leary and Roberts 2010).

Our results are consistent with SOX 404 exemptions creating incentives for smaller firms to favor debt over common equity to maintain their non-accelerated filer status. Controlling for other relevant factors, we find that the likelihood of issuing common stock decreases by 19.1 percent in the post-SOX period among non-accelerated filers that access external financing (and thus the likelihood of issuing debt instead of stock increases by 19.1 percent), relative to control firms. This effect is economically significant relative to the unconditional likelihood of issuing common stock, which is 47.0 percent in our sample (53.0 percent issue debt). The results are strongest among firms with valuable investment opportunities, as proxied by the market-to-book

ratio, which is consistent with strategic financing choices being particularly beneficial for such firms. We also find that non-accelerated filers that later switch status lose their relative preference for debt after they become accelerated filers.

Because our sample is an unbalanced panel, we take measures to ensure that our results are not attributable to shifting sample composition. We examine subsamples of (1) only firms that remain in the public equity markets in both the pre- and post-SOX periods and (2) only firms that appear in our sample in both periods (i.e., have public float within our narrow band around the threshold and access significant external financing). In both cases we find results similar to our full sample.

Our results are also robust to a number of sensitivity tests. Of particular note, we ensure that the control firms do not drive the results, which is a possibility if SOX 404 compliance leads to improved information environments and decreases in accelerated filers' cost of equity versus debt. To that end, we control for several aspects of firms' general information environments and information asymmetry, and we employ three alternate control groups that are not subject to SOX 404 (small non-accelerated filers far from the threshold; firms listed in Canada; and foreign firms listed in the U.S. during a period when they were exempt from SOX 404). The outcome in each case is consistent with our main results.

We also consider several other control groups of different-sized firms, a control group of non-accelerated filers that voluntarily comply with SOX 404, and a specification without any control firms. In all cases the results are consistent with the main results. The results are similarly robust to several alternate measures of common stock and debt issuance.

We also perform two sets of falsification tests. The first set falsely assumes different pseudo-event years and the second set falsely assumes different pseudo-thresholds for public float. The results are insignificant in all cases.

Finally, we conduct three supplementary analyses that corroborate and extend our primary results. First, we examine leverage levels. The finding that non-accelerated filers become more likely to issue debt and less likely to issue common equity suggests that their leverage levels are also likely to increase in the post-SOX period. We confirm that this is the case and quantify the effect. Leverage increases by 5.0 percent in the post-SOX period for non-accelerated filers relative to control firms (the sample mean for leverage is 25 percent). Thus, the effects of SOX 404 exemptions on incremental financing decisions documented in our primary results appear to manifest in higher levels of leverage for non-accelerated filers.

Second, while our main tests focus on debt because it is the most significant alternative to common stock for raising external capital, we also consider operating leases and preferred stock as additional potential sources of financing that do not affect public float. We find that the likelihoods of using operating leases and preferred stock instead of common stock both increase for non-accelerated filers relative to control firms, by 1.8 and 4.3 percent, respectively. These effects are modest in an absolute sense, but notable relative to the unconditional likelihood of engaging in the two activities (12.0 and 4.4 percent, respectively, in our sample).

Third, we expand the sample to include all firms with public float between $50 million and $100 million, regardless of whether they access external financing. This enables us to examine the overall extent to which non-accelerated filers replace the relative decrease in common stock issuance with other sources of financing (as opposed to not financing instead). For this expanded sample we find that common stock issuance decreases by 10.1 percent during

the post-SOX period for non-accelerated filers relative to control firms. The corresponding change for debt issuance is an increase of 5.4 percent. When we consider operating leases and preferred stock along with debt, this second figure increases to 6.7 percent. Taken together, these results suggest that roughly two-thirds of the decrease in common stock issuance by non-accelerated filers is replaced by increased reliance on other forms of financing that do not have a direct impact on public float.

Our paper makes three primary contributions. First, we document that basing regulatory thresholds on public float can have unintended consequences on firms' financing choices. Firms near the public float-based SOX 404 threshold increase both their tendency to issue debt and their resulting leverage levels. These results should be informative to regulators when designing appropriate threshold measures for scaled regulation.[2] These results also extend prior literature on threshold avoidance (Gao et al. 2009; Nondorf et al. 2012; Gao 2016) by demonstrating that firms need not stay small or pass up valuable investment opportunities to retain regulatory exemptions. Strategic financing choices provide a widely available mechanism to fund growth while avoiding thresholds based on public float. Tradeoff theory suggests, however, that such choices are unlikely to be costless, especially because smaller firms are already more likely to have high leverage and bankruptcy risk (e.g., Chan and Chen 1991; Shumway 2001).

Second, our evidence adds to the literature examining economic consequences of SOX. Such evidence remains important as policy makers continue to debate SOX 404 exemptions and the related threshold (e.g., Rapoport 2017; ACSEC 2015, 2013; Bloomberg 2014, 2013; Schapiro 2012; SEC 2011). Previous studies investigate consequences for deregistrations (Engel

[2] For example, the SEC recently released a proposal to expand the eligibility for "smaller reporting company" status and the associated scaled disclosure requirements (SEC 2016). The proposal solicits feedback on whether to base the eligibility threshold on public float or some other measure(s) of firm size (p. 24-28). Our results highlight a potential consequence of using public float.

et al. 2007; Leuz et al. 2008), cross-listings (Piotroski and Srinivasan 2008), equity values (Zhang 2007), investments (Gao et al. 2009; Kang et al. 2010), and the market for corporate control (Chhaochharia et al. 2011). We contribute to this literature by documenting a previously unidentified economic consequence, namely that non-accelerated filers, particularly those with valuable investment opportunities, increase their reliance on debt financing to avoid costly compliance with SOX 404.

Finally, we contribute to the literature on corporate financing decisions and capital structure more generally, particularly as it relates to smaller firms (e.g., Frank and Goyal 2003; Beck et al. 2008; Covas and Den Haan 2011). Corporate financial policy is an issue of central importance in financial economics because it affects the distribution of value between shareholders and creditors, and Myers (2003) stresses that the factors influencing financing choices are likely to depend heavily on firms' specific circumstances.[3] Our evidence suggests that for smaller firms the existence of regulatory thresholds can be a significant factor and should be considered by future research.

II. BACKGROUND AND RESEARCH QUESTIONS

Scaled Regulation

Scaled requirements are a pervasive part of the regulatory landscape. They appear across fields as diverse as environmental regulation, employment law, and health insurance regulation (Gates and Leuschner 2007) and also across countries (e.g., Black et al. 2006; Kajüter et al. 2015). Scaling is typically motivated by arguments that compliance costs can be more burdensome for smaller firms while the corresponding benefits to the public interest may not be

[3] Myers (2003, 217) argues: "There is no universal theory of capital structure, and no reason to expect one. There are useful conditional theories, however. The theories differ in their relative emphasis on the factors that could affect the choice between debt and equity. … Each factor could be dominant for some firms or in some circumstances, yet unimportant elsewhere."

as large. In the U.S., the 1980 Regulatory Flexibility Act (5 U.S.C. 601-612) compels federal agencies to analyze the impact of their regulatory actions on small firms and, where that impact is significant, pursue less burdensome alternatives or exemptions.

Scaling is especially common in securities regulation. Examples include exemptions from filing requirements for firms with less than $10 million in assets (17 CFR 240.12g-1), exemptions for small security issues under Regulation D and Regulation A (17 C.F.R. 230.501 et seq.; 17 C.F.R. 230.251 et seq.; see also Loten 2015), and scaled disclosure requirements and extended filing deadlines for "smaller reporting companies" (17 CFR 229.10f; 17 CFR 249.310).[4] In this paper we focus on SOX 404 because it has been especially costly and controversial for smaller firms; it is far-reaching, in that it applies on an on-going basis to all firms listed on U.S. exchanges other than those qualifying for exemption; and the exemption threshold is linked to one particular source of financing—common equity—which could affect the debt-equity choice firms face when raising external capital.

SOX 404

In the aftermath of high profile accounting scandals at Enron and WorldCom, the U.S. government attempted to restore investor confidence by responding with SOX, which many viewed as the most significant securities regulation since the original Securities and Exchange Acts.[5] The legislative deliberations that led to SOX began early in 2002, and SOX was signed

[4] In keeping with its obligations under the Regulatory Flexibility Act, the SEC chartered the Advisory Committee on Smaller Public Companies in 2005 and the Advisory Committee on Small and Emerging Companies in 2011. It has also hosted an annual forum on small business issues since 1982. Current SEC projects include exploring different tick sizes for smaller firms' stock and a new exchange for small firms with more lenient listing requirements than the NASDAQ, NYSE, and other national exchanges (e.g., Luparello 2015; Levitt 2015).

[5] For example, SEC Commissioner Harvey Goldschmid called SOX the "most sweeping reform since the Depression-era securities laws" (Murray 2002); and Barry Melancon, president of the American Institute of Certified Public Accountants (AICPA) opined that SOX "contains some of the most far-reaching changes that Congress has ever introduced to the business world" (Cunningham 2003).

into law by President George W. Bush in July 2002 (Pub. L. No. 107-204).[6] Much of the subsequent controversy surrounding SOX has centered on Section 404, which creates two new requirements. Section 404(a) requires management to document and provide an annual assessment of the effectiveness of internal controls over financial reporting, and Section 404(b) requires the firm's financial statement auditor to also assess and opine on the effectiveness of those controls. As originally passed, SOX did not distinguish between large and small firms.

SOX directs the SEC to develop related implementation guidance. Throughout the process of developing such guidance, significant concerns arose about the lead-time necessary to comply with the Section 404 requirements, especially for small firms that have fewer internal personnel and often lack sophisticated systems and sharp segregation of duties. Commentators also argued that the fixed (i.e., non-variable) component of compliance costs can be significant, suggesting that overall costs may outweigh benefits for smaller firms (e.g., Holmstrom and Kaplan 2003). Subsequent research provides support for these concerns. For example, Krishnan et al. (2008) and ACSPC (2006) show that smaller firms have larger SOX compliance costs per dollar of assets and revenues, respectively. Engel et al. (2007) and Chhaochharia and Grinstein (2007) document that stock returns around key SOX-related legislative events were more negative for smaller firms.

The SEC responded to these concerns by delaying the implementation dates for SOX 404, particularly for firms that qualify as non-accelerated filers. The primary factor that determines a firm's status as non-accelerated or accelerated filer is public float: only firms with

[6] See Hamilton and Trautman (2002) for the legislative history of SOX. Zhang (2007) and Li (2014) also provide detailed legislative timelines.

public float less than $75 million qualify as non-accelerated filers.[7] On May 27, 2003, the SEC voted to phase in the original SOX 404 implementation deadlines at June 15, 2004 for accelerated filers and delay them until April 15, 2005 for non-accelerated filers (SEC 2003). In February 2004 the deadlines were deferred until November 15, 2004 for accelerated filers and July 15, 2005 for non-accelerated filers (SEC 2004).

Implementation of SOX 404 began November 15, 2004 for accelerated filers, but cost concerns, especially related to the audit requirement, motivated the SEC to issue several more deferments for non-accelerated filers.[8] Ultimately, non-accelerated filers began complying with SOX 404(a) (management's report) as of December 15, 2007 and were permanently exempted from 404(b) (auditor's report) by the Dodd-Frank Act of 2010 (Pub. L. No. 111-203).

Research Questions

Compliance with SOX 404 entails significant costs. Iliev (2010) and Kinney and Shepardson (2011) find that audit fees roughly double for firms in their first year of SOX 404(b) compliance. Both studies also stress that other compliance-related costs (e.g., management time, consulting fees, litigation risk), while difficult to measure, can also be significant. Evidence from an SEC survey indicates such costs represent more than half of total SOX 404 compliance costs (SEC 2009b), suggesting that overall costs are substantial and even temporary reprieves can be valuable. Iliev (2010) estimates that for firms near the threshold a 3-year delay in compliance increases market value by about 5 percent, and permanent exemption is worth between 12 and 35 percent of market value. While compliance costs in general have tended to decrease over time,

[7] The formal definition of accelerated filer is in 17 CFR 240.12b-2. Non-accelerated filer status was created to exempt small firms from separate SEC regulations that accelerated the filing deadlines for larger firms' periodic accounting reports (Bryant-Kutcher et al. 2013).

[8] See SEC (2005a; 2005b; 2006; 2008; 2009a). The interested reader can also find a more detailed discussion of the various extensions in SEC (2011).

they remain significant, particularly for smaller firms (e.g., Heller 2015; GAO 2013; Dey and Sullivan 2012; Ahmed et al. 2010).[9]

The tiered requirements of SOX 404, combined with the costly nature of compliance, create incentives for firms to maintain their non-accelerated filer status. Because the regulatory threshold is tied to the value of firms' common stock, we expect that non-accelerated filers seeking external financing are likely to shift their sources of that financing away from common stock and toward debt. This expectation is reinforced by the asymmetric way that the threshold is applied: firms enter accelerated filer status if their public float exceeds $75 million, and under the original rules they remain accelerated filers unless both public float and annual revenues drop below $25 million (SEC 2002). The SEC subsequently eased these restrictions somewhat, but exit remains restricted to firms whose public float drops below $50 million (SEC 2005c). Thus, the incentives created by the $75 million threshold apply uniquely to non-accelerated filers. As such, we expect that, all else equal, the scaled requirements for SOX 404 decrease the likelihood of using common stock and increase the likelihood of using debt for non-accelerated filers relative to accelerated filers.

We also expect the shift away from equity and toward debt to be particularly strong among firms with the most valuable investment opportunities sets. Two reasons underlie this expectation. First, in the absence of regulatory considerations, lower growth firms already tend to rely less on equity and more on debt financing (e.g., Frank and Goyle 2009). Thus, their capacity to further shift away from equity issuances is lower relative to higher growth firms. Second, alternative strategies for avoiding the SOX 404 threshold are likely more costly for high growth-

[9] Our focus on costs is not meant to imply that SOX is without benefits (see Coates and Srinivasan 2014 for a discussion). It is noteworthy, however, that only a small proportion of non-accelerated filers voluntarily comply with Section 404. For example, Cassell et al. (2013) report that this proportion is only about 6 percent, suggesting that the vast majority of these firms view the costs as exceeding the benefits.

option firms than for lower growth-option firms. For example, passing up investment opportunities is more costly when those opportunities are particularly valuable; increasing dividends or share repurchases is more costly for growth firms who tend to have greater cash needs; and artificially lowering reported earnings or disclosing bad news is more costly for growth firms that are likely to access capital markets in the future. These considerations suggest that strategic financing choices are likely to be particularly beneficial for firms with the most valuable growth options.

Potentially offsetting forces, however, also exist, suggesting that substituting debt for equity is unlikely to be costless. Asset substitution and debt overhang problems, loss of flexibility from debt covenant restrictions, and deadweight costs of financial distress are all increasing in debt usage, especially for high growth-option firms (e.g., Jensen and Meckling 1976; Myers 1977; Jensen 1986; van Binsbergen et al. 2010). In addition, if managers of growing firms view crossing the threshold in the relatively near term as inevitable, the value of avoiding it in the current year is reduced. These forces all work against our predictions, leaving the question of how firms balance them against exemption from SOX 404 as an empirical issue.

Relation to Prior Literature

Gao et al. (2009) also examine actions that non-accelerated filers take to avoid the SOX 404 compliance threshold. Gao et al. (2009), however, focus on firms staying small. They consider strategies such as decreasing investments, increasing payouts, and depressing stock prices by releasing bad news and managing earnings downward. They emphasize that these actions are unlikely to be attractive to firms with profitable growth opportunities. We focus on such firms. By design, our sample is comprised of firms that raise significant capital to fund investments and growth, which contrasts sharply with Gao et al.'s (2009) focus on staying small.

The firms in our sample have median growth rates for total assets and sales revenue of 20 and 16 percent, respectively.[10] Clearly these firms are not staying small in an economic sense. Because the SOX threshold is tied to common equity, they can achieve this growth and still avoid SOX 404 by altering the balance of value between shareholders and creditors. This study complements Gao et al. (2009) by examining a mechanism that can fund investment and growth and yet still enable non-accelerated filers to avoid, or at least postpone, crossing the threshold.[11]

Nondorf et al. (2012) also report that firms near the public float threshold manage earnings downward to depress public float. They also find some weak evidence of insider trading around float measurement dates. Similar to Gao et al. (2009), Nondorf et al. (2012) do not examine strategic financing choices to fund growth while still avoiding the threshold for SOX 404 compliance, which is our focus.

Iliev (2010) documents discontinuities in the distribution of public float around $75 million, providing indirect evidence of firms managing their public float to avoid triggering compliance. He does not, however, explore the actions firms take to manage their float.[12]

Gao (2016) suggests that firms can manage their reported public float by exercising discretion over how they classify blockholders as affiliates. She estimates the discretionary portion of reported float and finds that underreporting is associated with proxies for SOX 404 compliance costs (total assets and number of segments). While using discretion in defining affiliates could be a low cost way to manage reported float, as Gao acknowledges, it is

[10] As a comparison, non-issuers with similar public float have median growth rates for total assets and sales revenue of -1.0 and 3.3 percent, respectively. Table A1 of the Online Appendix provides more detail on these and other measures of growth, as well as the market-to-book ratio, which serves as a forward-looking measure of firms' investment opportunities sets.

[11] Despite raising significant capital, more than 80 percent of the non-accelerated filers in our sample maintain that status in year t+1. Roughly two-thirds are still non-accelerated filers in year t+5.

[12] Engel et al. (2007) and Leuz et al. (2008) report an increase in deregistrations, though the effects are concentrated in smaller, poorer performing firms with low growth and the literature has been mixed on whether they can be attributed to SOX (e.g., Bartlett 2009; Kamar et al. 2009; Coates and Srinivasan 2014).

constrained by firms' particular ownership structures (it hinges on blockholders with ownership between 5 and 10 percent), and it is likely to be limited in scale relative to financing choices.[13]

In sum, we extend prior literature by considering a mechanism that is widely available and does not require drastic actions such as deregistering or passing up investment opportunities. While some firms may stay small to avoid SOX 404, we examine how firms can continue to pursue growth through strategic financing choices, especially those firms with the most valuable investment opportunities.

III. RESEARCH DESIGN

Basic Model and Variable Measurement

Our interest is in whether the tiered structure of SOX 404 affects the *sources* of financing that firms choose when raising capital. Therefore our primary analysis centers on the debt-equity choice among a sample of firms that access external financing. We employ a difference-in-differences design, which simultaneously controls for temporal factors (with a control group) and group-specific factors (with a control period). As argued in Section II, our expectation is that non-accelerated filers reduce their propensity to issue equity after the float-based compliance threshold is introduced in the post-SOX test period. Accordingly, we focus on the variable *COMSTK_ISSUE*, which is an indicator set to 1 for firm-years that are issuers of common stock and 0 for firm-years that are issuers of debt but not common stock.

A question arises of how to classify firms that issue both common stock and debt (dual issuers). Because the SEC ties SOX compliance to common stock values, and thus any related

[13] To be clear, this argument is not about total affiliate holdings (which can be large), but rather is about those that fall into the specific gray area where discretion could apply (which is likely to be much smaller). Gao (2016) also observes that underreporting float is only useful to firms with market cap above $75 million, and she constrains her sample to such firms accordingly. In untabulated tests we repeat our analysis after dropping non-accelerated filers with market cap above $75 million. The results are similar to those reported in the paper.

strategic financing choices hinge on the use of common stock, we code *COMSTK_ISSUE* as 1 for all firm-years that issue common stock, regardless of whether they also issue debt. Our inferences are not sensitive to this choice.[14]

Our basic approach is summarized by the following model (firm and time subscripts suppressed):

$$COMSTK\_ISSUE = \alpha_{ind} + \delta_{year} + \beta_1 POST + \beta_2 NAF + \beta_3 (POST \times NAF) + \Sigma \beta_j CONTROLS_j + \varepsilon \quad (1)$$

We identify issuers of common stock as those firm-years with net issuances greater than 5 percent of total assets, where net issuances are measured as cash generated from stock sales less cash used in stock repurchases. The 5 percent cutoff keeps the focus on firms that raise significant amounts of new capital to fund investments (e.g., Hovakimian et al. 2001, Leary and Roberts 2010). Cash flows related to common and preferred stock are typically combined in Compustat, our data source. Therefore, for firms with preferred stock, we subtract changes in preferred stock as reported on the balance sheet from total cash from stock issuance to isolate the portion attributable to common stock (all variables are defined in detail in Appendix A).

Similarly, we identify debt issuers as those firm-years with net issuances of debt greater than 5 percent of total assets. Net debt issuance is measured as the change in long-term debt (both current and long-term portions) from the balance sheet (e.g., Hovakimian et al. 2001; Leary and Roberts 2010). This measure captures both public and private debt as well as capital leases, which are effectively a form of long-term debt financing without associated cash inflows.

[14] For analogous reasons, Leary and Roberts (2010) also classify dual issuers as equity issuers for tests of pecking order theory. We assess our design choice in Table A2 of the Online Appendix. Panel A shows that in our sample dual issuers tend to be closer to common stock issuers than to debt issuers on most dimensions, with the exception of asset tangibility (see also Hovakimian et al. 2004). Panel B shows that our results are robust both to excluding dual issuers and to classifying them based on which source of financing is larger.

In Section V we describe sensitivity tests using several alternative approaches to identify issuers of common stock and debt. We also consider operating leases and preferred stock as alternative sources of financing in that section.

Among the independent variables in (1), *POST* is a binary variable set to 1 for the post-SOX test period and 0 for the pre-SOX control period; *NAF* is a binary variable set to 1 for non-accelerated filers and 0 for control firms; and *CONTROLS* represents a vector of additional control variables that we discuss in more detail below. We also include industry and year fixed effects, represented by α_{ind} and δ_{year}, respectively, to control for any systematic differences in financing choices across industries and years.

The independent variable of primary interest in (1) is the interaction between *POST* and *NAF*. The coefficient on this variable, β_3, indicates whether differences in the propensity to finance with common stock between non-accelerated filers and control firms differ in the post-SOX test period from the pre-SOX control period. Based on our arguments from Section II, we expect non-accelerated filers to decrease their relative propensity to issue equity after SOX and increase their relative propensity to issue debt, and thus, we predict β_3 to be negative.

Control Variables

A large literature in finance examines various factors that affect firms' financing choices. We draw on this literature and include controls for factors commonly identified as being important determinants of the debt-equity choice (e.g., Hovakimian et al. 2001; Hovakimian 2004; Hovakimian et al. 2004; Lewellen 2006; Frank and Goyle 2009; Leary and Roberts 2010).

The two traditional views of capital structure are the tradeoff theory and the pecking order theory. The tradeoff theory views financing choices as a balancing of the tax benefits of debt with bankruptcy costs and other agency considerations. We control for the tax benefits of

debt using the marginal tax rate (*MTR*) measure from Blouin et al. (2010). Larger and more mature firms are expected to have larger debt capacities and more stable cash flows, thus reducing expected bankruptcy costs. We control for these effects with the natural log of total assets (*LN_ASSETS*) and firm age (*AGE*). We also include the ratio of tangible to total assets (*TANGIBLE*), as firms with more tangible assets likely have more available collateral for borrowing (e.g., Rajan and Zingales 1995; Harris and Raviv 1991). Firms with unique assets and products have higher bankruptcy costs; we account for this factor with the ratio of research and development expense to sales (*RD_SALES*) (Hovakimian et al. 2004).

An agency-related benefit of debt is its ability to constrain free cash flow problems, especially for profitable firms (Jensen 1986). We control for this effect by including return on assets (*ROA*) and an indicator for loss firms (*LOSS*). Agency conflicts can also increase the relative costs of debt for firms with valuable investment opportunities by contributing to asset substitution and debt overhang problems (Jensen and Meckling 1976; Myers 1977). We control for investment opportunities with the market-to-book ratio (*MTB*).

The pecking order theory predicts that information asymmetry creates adverse selection problems that are particularly severe for equity, leading to a preference for debt when firms need external financing (Myers 1984; Myers and Majluf 1984).[15] Adverse selection is expected to be more problematic for firms with relatively low asset tangibility and large investments in research and development, as management's information advantage over outside capital providers is likely to be larger. Thus, the variables *TANGIBLE* and *RD_SALES* discussed above also control for this effect. Prior literature also suggests that adverse selection costs can vary with recent

[15] Graham and Leary (2011) note that tradeoff theory focuses on various frictions surrounding the debt-equity choice and that information asymmetry is one such friction. They view the pecking order as a special case of tradeoff theory, where information asymmetry is presumed to be the friction of first-order importance.

stock price performance and documents that firms tend to issue equity following periods of positive returns (e.g., Lucas and McDonald 1990; Baker and Wurgler 2002). We include the stock price change over the previous year (*PRICE_CHG*) to control for this effect.

We also control for the deviation of a firm's leverage from the industry norm (*LEV_DEV*), because firms with leverage that is already high relative to their industry peers are more likely to choose common stock for their additional financing needs. This variable can also capture other omitted factors that are common across an industry (Frank and Goyle 2009).[16]

IV. SAMPLE AND DESCRIPTIVE STATISTICS

Sample Selection

We begin with all U.S. firm-years in Compustat with data available to construct our variables. Our pre-SOX control period spans January 1, 1996 – December 31, 2001 and the post-SOX test period spans June 1, 2003 – December 31, 2012. We end the control period prior to the regulatory deliberations that led to SOX and we begin the test period just after the SEC first announced it would delay compliance for non-accelerated filers (see Section II).[17]

For our main tests we follow the common practice in the literature on financing choices and delete firms that issue neither debt nor common stock (e.g., Hovakimian et al., 2001; Hovakimian 2004; Lewellen 2006), though we relax this constraint later. To avoid the effect of

[16] For parsimony and to limit sample attrition, we focus the control variables in our main analysis on factors that tend to be common in the prior literature on financing choices. In Section V we discuss additional potential factors and conduct related sensitivity tests.

[17] Some other regulatory changes happened around the middle of our post-SOX period, in 2007 and 2008: AS5 became effective; non-accelerated filers became subject to SOX 404(a); eligibility for scaled disclosure requirements as a "smaller reporting company" was expanded to include firms with public float up to $75 million; and the likelihood of permanent exemption from SOX 404(b) for non-accelerated filers was increasing as the SEC repeatedly delayed its implementation (indeed it became permanent in 2010). Some of these changes potentially weaken the incentives to maintain non-accelerated filer status while others potentially strengthen them, leaving the expected net effect, if any, ambiguous. As an empirical matter, we do not find any important changes in our main results across the post-SOX period. They hold in subsamples both pre- and post-2008, and the difference between these two periods is insignificant (outcomes are similar if we set the cutoff at 2007 instead of 2008).

other regulations on financing choices, we remove utilities and financial institutions (SIC 4900–4999, 6000–6999). We also remove any observations with either current or lagged total assets that are negative, because many of our variables are deflated by total assets. To ensure that our control firms are reasonably similar in size to the non-accelerated filers, we retain only firm-years with lagged public float between $50 million and $100 million. We collect public float data from 10-K filings in the SEC's EDGAR system. This process yields 1,434 firm-years.

We next identify non-accelerated filers and control firms. We measure filer status as of year $t - 1$ to capture firms' debt-equity incentives for year t and to avoid any mechanical relationship between equity issues and filer status in year t. Firms report their filer status during the post-SOX period on the front of Form 10-K; we obtain this information from Audit Analytics. For the pre-SOX period, we create a pseudo filer status based on the cutoff later applied by the SEC. Using public float as reported in 10-K filings, we classify firms as control firms if their float is greater than $75 million in $t - 1$ or any previous sample year. Firms with public float below the $75 million threshold in $t - 1$ and all previous sample years are classified as non-accelerated filers.

Finally, using Audit Analytics, we identify and remove 107 firm-years from non-accelerated filers that voluntarily submit their internal controls to outside audit, because these firms do not have the same incentives as other non-accelerated filers to maintain their filer status.[18] Our main sample is thus comprised of 1,327 firm-year observations, which includes 448 from non-accelerated filers and 879 from accelerated filers (control firms), representing 398 and 697 unique firms, respectively.

[18] We employ these voluntary compliers in sensitivity tests described in Section V.

Due to the nature of our research question, our sample takes the form of repeated cross-sections (i.e., an unbalanced panel).[19] A key assumption underlying this approach is that the firms appearing in the pre-SOX sample are reasonable surrogates for those appearing post-SOX. In particular, our treatment (the advent of SOX) should not cause differences in the likelihood that accelerated and non-accelerated filers enter or exit the sample in a way that also relates to their choice of debt versus equity. We consider this possibility in Section V.

Descriptive Statistics

We provide descriptive statistics for the full sample in Table 1 Panel A. To mitigate the influence of extreme observations, we winsorize all continuous variables at the top and bottom percentiles of their respective distributions.[20] Roughly 47 percent of firm-years are net issuers of common stock (*COMSTK_ISSUE* = 1) and, by design, the rest are net issuers of debt. Also by design, our sample firms are relatively small, with a median value for *LN_ASSETS* of 4.341 (which translates to total assets of about $77 million). The values of other variables also reflect the concentration of our sample in smaller, younger, and growing firms. For example, the median market-to-book ratio is 1.806, nearly half the sample reports a loss, and the median firm age is 10 years. Overall, the descriptive statistics are in line with expectations for a sample of small and growing firms that are raising external capital.

In Panel B of Table 1 we present the means of the variables separately for the non-accelerated filers and control firms in both the post-SOX test period and the pre-SOX control

[19] Our setting precludes a fully balanced panel because individual firms do not repeatedly raise large amounts of external capital every year. Our focus on a narrow band around the public float threshold also leads some firms to move in and out of the sample. For general developments of difference-in-differences estimators with repeated cross-sectional data, see Stock and Watson (2013), Imbens and Wooldridge (2009), and Gelman and Hill (2007). Recent uses in accounting, finance, and economics include Brown (2016), Dambra et al. (2015), Hong et al. (2014), Melzer (2011), Altamuro and Beatty (2010), Giroud and Mueller (2010), and Gao et al. (2009).

[20] Some of the continuous variables have skewed distributions. Converting these variables into decile rankings has no appreciable effect on our results.

period. During the post-SOX period non-accelerated filers are significantly less likely than control firms to issue common stock (*COMSTK_ISSUE*). This is consistent with our expectation that common stock issuances become relatively more costly for non-accelerated filers once the SOX 404 threshold is in place. This conclusion is reinforced by the control period, where we observe the opposite relation: prior to SOX, non-accelerated filers were more likely than control firms to issue common stock. The difference-in-differences for *COMSTK_ISSUE* is -21.0 percent and is significant at $p < 0.01$.

A similar pattern emerges in Figure 1, where we plot the yearly trends in common stock issuance across the sample period separately for non-accelerated filers and controls firms. The non-accelerated filers have larger proportions of firms issuing common stock in each of the pre-SOX years. This relation flips after SOX, however, as the non-accelerated filers are less likely to issue common stock than control firms in each of the post-SOX years.[21]

Returning to Table 1 Panel B, the other variables are generally similar for the non-accelerated filers and control firms, with a few exceptions. The non-accelerated filers tend to have lower total assets (*LN_ASSETS*) and industry-adjusted leverage (*LEV_DEV*), and in the pre-SOX period they have larger growth in stock price (*PRICE_CHG*) and are younger (*AGE*), relative to the control firms. These differences are consistent with smaller and younger firms having lower debt capacity (e.g., Hovakimian et al. 2004; Leary and Roberts 2010), and they are largely attributable to the float-based threshold that separates the two sets of firms. Even with our focus on a relatively narrow sample band around the threshold, some difference in size (and other variables related to size) is inevitable. We note, however, that the difference-in-differences

[21] While these general patterns are informative, caution should be used in interpreting the results for individual years because the number of observations tends to be small. For example, the average number of annual observations for the non-accelerated filers is less than 30.

is insignificant for all control variables other than stock price change (*PRICE_CHG*) and firm age (*AGE*).

We also take three additional steps to help ensure our results are not attributable to size differences. First, we employ alternate control groups of similar- and smaller-sized firms. Second, we conduct placebo tests around pseudo thresholds. These two sets of tests are detailed in Section V. Third, in untabulated tests we include additional controls for the linear, quadratic, and cubic forms of public float, as in Iliev (2010). These controls do not affect our results.

Taken together, the descriptive statistics in Table 1 and the trends in Figure 1 are consistent with our prediction that non-accelerated filers become less likely to issue equity (more likely to issue debt) than control firms in the post-SOX period. They also highlight the importance of our research design. On a univariate basis, there is no significant change in non-accelerated filers' propensity to issue common stock (Table 1 Panel B). This type of simple comparison, however, should be viewed with caution because it makes no allowance for either firm-year-specific or temporal factors that affect financing choices. Both of these considerations are important. As we detail later in Section V, the decrease in non-accelerated filers' propensity to issue common stock is significant once we include firm-year-specific control variables (even without control firms). We also find that a wide range of alternate control groups increase their propensity to issue common stock in the post-SOX period, similar to our main control group. This suggests other temporal factors could also potentially obscure the effect of SOX on non-accelerated filers in univariate comparisons.[22] Our regressions control for both firm-year-specific and temporal factors. We now turn to those regressions.

[22] Recent research in financial economics explores the role of temporal factors such as macroeconomic conditions on firms' financing behaviors (e.g., Graham et al. 2015; McLean and Zhao 2014; Covas and Den Haan 2011). We use year fixed effects to capture any such factors. While identifying specific factors is outside the scope of our paper, in untabulated tests we replace the year fixed effects with four variables from Graham et al. (2015) (government

V. RESULTS

Main Results

Table 2 presents the main results. We estimate model (1) using logistic regression. We omit the coefficient for the post-SOX indicator (*POST*) from our various regression tables because it is subsumed by the year fixed effects. We cluster standard errors at the firm level.[23]

For the full sample in column (1), the estimated coefficient on *NAF* is insignificant, which indicates that once other factors are controlled for, non-accelerated filers and control firms are similar in their propensities to issue common stock during the pre-SOX period. The two groups begin to diverge, however, in the post-SOX period. The coefficient on *POST* × *NAF* is negative (-1.338) and statistically significant ($p < 0.01$). The associated marginal effect indicates that in the post-SOX period the likelihood of non-accelerated filers issuing common stock decreases by 19.1 percent relative to control firms. The effect, therefore, is both statistically and economically significant (the sample mean of *COMSTK_ISSUE* is 47.0 percent).

The results for the control variables are largely consistent with prior literature. Firms with higher leverage than their industry peers and those with recent stock price increases and accounting losses are more likely to finance with common stock; older firms and those with more total assets and higher marginal tax rates are more likely to issue debt instead of stock.[24]

borrowing, financial sector output, Treasury bill rate, and the BAA – AAA corporate bond yield spread). Our results are unaffected by this change.

[23] As an additional check on within-firm independence, we estimate model (1) using a reduced sample that is constrained to only one observation per unique firm. The results are very similar to those reported in Table 2.

[24] In an untabulated analysis we expand model (1) to include additional controls from Leary and Roberts (2010): anticipated investment, anticipated cash flows, cash flow volatility, working capital, indicators for dividend payers and firms with reported research and development, Altman's Z-score, and financing deficits (see Leary and Roberts 2010 for detailed definitions). The associated data requirements reduce the sample by more than 20 percent and the additional variables are generally insignificant, but the interaction of *POST* and *NAF* remains negative and significant ($p < 0.01$) with a marginal effect of -17.2 percent.

Because our sample takes the form of repeated cross-sections, we also consider the possibility that the full sample results could be affected by shifts in sample composition. For example, the pre-SOX sample could include firms that deregister prior to SOX, and the post-SOX sample could include firms going public after SOX. We address this possibility in columns (2) and (3) of Table 2. In column (2) we retain only firms with publicly traded common stock in both periods, thereby eliminating any sample firms that deregister prior to SOX or go public after SOX.[25] Similar to the full sample, the coefficient on *POST* × *NAF* is negative and significant ($p < 0.01$), with a marginal effect of -16.4 percent.

In column (3) we retain only firms that appear in the full sample in both periods. This condition requires individual firms to meet all sample criteria in both periods (e.g., issue common stock or debt, lagged public float between $50 million and $100 million), which results in 174 observations. The coefficient on *POST* × *NAF* is again negative and significant ($p < 0.05$), with a marginal effect of -24.1 percent.[26]

The results in the last two columns of Table 2 demonstrate that the full sample results are not driven by changes in sample composition. Because the results are similar across the various samples, we focus our remaining analyses on the full sample. Overall, the results in Table 2 are consistent with the tiered regulatory structure of SOX creating incentives for non-accelerated filers to favor debt over common stock.

Growth Option Subsamples

[25] We ensure that firms have publicly traded common stock in both periods by requiring them to have financial statement information in Compustat and stock price data in CRSP in both the pre- and post-SOX periods.

[26] We also constrain this subsample further to one pre-SOX and one post-SOX observation per firm to create a balanced panel. For firms with multiple observations in a given period we retain only the latest pre-SOX firm-year and the earliest post-SOX firm-year. These constraints reduce the sample to 138 observations. The results (untabulated) are similar to those in Table 2: the interaction between *POST* and *NAF* remains negative and significant ($p < 0.05$) with a marginal effect of -25.2 percent.

In Table 3 we examine how the debt-equity choice around the SOX 404 threshold varies with firms' investment opportunities. We use the market-to-book ratio as a proxy for investment opportunities and sort firms into terciles. We then re-estimate model (1) separately for each tercile. The estimated coefficient on *POST* × *NAF* is negative for each group, but it is insignificant for the lowest market-to-book group, significant at $p < 0.05$ for the middle group, and significant at $p < 0.01$ for the highest market-to-book group. The difference between the interaction coefficients for the lowest and highest market-to-book groups (-0.647 and -1.989) is significant at $p = 0.08$. The estimated marginal effects for the interaction term show a similar pattern across the terciles, with values of -6.1, -18.1, and -21.6 percent for the lowest, middle, and highest market-to-book groups, respectively.[27]

The evidence from Table 3 indicates that our main results are particularly strong among firms with valuable growth options, as this group has the largest increase in likelihood of issuing debt instead of common stock in the post-SOX period. This is consistent with firms with less valuable investment opportunities already relying more on debt in the absence of regulatory considerations and thus having less capacity to reduce their equity usage, and also with strategic financing choices being particularly beneficial for firms with valuable growth options.

Firms that Switch Filing Status

Our main hypothesis implies that non-accelerated filers that later become accelerated filers, perhaps despite relying on debt financing, will lose their preference for debt. We consider this implication by examining non-accelerated filers that access external capital multiple times in

[27] In untabulated tests we use sales growth as an alternative proxy for investment opportunities. The results are consistent with Table 3, with the exception that the interaction coefficient for the lowest tercile is significant at $p < 0.10$ and the difference between the lowest and highest terciles has a p-value of 0.13. While the overall patterns are largely similar, we favor the market-to-book ratio as a proxy for investment opportunities because it contains forward-looking information, is used extensively in prior literature, and has been empirically validated (e.g., Kallapur and Trombley 1999).

the post-SOX period and comparing those that switch filing status to those that do not switch. To hold constant the initial financing choice, we focus on firms that initially issue debt. We identify 34 non-accelerated filers that initially issue debt and subsequently become accelerated filers; we compare their post-switch financing choices with 96 observations from non-accelerated filers that also initially issue debt but remain non-accelerated filers in subsequent financing years. Table 4 Panel A reports the results. Of the 34 that switch, 16 (47.1 percent) choose equity after becoming accelerated filers. By contrast, only 30 of the 96 that remain non-accelerated filers (31.3 percent) choose equity for their subsequent issuances. The difference in these proportions (15.8 percent) is significant at $p < 0.05$. While these results are consistent with expectations, they should be interpreted in light of the small sample.

For completeness, we also examine the non-accelerated filers that initially issue equity in the post-SOX period and subsequently switch to accelerated filer status. The expectation here though is less clear. These firms' initial choice to issue common stock suggests they view the benefits of avoiding SOX 404 as relatively low. As such, it is unclear that changing to accelerated filer will affect their choice of subsequent financing. Panel B of Table 4 reports the results. The proportion of these firms that issue common stock after switching to accelerated filer is not significantly different from that of those that remain non-accelerated filers ($p = 0.23$).[28]

Are the Control Firms Driving the Results?

On a univariate level, the descriptive statistics in Table 1 Panel B do not reveal much of a difference between the financing choices of non-accelerated filers in the pre- and post-SOX periods. We noted earlier that such univariate comparisons should be interpreted cautiously

[28] In an untabulated test we also conduct a regression analysis that includes both groups of firms (those that initially issue debt and those that initially issue common stock), as well as the full set of control variables from model (1). The results indicate that the likelihood of issuing common stock increases for switchers after they become accelerated filers, relative to non-switchers that remain non-accelerated filers ($p = 0.09$; marginal effect = 13.9%).

because they do not control for other factors that affect financing choices. However, because our research question revolves around non-accelerated filers, we perform several analyses here to ensure that our difference-in-differences results are not somehow driven by our particular set of control firms.

First, we recognize that SOX 404 compliance may have improved the information environment for our control firms and reduced information asymmetry both between managers and investors (intrinsic information asymmetry) and between differently informed investors (extrinsic information asymmetry). The pecking order theory suggests that information asymmetry makes equity financing particularly costly relative to debt (e.g., Bharath et al. 2009; Petacchi 2015). Thus, if SOX 404 reduces information asymmetry, compliance could potentially increase equity usage by our control firms.[29] We address this possibility first by adding controls for various aspects of the information environment and information asymmetry and then by employing three alternative control groups not subject to SOX 404.

In Table 5 Panel A, we begin by augmenting model (1) with controls for institutional ownership, analyst following, and return volatility as proxies for firms' general information environments (e.g., Hong et al. 2000; Leuz and Verrecchia 2000; Weber 2009; Cheng et al. 2011). We also control for abnormal returns around quarterly earnings announcements, as a proxy for intrinsic information asymmetry (e.g., Petacchi 2015). In the subsequent columns we add three proxies for extrinsic information asymmetry: (1) bid-ask spread (e.g., LaFond and Watts 2008; Khan and Watts 2009); (2) Easley et al.'s (1997) measure of the probability of

[29] Graham and Leary (2011) point out that the pecking order theory is geared toward mature, low growth-option firms, rather than the smaller, growing firms that we focus on. Other papers also challenge the pecking order's conclusion that equity is the financing source of last resort, as well as the importance of information asymmetry in the debt-equity choice more generally (e.g., Frank and Goyle 2003; Fama and French 2005; Leary and Roberts 2010). We do not take a position in that debate. Our purpose here is merely to ensure that any SOX-induced differences in information asymmetry do not drive our results.

informed trading (PIN), which is based on the imbalance of buy and sell orders;[30] and (3) Llorente et al.'s (2002) measure of private information trading based on speculative versus hedging trades. For brevity, we tabulate only the variable of interest (*POST* × *NAF*) and the new controls, though all models are estimated with the full set of controls from Table 2. In columns (1) and (4) there is some weak evidence that firms followed by more analysts are more likely to issue equity. Across columns, the information asymmetry variables are all negatively associated with equity issuance, but their statistical significance is mixed. More importantly, the inclusion of these additional variables has a negligible effect on the interaction of *POST* and *NAF*, which in all cases remains negative and significant with marginal effects similar to Table 2.

Table 5 Panel B provides the results using alternate control groups not subject to SOX 404. The first group is non-accelerated filers with lagged public float less than $50 million. Given their greater distance from the regulatory threshold, these firms should have reduced incentives to alter their financing choices. The results support that notion. The interaction of *POST* and *NAF* remains negative and significant with a marginal effect of approximately -10 percent, consistent with firms closer to the regulatory threshold (i.e., our main treatment group) being more likely to avoid equity issuance in the post-SOX period.

The second alternate control group is Canadian firms that are publicly traded on Canadian exchanges and have lagged market value of equity less than $100 million (public float is not reported for these firms). While Canada requires some reporting on internal controls, it is most similar to provisions of SOX that apply to all U.S. firms, including non-accelerated filers (e.g., SOX 302; see Lu et al. 2011). Most important, Canada does not require the costly audit of

[30] We use the modified version of PIN, as in Brown and Hillegeist (2007). We thank Stephen Brown for making the PIN data available. The PIN data ends in 2010, and hence so does our sample period when including PIN.

controls, as in SOX 404. The interaction of *POST* and *NAF* is again negative and significant with a marginal effect of about -13 percent.

The third alternate control group is foreign firms that are U.S. registrants, with fiscal year-ends prior to July 15, 2006. Before that date, foreign registrants were not required to comply with SOX 404, regardless of their accelerated filer status (SEC 2005a). Thus, foreign registrants do not have the same incentives to avoid issuing common stock during this period because the $75 million threshold does not trigger SOX 404 compliance for them. For this analysis we also limit our domestic firms to firm-years before July 15, 2006 and the foreign registrants to those with lagged market value of equity less than $100 million. The coefficient on *POST* × *NAF* remains negative and significant with a marginal effect of -17 percent.

Taken as a whole, Table 5 shows that our results are robust to additional controls for the general information environment and information asymmetry, as well as alternate control groups that are not subject to SOX 404. There is no support for the alternative explanation of SOX-induced effects on our main control group driving our results.

We also consider several other groups of U.S. registrants with different levels of public float as potential control groups. In Table A3 of the Online Appendix we increase the size of the control firms in increments of $25 million in public float, up to $200 million. We also include the small non-accelerated filers from Table 5 and separate our main control group into firms with public float above and below $75 million (Hayes 2009).[31] The results show that our treatment group is the only group that does not become more likely to issue common equity in the post-

[31] Recall from Section II that different thresholds apply for exiting accelerated filer status. As a result, some firms with public float below $75 million remain accelerated filers.

SOX period. Our main regression results also hold for each of these other control groups and are strongest for those groups with public float most similar to our treatment group.[32]

We also examine non-accelerated filers that voluntarily comply with SOX 404, which we exclude from our primary analysis (see Section IV). Because these firms already comply, they do not have the same incentive to avoid the $75 million threshold. Employing these voluntary compliers as a control group in an untabulated test, we again find that our main group of non-accelerated filers is less likely to issue common stock in the post-SOX period ($p < 0.01$, marginal effect of -26.0 percent).[33]

Finally, we replace the difference-in-differences specification with separate regressions for non-accelerated filers and control firms. Table A4 of the Online Appendix shows that after controlling for other factors the non-accelerated filers are significantly less likely to issue common stock in the post-SOX period than in the pre-SOX period (marginal effect of -10 percent). These results contrast with the univariate results and highlight the importance of controlling for other factors that affect financing choices. More importantly, these results cannot be attributable to the control firms.

In sum, we find that our results are robust to the use of several alternative control groups, including groups exempt from SOX 404, groups of different-sized accelerated filers, and a group of non-accelerated filers that voluntarily comply with SOX 404. They also hold without a control group. The cumulative evidence consistently suggests that our results are unlikely to be an artifact of a particular control group.

---

[32] We did not tabulate firms with public float above $200 million because their size makes them less comparable to our treatment group and thus their reasonableness as a control group is questionable. Nevertheless, we find that the regression results also hold using all firms above $200 million as the control group (interaction of *POST* and *NAF* significant at $p = 0.01$ with a marginal effect of -0.054).

[33] The comparison here is confined to the post-SOX period because there was no voluntary compliance in the pre-SOX period. Instead of a difference-in-differences, *NAF* is the variable of interest (because there is only one period in this test, *POST* and its interaction with *NAF* are omitted).

Additional Specification Checks

Alternate Measures of Common Stock and Debt Issuance

We consider several alternate approaches to identify issuers of common stock and debt. First, instead of 5 percent of beginning total assets as the cutoff, we use 1 percent. Second, we use the Bradshaw et al. (2006) measure of debt issuance from the statement of cash flows. This approach is consistent with our measure of stock issuance, in that the statement of cash flows is the data source, but this approach does not capture capital leases. Third, we re-measure common stock issuance as the product of the change in common shares and the average stock price, as in Fama and French (2005). Fourth, also following Fama and French (2005), we re-measure debt issuance as the change in total liabilities. The interaction of *POST* and *NAF* remains negative and significant ($p < 0.01$) in all cases, with marginal effects between -10.9 and -21.6 percent.

Falsification Tests

A key assumption underlying our design is that, absent SOX, changes over time in the choice between common stock and debt would have been similar for non-accelerated filers and control firms. To assess this "parallel trends" assumption, we follow the suggestion of Roberts and Whited (2013) and repeat the analysis on the pre-event years while falsely assuming that the treatment happens in a pseudo-event year. The interaction of *POST* and *NAF* is insignificant for each of the five possible pseudo-event years, 1997 – 2001 (p values range from 0.23 to 0.74).

We also conduct falsification tests around pseudo thresholds of $100 million, $125 million, and $150 million of public float. Similar to our main tests, we form samples of firms with public float within $25 million of the pseudo thresholds on either side (e.g., for the $100 million placebo the sample includes firms with lagged public float between $75 million and $125 million). We then redefine *NAF* to be equal to 1 for firms below the pseudo threshold and 0 for

firms above it. The interaction between *POST* and *NAF* is insignificant in all three cases, with p values ranging from 0.45 to 0.86.

Supplemental Analyses

The Effect on Leverage

Our results indicate that non-accelerated filers raising external capital become more likely to issue debt and less likely to issue common stock in the post-SOX period relative to control firms. These results suggest that non-accelerated filers' leverage levels are likely to be affected as well. We provide evidence on this effect in this section. Examining leverage also helps to gauge the cumulative effect of debt issuance versus common stock issuance.

We estimate an OLS regression with *LEV* as the dependent variable. *LEV* is the sum of long- and short-term debt, divided by the sum of debt and market value of equity (Frank and Goyal 2003; Leary and Roberts 2010; Welch 2011). Market value of equity includes the market value of common stock (shares outstanding multiplied by share price) and the liquidation value of preferred stock. The results are similar if we instead exclude preferred stock from the denominator. Three observations from our main sample are excluded from this analysis because of missing data for current year market value of equity.

The right-hand-side of the leverage model includes our difference-in-differences variables, industry and year fixed effects and control variables based on Frank and Goyal (2009), who study a comprehensive list of leverage determinants and identify the most reliable factors. The controls include industry median leverage (*IND_LEV*), market-to-book ratio (*MTB*), profitability (*ROA*), total assets (*LN_ASSETS*), asset tangibility (*TANGIBLE*), expected inflation (*INFLATION*), and stock price change (*PRICE_CHG*). *INFLATION* is the expected change in

consumer price index over the next year collected from the Livingston Survey (Frank and Goyal 2009). Other variables are as previously described and detailed in Appendix A.

We present the leverage results in Table 6. The coefficient for *POST* × *NAF* is positive (0.050) and statistically significant ($p < 0.05$), indicating that leverage increases by about 5.0 percent for non-accelerated filers relative to control firms in the post-SOX period (the unconditional sample mean for *LEV* is 25 percent). Taken together with our main results, the overall evidence is consistent with the float-based SOX 404 compliance threshold creating incentives for non-accelerated filers to make financing choices that lead to a statistically and economically significant increase in their leverage.

Operating Leases and Preferred Stock as Additional Sources of External Financing

Similar to debt (and capital leases), operating leases and preferred stock represent additional potential sources of external financing that do not have any direct impact on public float. In this section we expand our analysis to consider these additional alternatives to common stock. As with debt, we expect that both operating leases and preferred stock become more attractive relative to common stock for non-accelerated filers in the post-SOX period.

Following Bratten, Choudhary, and Schipper (2013), we estimate the capitalized value of operating leases as the present value of lease commitments for the next five years and the "thereafter" amount, discounted at 8 percent. The "thereafter" amount is treated as an annuity with an amount equal to the fifth year lease commitment and a term implied by the annuity amount (term = thereafter amount / fifth year lease commitment). The annual change in this capitalized value is our measure of new operating lease financing for the year.[34] We measure net

[34] As an alternative, we estimate the capitalized value of operating leases as current rental expense multiplied by 10, following Rampini and Viswanathan (2013). The results are consistent with those using the Bratten et al. measure.

preferred stock issuance as the change in preferred stock reported on the balance sheet (Hovakimian et al. 2001).

Similar to our approach for common stock and debt, we identify firm-years where the use of operating leases or preferred stock exceeds 5 percent of beginning total assets. We then augment our sample with the additional firm-years that use operating leases or preferred stock and that are not already in our main sample (i.e., are not issuers of common stock or debt). This results in 210 additional observations, bringing the total to 1,537, of which 154 engage in operating leases and 56 issue preferred stock.

To facilitate comparison with our main results in Table 2, we start with a logit model that considers debt, operating leases, and preferred stock as one combined alternative to common stock. The dependent variable is set equal to 1 for firm-years that finance with debt, operating leases, or preferred stock (but not common stock), and 0 for firms that issue common stock. We then move to a multinomial logit model with separate categories for debt, operating leases, and preferred stock, and with common stock issuers as the reference group. The multinomial logit allows each of the three alternatives to be considered separately relative to common stock.[35]

The logit results are presented in column (1) of Table 7. The coefficient on *POST* × *NAF* is positive and significant at $p < 0.01$. The associated marginal effect, 18.6 percent, is similar in magnitude to the marginal effect from Table 2.[36] Hence, including operating leases and preferred stock as additional alternatives does not alter our main inference that non-accelerated filers

[35] As in our main tests, we code firms as common stock issuers if their net common stock issuance exceeds the 5 percent cutoff, regardless of whether they also use other sources of external capital. For firms that are not common stock issuers but use two or more of the alternatives (debt, operating leases, preferred stock), we code them according to which of the amounts is the largest. Coding firms instead based simply on their largest source of financing among the four sources (i.e., without special consideration of common stock) yields similar results.

[36] The sign on (*POST* × *NAF*) here is opposite of Table 2 because of how the dependent variable is defined (common stock issuers are coded as 1 in Table 2 and as 0 in Table 7). This change facilitates consistency within Table 7, where common stock issuers serve as the reference group in the multinomial logit model.

become relatively less likely to issue common stock and more likely to use alternative sources of financing in the post-SOX period.

The multinomial logit results are presented in the final three columns of Table 7. The coefficient on *POST* × *NAF* is positive and significant in each column. These results indicate that non-accelerated filers' propensities to use each of the three alternatives increase relative to common stock in the post-SOX period compared to control firms. The marginal effects for debt, operating leases, and preferred stock are 12.5, 1.8, and 4.3 percent, respectively. While the marginal effects for operating leases and preferred stock are modest in an absolute sense, they are sizable relative to the overall proportions of sample firms engaging in operating leases and issuing preferred stock (12.0 and 4.4 percent, respectively). These results reinforce the inference that non-accelerated filers obtaining external financing have strong incentives to pursue options that do not directly boost their public float in the post-SOX period. While not as common as debt, this inference extends to operating leases and preferred stock.

Expanding the Sample to Include Non-Issuers

Our main sample is constrained to firms that access external capital, which has the advantage of holding constant the decision to obtain financing and focusing instead on the sources of that financing. We relax that constraint here, allowing for the option of not pursuing external capital. This enables us to unbundle our main results and separately examine the overall likelihoods of stock and debt issuance among all firms, including those that issue neither. In doing so we can more explicitly examine the extent to which non-accelerated filers replace the relative decrease in stock issuance in the post-SOX period with additional debt issuance.

The sample expands to 3,716 observations after we remove the requirement that firms must be issuers. We then re-estimate model (1) separately for the likelihood of common stock

issuance (with *COMSTK_ISSUE* as dependent variable) and the likelihood of debt issuance (with *DEBT_ISSUE* as dependent variable). Table 8 presents the results.

For the common stock issuance regression in column (1), the estimated coefficient on *POST* × *NAF* is negative and significant at $p < 0.01$. The associated marginal effect indicates that non-accelerated filers decrease their overall propensity to issue common stock in the post-SOX period relative to control firms by 10.1 percent. By contrast, in column (2) we observe the opposite effect for debt issuance. In this case the coefficient on the interaction term is positive and significant at $p < 0.05$. The associated marginal effect indicates that non-accelerated filers increase their overall propensity to issue debt without stock in the post-SOX period relative to control firms by 5.4 percent.

In column (3) we re-estimate the debt regression after also including operating leases and preferred stock (using *DEBT_LEASE_PS* as the dependent variable). The interaction term is again positive and significant, with the marginal effect increasing to 6.7 percent.

Taken together, the results from Table 8 suggest that the decrease in non-accelerated filers' propensities to issue common stock is substantially replaced by increased propensities to access external financing from other sources that do not directly impact public float. Debt alone accounts for slightly more than half the effect (5.4 / 10.1). When operating leases and preferred stock are also considered, the proportion increases to about two-thirds (6.7 / 10.1).

VI. SUMMARY AND CONCLUSION

We use the setting of SOX 404 to provide evidence on firms' strategic financing choices in response to a tiered regulatory regime where exemptions are based on public float. Firms with public float below $75 million were granted several delays for SOX 404 implementation and were eventually granted permanent exemption from the audit requirement. Because public float

hinges on the market value of common equity, such a regulatory structure creates incentives for firms to shift their sources of financing toward debt and away from common equity.

We employ a difference-in-differences design with a control group of firms just above the $75 million threshold. We show that firms below the threshold increase their propensity to be net issuers of debt, and decrease their propensity to be net issuers of common stock in the post-SOX period, relative to control firms. These results are consistent with firms altering their financing choices to maintain their exemption and avoid costly regulation. The results are strongest among firms with valuable growth opportunities, which is consistent with the strategic financing choice being particularly beneficial for such firms. We also find that firms below the threshold increase their leverage levels in the post-SOX period, as well as their use of operating leases and preferred stock, which do not count toward public float.

Our results demonstrate an important unintended consequence of basing regulatory tiers on the value of common equity, which should be useful in informing future policy debates. To the extent that altered financing choices and extra leverage are costly (e.g., Caskey et al. 2012; Zhou et al. 2016), our results suggest that bright line regulatory thresholds can impose costs even on firms that qualify for exemption. By documenting that firms alter their financing choices to avoid SOX 404 compliance, our results also contribute to the literature on the economic consequences of SOX. More generally, they highlight the potentially important role that regulatory thresholds can play in corporate finance decisions and should be considered by future research on financing choices and capital structure, especially as it relates to smaller firms.

APPENDIX A
Variable Definitions

Name	Definition [Compustat data items in brackets]
Panel A: Variables Used in Main Tests	
Dependent Variable	
COMSTK_ISSUE	1 for firm-years with net issuances of common stock greater than or equal to 5 percent of beginning total assets, 0 otherwise. Net issuance is measured as the proceeds from the sale of stock minus the costs of repurchasing stock, as reported on the statement of cash flows, less the change in preferred stock reported on the balance sheet [SSTK – PRSTKC – change in PSTKL].
Test Variables	
POST	1 for fiscal years starting on or after June 1, 2003; 0 for fiscal years ending on or before December 31, 2001.
NAF	Indicator variable for non-accelerated filers. In the post-SOX period, 1 for firms that file as non-accelerated filers (or as smaller reporting companies if accelerated filer status is not disclosed) in year $t - 1$; 0 otherwise. Filing status obtained from Audit Analytics. In the pre-SOX period, 1 for firms with public float below $75 million in $t - 1$ and all prior sample years; 0 otherwise. Float obtained from 10-K filings.
Control Variables	(unless otherwise noted, control variables are measured as of year $t - 1$)
PRICE_CHG	Ratio of split-adjusted stock price at the end of year $t - 1$ to that at the beginning of year $t - 1$ [(PRCC_F / AJEX) / lagged(PRCC_F / AJEX)].
MTB	Ratio of the market value of assets to the book value of assets [(AT – CEQ + CSHO · PRCC_F) / AT].
LEV_DEV	Difference between firm leverage and median industry leverage. Firm leverage is the sum of long-term and short-term debt divided by the market value of debt and equity [(DLTT + DLC) / (DLTT + DLC + CSHO · PRCC_F + PSTKL)]. Industry leverage is among all Compustat firms in the same 2-digit SIC industry.
ROA	Income before interest and taxes divided by lagged total assets [(IB + XINT + TXT) / lagged(AT)].
LOSS	1 for firm-years with accounting losses, 0 otherwise [IB < 0].
LN_ASSETS	Natural logarithm of total assets [ln(AT)].
TANGIBLE	Ratio of tangible assets to total assets [PPENT / AT].
RD_SALES	Ratio of research and development expense to sales [XRD / SALE]. Set to 0 if research and development expense is missing.
MTR	Pre-financing marginal tax rate per Blouin et al. (2010).
AGE	Number of years since firm's first appearance in Compustat.

Panel B: Additional Variables Used in Sensitivity Tests and Supplementary Analyses

INST_OWN	Proportion of common stock held by institutional investors, as reported in Form 13F filings, averaged over the four quarters of year $t - 1$. Data from Thomson Reuters.
NUM_ANALYST	Number of unique financial analysts issuing one-year ahead earnings forecasts for the firm during year $t - 1$. Data from IBES.
RET_VOLATILITY	Standard deviation of daily stock returns over year $t - 1$. Data from CRSP.
ABRET	The average of absolute cumulative abnormal returns during the three days around each of the four quarterly earnings announcements for year $t - 1$. Abnormal returns are market model residuals, where the market model is estimated over the preannouncement window (-200, -11). Data from CRSP.
SPREAD	Daily closing bid-ask spread divided by daily closing stock price, averaged over year $t - 1$. Data from CRSP.
PIN	Modified probability of informed trading (PIN), as in Brown and Hillegeist (2007), for year $t - 1$. Data from Stephen Brown's website (http://scholar.rhsmith.umd.edu/sbrown/pin-data).
SPEC_TRADE	The extent of speculative versus hedging trade, as measured per the following model from Llorente et al. (2002), estimated using all trading days from year $t - 1$: $RET_{d+1} = \beta_0 + \beta_1 RET_d + \beta_2 (V_d \times RET_d) + \varepsilon_{d+1}$ where RET_d is daily stock return for day d, and V_d is the log of daily turnover detrended by the average log turnover for the same stock over the prior 200 days. *SPEC_TRADE* takes the value of β_2. Higher values of β_2 reflect more speculative trading (more private information).
LEV	Sum of long-term and short-term debt divided by the market value of debt and equity [(DLTT + DLC) / (DLTT + DLC + CSHO · PRCC_F + PSTKL)].
IND_LEV	Median value of *LEV* among all Compustat firms in the same 2-digit SIC industry in year $t - 1$.
INFLATION	Expected percentage change in consumer price index over the next year from the Livingston Survey (available at http://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey/historical-data/).
DEBT_ISSUE	1 for firm-years with net borrowing (but not common stock issuance) greater than or equal to 5 percent of beginning total assets, 0 otherwise. Net borrowing is measured as change in the book value of debt as reported on the balance sheet [change in (DLTT + DLC)].
LEASE_USE	1 for firm-years with changes in the capitalized value of operating leases greater than or equal to 5 percent of beginning total assets, 0 otherwise. Set to 0 for issuers of common stock. Capitalized value of operating leases is the present value of operating lease commitments for the next five years [MRC1 through MRC5] and the "thereafter" amount [MRCTA], discounted

	at 8 percent. The "thereafter" amount is treated as an annuity with an amount equal to the fifth year lease commitment [MRC5] and a term implied by the annuity amount [MRCTA / MRC5].
PREFSTK_ISSUE	1 for firm-years with net issuances of preferred stock (but not common stock) greater than or equal to 5 percent of beginning total assets, 0 otherwise. Net issuance is measured as the change in the balance of preferred stock as reported on the balance sheet [change in PSTKL].
DEBT_LEASE_PS	Same as *DEBT_ISSUE*, except also set equal to 1 if either *LEASE_USE* = 1 or *PREFSTK_ISSUE* = 1.

REFERENCES

Advisory Committee on Smaller Public Companies (ACSPC). 2006. *Final Report of the Advisory Committee on Smaller Public Companies to the U.S. Securities and Exchange Commission*. Washington, DC: U.S. Securities and Exchange Commission, April 23.

Advisory Committee on Small and Emerging Companies (ACSEC). 2013. *Recommendations Regarding Disclosure and Other Requirements for Smaller Public Companies*. Washington, DC: U.S. Securities and Exchange Commission, February 1.

Advisory Committee on Small and Emerging Companies (ACSEC). 2015. *Recommendations about Expanding Simplified Disclosure for Smaller Issuers*. Washington, DC: U.S. Securities and Exchange Commission, September 23.

Ahmed, A., M.L. McAnally, S. Rasmussen, and C. Weaver. 2010. How costly is the Sarbanes-Oxley Act? Evidence on the effects of the Act on corporate profitability. *Journal of Corporate Finance* 16 (3): 352-369.

Ai, C., and E. Norton. 2003. Interaction terms in logit and probit models. *Economic Letters* 80 (1): 123-129.

Alexander, C., S. Bauguess, G. Bernile, Y. Lee, and J. Marietta-Westberg. 2013. Economic effects of SOX Section 404 compliance: A corporate insider perspective. *Journal of Accounting and Economics* 56 (2-3): 267-290.

Altamuro, J., and A. Beatty. 2010. How does internal control regulation affect financial reporting? *Journal of Accounting and Economics* 49 (1-2): 58-74.

Anginer, D., M.P. Narayanan, C. Schipani, and H. Seyhun. 2012. Should size matter when regulating firms? Implications from backdating of executive options. *N.Y.U. Journal of Legislation and Public Policy* 15 (1): 1-44.

Baker, M., and J. Wurgler. 2002. Market timing and capital structure. *Journal of Finance* 57 (1): 1-32.

Bartlett, R. 2009. Going private but staying public: Reexamining the effect of Sarbanes-Oxley on firms' going-private decisions. *The University of Chicago Law Review* 76 (1): 7-44.

Beck, T., A. Demirgüç-Kunt, and V. Maksimovic. 2008. Financing patterns around the world: Are small firms different? *Journal of Financial Economics* 89 (3): 467-487.

Bharath, S., P. Pasquariello, and G. Wu. 2009. Does asymmetric information drive capital structure decisions? *Review of Financial Studies* 22 (8): 3211-3243.

Black, B., H. Jang, and W. Kim. 2006. Does corporate governance predict firms' market values? Evidence from Korea. *Journal of Law, Economics, and Organization* 22 (2): 366-413.

Bloomberg BNA. 2013. House bill would amend accelerated filer definition. *Securities Law Daily* (July 12).

Bloomberg BNA. 2014. Two JOBS 2.0 bills head for committee vote, party-line passage likely. *Securities Law Daily* (June 11).

Blouin, J., J. Core, and W. Guay. 2010. Have the tax benefits of debt been overstated? *Journal of Financial Economics* 98 (2): 195–213.

Bradford, S. 2004. Does size matter? An economic analysis of small business exemptions from regulation. *Journal of Small and Emerging Business Law* 8 (1): 1-37.

Bradshaw, M., S. Richardson, and R. Sloan. 2006. The relation between corporate financing activities, analysts' forecasts and stock returns. *Journal of Accounting and Economics* 42 (1-2): 53-85.

Bratten, B., P. Choudhary, and K. Schipper, 2013. Evidence that market participants assess recognized and disclosed items similarly when reliability is not an issue. *The Accounting Review* 88 (4): 1179-1210.

Brown, A. 2016. Institutional differences and international private debt markets: A test using mandatory IFRS adoption. *Journal of Accounting Research* 54 (3): 679-723.

Brown, S., and S. Hillegeist. 2007. How disclosure quality affects the level of information asymmetry. *Review of Accounting Studies* 12 (2-3): 443-477.

Bryant-Kutcher, L., E. Peng, and D. Weber. 2013. Regulating the timing of disclosure: Insights from the acceleration of 10-K filing dates. *Journal of Accounting and Public Policy* 32 (6): 475-494.

Caskey, J., J. Hughes, and J. Liu. 2012. Leverage, excess leverage, and future returns. *Review of Accounting Studies* 17 (2): 443-471.

Cassell, C., L. Myers, and J. Zhou. 2013. The effect of voluntary internal control audits on the cost of capital. Working paper, University of Arkansas and University of Hawaii at Manoa.

Chan, K. C., and N. F. Chen. 1991. Structural and return characteristics of small and large firms. *Journal of Finance* 46 (4): 1467-1484.

Cheng, M., D. Dhaliwal, and M. Neamtiu. 2011. Asset securitization, securitization recourse, and information uncertainty. *The Accounting Review* 86 (2): 541-568.

Chhaochharia, V., and Y. Grinstein. 2007. Corporate governance and firm value: The impact of the 2002 governance rules. *Journal of Finance* 62 (4): 1789-1825

Chhaochharia, V., C. Otto, and V. Vig. 2011. The unintended effects of the Sarbanes-Oxley Act. *Journal of Institutional and Theoretical Economics* 167 (1): 149-164.

Coates, J., and S. Srinivasan. 2014. SOX after ten years: A multidisciplinary review. *Accounting Horizons* 28 (3): 627-671.

Covas, F., and W. Den Haan. 2011. The cyclical behavior of debt and equity finance. *American Economic Review* 101 (2): 877-899.

Cunningham, L. 2003. The Sarbanes-Oxley yawn: Heavy rhetoric, light reform (and it just might work). *Connecticut Law Review* 35 (3): 915-988.

Dambra, M., L. Field, and M. Gustafson. 2015. The JOBS Act and IPO volume: Evidence that disclosure costs affect the IPO decision. *Journal of Financial Economics* 116 (1): 131-143.

Dey, R. M., and M. Sullivan. 2012. Was Dodd-Frank justified in granting internal control audit exemption to small firms? *Managerial Auditing Journal* 27 (7): 666-692.

Dixon, L., S. Gates, K. Kapur, S. Seabury, and E. Talley. 2007. The impact of regulation and litigation on small businesses and entrepreneurship: An overview. In *In the Name of Entrepreneurship? The Logic and Effects of Special Regulatory Treatment for Small Business*, eds. S. Gates and K. Leuschner, 17-68. Santa Monica, CA: RAND.

Easley, D., N. Kiefer, and M. O'Hara. 1997. One day in the life of a very common stock. *Review of Financial Studies* 10 (3): 805-835.

Engel, E., R. Hayes, and X. Wang. 2007. The Sarbanes-Oxley Act and firms' going-private decisions. *Journal of Accounting and Economics* 44 (1-2): 116-145.

Fama, E., and K. French. 2005. Financing decisions: who issues stock? *Journal of Financial Economics* 76 (3): 549-582.

Frank, M., and V. Goyal. 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics* 67 (2): 217-248.

Frank, M., and V. Goyal. 2009. Capital structure decisions: Which factors are reliably important? *Financial Management* 38 (1): 1-37.

Gates, S., and K. Leuschner (Eds.) 2007. *In the Name of Entrepreneurship? The Logic and Effects of Special Regulatory Treatment for Small Business.* Santa Monica, CA: RAND.

Gao, F. 2016. To comply or not to comply: Understanding the discretion in reporting public float and SEC regulations. *Contemporary Accounting Research*, forthcoming.

Gao, F., J. Wu, and J. Zimmerman. 2009. Unintended consequences of granting small firms exemptions from securities regulation: Evidence from the Sarbanes-Oxley Act. *Journal of Accounting Research* 47 (2): 459-506.

Gelman, A., and J. Hill. 2007. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. Cambridge, United Kingdom: Cambridge University Press.

Giroud, X., and H. Mueller. 2010. Does corporate governance matter in competitive industries? *Journal of Financial Economics* 95 (3): 312-331.

Government Accountability Office (GAO). 2013. *Internal controls: SEC should consider requiring companies to disclose whether they obtained an auditor attestation.* Report to Congressional Committees. GAO-13-582. Washington, DC.

Graham, J., and M. Leary. 2011. A review of empirical capital structure research and directions for the future. *Annual Review of Financial Economics* 3: 309-345.

Graham, J., M. Leary, and M. Roberts. 2015. A century of capital structure: The leveraging of corporate America. *Journal of Financial Economics* 118 (3): 658-683.

Gustafson, M., and P. Iliev. 2016. The effects of removing barriers to equity issuance. Working paper, Pennsylvania State University.

Hamilton, J., and T. Trautman. 2002. *Sarbanes-Oxley Act of 2002: Law and Explanation*. Chicago, IL: CCH.

Harris, M., and A. Raviv. 1991. The theory of capital structure. *Journal of Finance* 46 (1): 297-355.

Heller, M. 2015. SOX compliance getting more costly. *CFO* (May 20).

Holmstrom, B., and S. Kaplan. 2003. The state of U.S. corporate governance: What's right and what's wrong? *Journal of Applied Corporate Finance* 15 (3): 8-20.

Hong, H., M. Hung, and G. Lobo. 2014. The impact of mandatory IFRS adoption on IPOs in global capital markets. *The Accounting Review* 89 (4): 1365-1397.

Hong, H., T. Lim, and J. Stein. 2000. Bad news travels slowly: Size, analyst coverage and the profitability of momentum strategies. *Journal of Finance* 55 (1): 265-295.

Hovakimian, A. 2004. The role of target leverage in security issues and repurchases. *Journal of Business* 77 (4): 1041-1072.

Hovakimian, A., G. Hovakimian, and H. Tehranian. 2004. Determinants of target capital structure: The case of dual debt and equity issues. *Journal of Financial Economics* 71 (3): 517-540.

Hovakimian, A., T. Opler, and S. Titman. 2001. The debt-equity choice. *Journal of Financial and Quantitative Analysis* 36 (1): 1-24.

Iliev, P. 2010. The effect of SOX Section 404: Costs, earnings quality, and stock prices. *Journal of Finance* 65 (3): 1163-1196.

Imbens, G., and J. Wooldridge. 2009. Recent developments in the econometrics of program evaluation. *Journal of Economic Literature* 47 (1): 5-86.

Jensen, M. 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review* 76 (2): 323-329.

Jensen, M., and W. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4): 305-360.

Kajüter, P., F. Klassmann, and M. Nienhaus. 2015. Causal effects of quarterly reporting: An analysis of benefits and costs. Working paper, University of Muenster.

Kallapur, S., and M. Trombley. 1999. The association between investment opportunity set proxies and realized growth. *Journal of Business Finance and Accounting* 26 (3-4): 505-519

Kamar, E., P. Karaca-Mandic, and E. Talley. 2007. Sarbanes-Oxley's effects on small firms: What is the evidence? In *In the Name of Entrepreneurship? The Logic and Effects of Special Regulatory Treatment for Small Business*, eds. S. Gates and K. Leuschner, 143-168. Santa Monica, CA: RAND.

Kamar, E., P. Karaca-Mandic, and E. Talley. 2009. Going-private decisions and the Sarbanes-Oxley Act of 2002: A cross-country analysis. *Journal of Law, Economics, and Organization* 25 (1): 107-133.

Kang, Q., Q. Liu, and R. Qi. 2010. The Sarbanes-Oxley Act and corporate investment: A structural assessment. *Journal of Financial Economics* 96 (2): 291-305.

Khan, M., and R. Watts. 2009. Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of Accounting and Economics* 48 (2-3): 132-150.

Kinney, W., and M. Shepardson. 2011. Do control effectiveness disclosures require SOX 404(b) internal control audits? A natural experiment with small U.S. public companies. *Journal of Accounting Research* 49 (2): 413-448.

Krishnan, J., D. Rama, and Y. Zhang. 2008. Costs to comply with SOX Section 404. *Auditing: A Journal of Practice and Theory* 27 (1): 169-186.

LaFond, R., and R. Watts. 2008. The information role of conservatism. *The Accounting Review* 83 (2): 447-478.

Leary, M., and M. Roberts. 2010. The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics* 95 (3): 332-355.

Leuz, C., A. Triantis, and T. Wang. 2008. Why do firms go dark? Causes and economic consequences of voluntary SEC deregistrations. *Journal of Accounting and Economics* 45 (2-3): 181-208.

Leuz, C., and R. Verrecchia. 2000. The economic consequences of increased disclosure. *Journal of Accounting Research* 38 (Supplement): 91-124.

Levitt, A. 2015. A small-cap idea with little to recommend it. *Wall Street Journal* (March 3): A11.

Lewellen, K. 2006. Financing decisions when managers are risk averse. *Journal of Financial Economics* 82 (3): 551-589.

Li, X. 2014. The Sarbanes-Oxley Act and cross-listed foreign private issuers. *Journal of Accounting and Economics* 58 (1): 21-40.

Llorente, G., R. Michaely, G. Saar, and J. Wang. 2002. Dynamic volume-return relation of individual stocks. *Review of Financial Studies* 15 (4): 1005-1047.

Loten, A. 2015. Raising capital gets easier. *Wall Street Journal* (June 18): B7.

Lu, H., G. Richardson, and S. Salterio. 2011. Direct and indirect effects of internal control weaknesses on accrual quality: Evidence from a unique Canadian regulatory setting. *Contemporary Accounting Research* 28 (2): 675-707.

Lucas, D., and R. McDonald. 1990. Equity issues and stock price dynamics. *Journal of Finance* 45 (4): 1019-1043.

Luparello, S. 2015. Venture exchanges and small-cap companies. Testimony before the U.S. Senate Subcommittee on Securities, Insurance, and Investment, Committee on Banking, Housing, and Urban Affairs (March 10). Available at http://www.sec.gov/news/testimony/testimony-venture-exchanges.html#_ftn9.

McLean, R.D., and M. Zhao. 2014. The business cycle, investor sentiment, and costly external finance. *Journal of Finance* 69 (3): 1377-1409.

Melzer, B. 2011. The real costs of credit access: Evidence from the payday lending market. *Quarterly Journal of Economics* 126 (1): 517-555.

Murray, S. 2002. Is SEC ready for its own sweeping changes? *New York Law Journal* (August 29): 6.

Myers, S. 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5 (2): 147-175.

Myers, S. 1984. The capital structure puzzle. *Journal of Finance* 39 (3): 574-592.

Myers, S., and N. Majluf. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13 (2): 187-221.

Myers, S. 2003. Financing of corporations. In *Handbook of the Economics of Finance, Volume 1A: Corporate Finance*, eds. G. Constantinides, M. Harris, and R. Stulz, 215-253. Amsterdam: Elsevier.

Nondorf, M., Z. Singer, and H. You. 2012. A study of firms surrounding the threshold of Sarbanes–Oxley Section 404 compliance. *Advances in Accounting, incorporating Advances in International Accounting* 28 (1): 96-110.

Norton, E., H. Wang, and C. Ai. 2004. Computing interaction effects and standard errors in logit and probit models. *The Stata Journal* 4 (2): 154-167.

Petacchi, R. 2015. Information asymmetry and capital structure: Evidence from Regulation FD. *Journal of Accounting and Economics* 59 (2-3): 143-162.

Piotroski, J., and S. Srinivasan. 2008. Regulation and bonding: The Sarbanes-Oxley Act and the flow of international listings. *Journal of Accounting Research* 46 (2): 383-425.

Rajan, R., and L. Zingales. 1995. What do we know about capital structure? Some evidence from international data. *Journal of Finance* 50 (5): 1421–1460.

Rampini, A., and S. Viswanathan. 2013. Collateral and capital structure. *Journal of Financial Economics* 109 (2): 466–492.

Rapoport, M. 2017. Companies seek to soften auditor rule. *Wall Street Journal* (February 15): B6.

Roberts, M., and T. Whited. 2013. Endogeneity in empirical corporate finance. In *Handbook of the Economics of Finance*, eds. G. Constantinides, M. Harris, and R. Stulz, Volume 2A: 493-572. Elsevier.

Schapiro, M. 2012. Letter to Senate Banking Committee (March 13). Office of the Chairman of the Securities and Exchange Commission. Available at http://www.aicpa.org/advocacy/issues/downloadabledocuments/404b/3-13-12_sec_chm_schapiro_letter_to_johnson.pdf

Schwartz, J. 2014. The law and economics of scaled equity market regulation. *Journal of Corporation Law* 39 (2): 347-394.

Securities and Exchange Commission (SEC). 2002. *Final Rule: Acceleration of Periodic Report Filing Dates and Disclosure Concerning Website Access to Reports*. SEC Release Nos. 33-8128, 34-46464. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2003. *SEC Implements Internal Control Provision of Sarbanes-Oxley Act; Adopts Investment Company R&D Safe Harbor*. SEC Press Release 2003-66. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2004. *Final Rule: Management's Report on Internal Control over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports*. SEC Release Nos. 33-8392, 34-49313. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2005a. *Management's Report on Internal Control over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports of Non-Accelerated Filers and Foreign Private Issuers.* SEC Release Nos. 33-8545, 34-51293. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2005b. *Management's Report on Internal Control over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports of Companies that Are Not Accelerated Filers*. SEC Release Nos. 33-8618, 34-52492. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2005c. *Revisions to Accelerated Filer Definition and Accelerated Deadlines for Filing Periodic Reports*. SEC Release Nos. 33-8644, 34-52989. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2006. *Internal Control over Financial Reporting in Exchange Act Periodic Reports of Non-Accelerated Filers and Newly Public Companies*. SEC Release Nos. 33-8731, 34-54295. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2008. *Internal Control over Financial Reporting in Exchange Act Periodic Reports of Non-Accelerated Filers*. SEC Release Nos. 33-8934, 34-58028. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2009a. *Internal Control over Financial Reporting in Exchange Act Periodic Reports of Non-Accelerated Filers*. SEC Release Nos. 33-9072, 34-60813. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2009b. *Study of the Sarbanes-Oxley Act of 2002 Section 404 Internal Control over Financial Reporting Requirements*. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2011. *Study and Recommendations on Section 404(b) of the Sarbanes-Oxley Act of 2002 for Issuers with Public Float between $75 and $250 Million*. Washington, DC: SEC.

Securities and Exchange Commission (SEC). 2016. *Amendments to Smaller Reporting Company Definition*. SEC Release Nos. 33-10107, 34-78168. Washington, DC: SEC.

Shumway, T. 2001. Forecasting bankruptcy more accurately: A simple hazard model. *Journal of Business* 74 (1): 101-124.

Stock, J., and M. Watson. 2011. *Introduction to Econometrics*, 3rd ed. Boston, MA: Addison-Wesley.

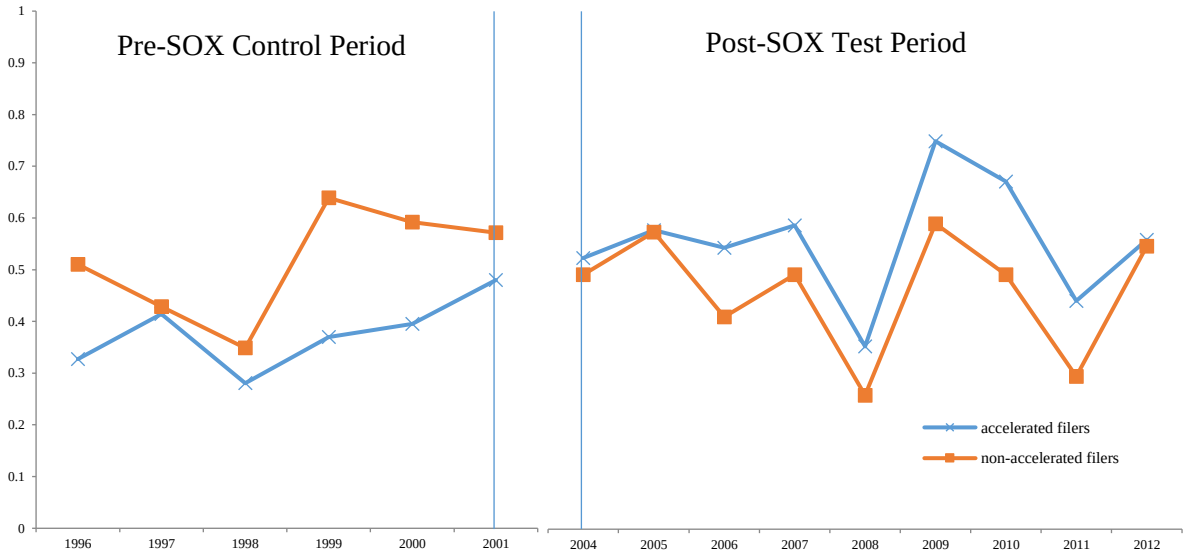
van Binsbergen, J., J. Graham, and J. Yang. 2010. The cost of debt. *Journal of Finance* 65 (6): 2089-2136.

Weber, D. 2009. Do analysts and investors fully appreciate the implications of book-tax differences for future earnings? *Contemporary Accounting Research* 26 (4): 1175-1206.

Zhang, I. 2007. Economic consequences of the Sarbanes-Oxley Act of 2002. *Journal of Accounting and Economics* 44 (1-2): 74-115.

Zhou, Q., K. Tan, R. Faff, and Y. Zhu. 2016. Deviation from target capital structure, cost of equity and speed of adjustment. *Journal of Corporate Finance*, forthcoming.

FIGURE 1
Proportion of Firms Raising External Capital that are Net Issuers of Common Stock



The sample is 1,327 U.S. firm-year observations with public float between $50 million and $100 million and that raise external capital through debt or common stock issuance, including 448 observations from non-accelerated filers and 879 from accelerated filers. The figure plots trends in common stock issuance (the mean of *COMSTK_ISSUE*) separately for the two groups. The pre-SOX period spans January 1, 1996 – December 31, 2001. The post-SOX period spans June 1, 2003 – December 31, 2012.

TABLE 1
Descriptive Statistics

Panel A: Full Sample

Variable	Mean	Standard Deviation	25th Percentile	Median	75th Percentile
COMSTK_ISSUE	0.470	0.499	0.000	0.000	1.000
PRICE_CHG	1.396	1.168	0.762	1.098	1.617
MTB	3.228	4.029	1.231	1.806	3.339
LEV_DEV	0.050	0.192	-0.048	-0.012	0.136
ROA	-0.148	0.514	-0.282	0.041	0.131
LOSS	0.482	0.500	0.000	0.000	1.000
LN_ASSETS	4.267	1.264	3.414	4.341	5.093
TANGIBLE	0.263	0.231	0.082	0.194	0.373
RD_SALES	2.620	15.050	0.000	0.006	0.158
MTR	0.222	0.120	0.097	0.278	0.330
AGE	12.850	10.000	6.000	10.000	17.000
LEV	0.249	0.247	0.034	0.172	0.389

Panel B: Variable Means by Group and Period

	Post-SOX Test Period			Pre-SOX Control Period			
Variable	Non-accelerated Filers	Control Firms	Difference	Non-accelerated Filers	Control Firms	Difference	Difference-in-Differences
	(1)	(2)	(3) = (1) − (2)	(4)	(5)	(6) = (4) − (5)	(7) = (3) – (6)
COMSTK_ISSUE	0.471	0.569	-0.098**	0.485	0.373	0.112***	-0.210***
PRICE_CHG	1.387	1.405	-0.018	1.633	1.244	0.389***	-0.407***
MTB	3.816	3.187	0.629	3.329	3.001	0.328	0.301
LEV_DEV	0.001	0.056	-0.055***	0.037	0.070	-0.033**	-0.022
ROA	-0.306	-0.219	-0.087	-0.098	-0.064	-0.034	-0.053
LOSS	0.586	0.615	-0.029	0.381	0.393	-0.012	-0.017
LN_ASSETS	3.768	4.504	-0.736***	3.924	4.440	-0.516***	-0.220
TANGIBLE	0.212	0.232	-0.020	0.279	0.297	-0.018	-0.002
RD_SALES	3.574	4.638	-1.064	0.919	1.573	-0.654	-0.410
MTR	0.174	0.180	-0.006	0.252	0.256	-0.004	-0.002
AGE	16.540	15.350	1.190	9.756	11.320	-1.564**	2.754**
LEV	0.219	0.215	0.004	0.257	0.284	-0.027	0.031

The sample is 1,327 U.S. firm-year observations from 1996 to 2012 that have public float between $50 million and $100 million and issue common stock or debt in amounts equal to or greater than 5 percent of lagged total assets. Utilities, financial services and firms that voluntarily comply with SOX 404 are omitted. The sample includes 448 and 879 firm-year observations from non-accelerated filers and control firms, respectively. Variables are defined in Appendix A.
***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by two-tailed tests.

TABLE 2
Common Stock versus Debt Issuance

Variable	Predicted Sign	(1) Full Sample Coefficient (Standard Error)	(2) Firms with publicly traded stock in both pre- and post-SOX periods Coefficient (Standard Error)	(3) Firms appearing in sample in both pre- and post-SOX periods Coefficient (Standard Error)
NAF		0.179	0.129	1.623**
		(0.197)	(0.272)	(0.826)
POST × NAF	**−**	**-1.338*** **	**-1.139*** **	**-2.477** **
		(0.358)	**(0.456)**	**(1.226)**
PRICE_CHG		0.253***	0.212*	-0.276
		(0.082)	(0.112)	(0.306)
MTB		-0.030	0.105	0.094
		(0.050)	(0.071)	(0.110)
LEV_DEV		1.164**	1.272*	-0.265
		(0.541)	(0.682)	(1.857)
ROA		-0.257	-0.384	1.535
		(0.240)	(0.398)	(1.735)
LOSS		0.760***	0.590**	0.940
		(0.213)	(0.268)	(0.890)
LN_ASSETS		-0.936***	-0.771***	-0.217
		(0.149)	(0.201)	(0.497)
TANGIBLE		0.220	0.189	-3.103*
		(0.399)	(0.556)	(1.793)
RD_SALES		0.084	0.091	0.144
		(0.058)	(0.066)	(0.089)
MTR		-3.594***	-3.442**	-11.563*
		(1.087)	(1.451)	(6.383)
AGE		-0.028***	-0.019*	-0.115***
		(0.009)	(0.011)	(0.041)
Industry fixed effects		Yes	Yes	Yes
Year fixed effects		Yes	Yes	Yes
Firm clustering		Yes	Yes	Yes
Estimation		Logit	Logit	Logit
N		1,327	820	174
Pseudo R^2		36.0%	34.9%	47.7%
Area under ROC curve		0.874	0.867	0.920
Marginal effect of *POST × NAF*		-0.191	-0.164	-0.241

The dependent variable is *COMSTK_ISSUE*. Marginal effects are the averages across the effects evaluated at each individual sample observation, computed as in Ai and Norton (2003) and Norton et al. (2004). Variables are defined in Appendix A.
***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by one-tailed tests for test variables with a predicted sign and two-tailed tests otherwise.

TABLE 3
Common Stock versus Debt Issuance for Groups Sorted on Market-to-Book

Variable	Predicted Sign	Tercile 1 (Lowest MTB) Coefficient (Standard Error)	Tercile 2 Coefficient (Standard Error)	Tercile 3 (Highest MTB) Coefficient (Standard Error)
NAF		-0.237	0.320	0.343
		(0.404)	(0.335)	(0.407)
POST × NAF	**−**	**-0.647**	**-1.160****	**-1.989*****
		(0.705)	**(0.651)**	**(0.644)**
PRICE_CHG		0.135	0.541***	0.093
		(0.205)	(0.169)	(0.119)
MTB		1.650*	0.038	-0.025
		(0.971)	(0.439)	(0.060)
LEV_DEV		1.401*	1.187	0.832
		(0.817)	(1.092)	(1.694)
ROA		-1.536	0.024	-0.226
		(1.333)	(1.154)	(0.282)
LOSS		0.714*	1.243***	0.286
		(0.391)	(0.444)	(0.507)
LN_ASSETS		-0.571**	-1.173***	-0.765***
		(0.277)	(0.349)	(0.259)
TANGIBLE		0.648	0.525	-1.257
		(0.583)	(0.639)	(1.034)
RD_SALES		0.497	0.052	0.068
		(0.429)	(0.116)	(0.045)
MTR		-1.173	-3.335*	-5.806**
		(2.177)	(1.975)	(2.582)
AGE		-0.022	-0.039**	-0.014
		(0.014)	(0.016)	(0.026)
Industry fixed effects		Yes	Yes	Yes
Year fixed effects		Yes	Yes	Yes
Firm clustering		Yes	Yes	Yes
Estimation		Logit	Logit	Logit
N		442	442	443
Pseudo R^2		19.6%	30.2%	27.2%
Area under ROC curve		0.789	0.852	0.836
Marginal effect of *POST × NAF*		-0.061	-0.181	-0.216

The dependent variable is *COMSTK_ISSUE*. The sample is sorted into terciles based on market-to-book values. Marginal effects are computed as in Ai and Norton (2003) and Norton et al. (2004). Variables are defined in Appendix A.
***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by one-tailed tests for test variables with a predicted sign and two-tailed tests otherwise.

TABLE 4
Firms that Switch Filing Status during the Post-SOX Period

Panel A: Firms that Initially Issue Debt

		Financing choices in subsequent years		
		Common Stock	Debt Only	Total
Debt issuers that become accelerated filers	N	16	18	34
	%	47.1%	52.9%	100.0%
Debt issuers that remain non-accelerated filers	N	30	66	96
	%	31.3%	68.8%	100.0%
p value for test of equality for the proportions that issue common stock				0.049

Panel B: Firms that Initially Issue Common Stock

		Financing choices in subsequent years		
		Common Stock	Debt Only	Total
Common stock issuers that become accelerated filers	N	12	11	23
	%	52.2%	47.8%	100.0%
Common stock issuers that remain non-accelerated filers	N	54	28	82
	%	65.9%	34.2%	100.0%
p value for test of equality for the proportions that issue common stock				0.230

This table compares the frequency of common stock issuances between non-accelerated filers that change to accelerated filers and those that maintain non-accelerated filer status, conditional on whether the initial issuance was debt or equity. In Panel A (Panel B) the sample is comprised of post-SOX observations from non-accelerated filers that initially issue debt (common stock) and then issue either common stock or debt again at some point later during our sample period.

TABLE 5
SOX 404 Effects on the Control Group as a Potential Alternative Explanation

Panel A: Controlling for the General Information Environment and Information Asymmetry

Variable	Predicted Sign	(1)	(2)	(3)[a]	(4)
POST* × *NAF	−	**-1.348*** **	**-1.346*** **	**-1.346*** **	**-1.351*** **
		(0.376)	**(0.376)**	**(0.413)**	**(0.377)**
INST_OWN		-0.682	-0.678	-0.140	-0.688
		(0.538)	(0.546)	(0.591)	(0.540)
NUM_ANALYST		0.066*	0.056	0.008	0.066*
		(0.034)	(0.035)	(0.036)	(0.034)
RET_VOLATILITY		7.360	10.214	1.996	6.825
		(6.723)	(6.789)	(6.964)	(6.696)
ABRET		-1.935	-2.390	-4.264**	-1.958
		(1.998)	(2.012)	(2.090)	(2.001)
SPREAD			-11.705**		
			(5.563)		
PIN				-8.954***	
				(1.277)	
SPEC_TRADE					-0.905
					(0.963)
Controls from Table 2		Yes	Yes	Yes	Yes
Industry and year fixed effects		Yes	Yes	Yes	Yes
Firm clustering		Yes	Yes	Yes	Yes
N		1,256	1,256	1,122	1,256
Pseudo R^2		36.3%	36.5%	38.7%	36.4%
Area under ROC curve		0.875	0.876	0.886	0.875
Marginal effect of *POST* × *NAF*		-0.194	-0.188	-0.191	-0.194

Panel B: Alternate Control Groups Not Subject to SOX 404

Variable	Pred. Sign	Non-accelerated filers with public float below $50 million	Canadian firms with market value of equity below $100 million	Foreign registrants with market value of equity below $100 million[c]
POST* × *NAF	−	**-0.521** **	**-0.816** **	**-2.548*** **
		(0.231)	**(0.460)**	**(0.766)**
Controls from Table 2[b]		Yes	Yes	Yes
Industry and year fixed effects		Yes	Yes	Yes
Firm clustering		Yes	Yes	Yes
N		5,262	764	502
Pseudo R^2		16.9%	26.6%	31.2%
Area under ROC curve		0.770	0.830	0.854
Marginal effect of *POST* × *NAF*		-0.099	-0.132	-0.170

The dependent variable is *COMSTK_ISSUE*. The models are estimated with logistic regression. Standard errors are reported in parentheses below coefficient estimates. Marginal effects are computed as in Ai and Norton (2003) and Norton et al. (2004). Variables are defined in Appendix A.

[a] The sample in Panel A column (3) ends in 2010 because our PIN data ends in 2010.

[b] *MTR* is omitted when Canadian firms or foreign registrants serve as control group, because marginal tax rate data is generally only available for U.S. firms.

[c] When foreign registrants serve as control group, the sample is constrained to firm-years prior to July 15, 2006, when foreign firms were exempt from SOX 404 regardless of accelerated filer status.

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by one-tailed tests for test variables with a predicted sign and two-tailed tests otherwise.

TABLE 6
Leverage Regression

Variable	Predicted Sign	Coefficient (Standard Error)
NAF		0.049***
		(0.014)
POST* × *NAF	+	**0.050****
		(0.022)
IND_LEV		0.315***
		(0.065)
MTB		0.011***
		(0.001)
ROA		-0.025**
		(0.010)
LN_ASSETS		0.148***
		(0.006)
TANGIBLE		0.065**
		(0.027)
INFLATION		-0.202***
		(0.051)
PRICE_CHG		-0.015***
		(0.004)
Industry fixed effects		Yes
Year fixed effects		Yes
Firm clustering		Yes
Estimation		OLS
N		1,324
Adj R^2		53.6%

The dependent variable is *LEV*. Variables are defined in Appendix A.
***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by one-tailed tests for test variables with a predicted sign and two-tailed tests otherwise.

TABLE 7
Debt, Operating Leases, and Preferred Stock as Alternatives to Common Stock

		(1)	(2)	(3)	(4)
		Likelihood of financing via debt, operating leases or preferred stock instead of common stock	Debt	Operating lease	Preferred stock
Variable	Predicted Sign	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)
NAF		-0.250	-0.183	-0.492*	-0.270
		(0.180)	(0.198)	(0.282)	(0.422)
POST* × *NAF	+	1.322***	1.233***	1.037**	1.611***
		(0.308)	(0.352)	(0.469)	(0.575)
PRICE_CHG		-0.278***	-0.245***	-0.350***	-0.337
		(0.079)	(0.084)	(0.126)	(0.235)
MTB		0.009	-0.000	-0.048	0.015
		(0.046)	(0.058)	(0.065)	(0.082)
LEV_DEV		-1.273**	-1.338**	-1.949***	-0.025
		(0.494)	(0.536)	(0.698)	(0.881)
ROA		-0.051	0.202	1.220*	-0.811**
		(0.250)	(0.322)	(0.625)	(0.412)
LOSS		-0.663***	-0.829***	-0.042	0.356
		(0.198)	(0.221)	(0.296)	(0.427)
LN_ASSETS		0.858***	0.992***	0.567***	0.652**
		(0.136)	(0.154)	(0.179)	(0.257)
TANGIBLE		-0.346	-0.448	-0.124	-0.274
		(0.367)	(0.406)	(0.465)	(0.648)
RD_SALES		-0.056**	-0.127	-0.101**	-0.021
		(0.026)	(0.078)	(0.048)	(0.022)
MTR		3.848***	3.858***	3.712**	-0.057
		(0.966)	(1.135)	(1.507)	(2.010)
AGE		0.022**	0.027***	0.015	-0.013
		(0.009)	(0.009)	(0.012)	(0.020)
Industry fixed effects		Yes		Yes	
Year fixed effects		Yes		Yes	
Firm clustering		Yes		Yes	
Estimation		Logit		Multinomial Logit	
Pseudo R^2		31.4%		27.5%	
N		1,537		1,537	
Dep. Var. = 1		913	660	185	68
Marginal effect of *POST* × *NAF*		0.186	0.125	0.018	0.043

The dependent variable for the logit model in column (1) is *DEBT_LEASE_PS*. For the multinomial logit model in columns (2) – (4), debt, operating leases, and preferred stock are represented by *DEBT_ISSUE*, *LEASE_USE*, and *PREFSTK_ISSUE*, respectively. The reference group is common stock issuers (*COMSTK_ISSUE*). Firms engaging in two or more activities among debt, operating leases, and preferred stock are classified as financing with the one with the largest amount. Reported marginal effects are averages across the effects evaluated at each individual sample observation. Variables are defined in Appendix A.

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by one-tailed tests for test variables with a predicted sign and two-tailed tests otherwise.

TABLE 8
Financing Choices in Expanded Sample Including Firms that Do Not Raise External Capital

		(1)		(2)	(3)
		Dependent variable: *COMSTK_ISSUE*		Dependent variable: *DEBT_ISSUE*	Dependent variable: *DEBT_LEASE_PS*
Variable	Pred. Sign	Coefficient (Standard Error)	Pred. Sign	Coefficient (Standard Error)	Coefficient (Standard Error)
NAF		0.310*		-0.073	-0.104
		(0.162)		(0.126)	(0.117)
POST* × *NAF	**−**	**-1.142*** **	**+**	**0.394****	**0.392****
		(0.249)		**(0.201)**	**(0.180)**
PRICE_CHG		0.318***		0.137***	0.070
		(0.059)		(0.051)	(0.049)
MTB		0.034		-0.033	-0.028
		(0.035)		(0.038)	(0.032)
LEV_DEV		1.324***		-0.024	-0.059
		(0.383)		(0.271)	(0.241)
ROA		-0.455**		0.225	0.027
		(0.196)		(0.247)	(0.211)
LOSS		0.373**		-0.384***	-0.291**
		(0.157)		(0.130)	(0.114)
LN_ASSETS		-0.874***		0.144*	0.049
		(0.108)		(0.082)	(0.073)
TANGIBLE		0.951***		0.344	0.331*
		(0.305)		(0.222)	(0.201)
RD_SALES		0.020*		-0.073**	-0.042*
		(0.011)		(0.033)	(0.022)
MTR		-3.963***		0.946	0.978
		(0.777)		(0.800)	(0.676)
AGE		-0.031***		-0.005	-0.008*
		(0.008)		(0.005)	(0.004)
Industry fixed effects		Yes		Yes	Yes
Year fixed effects		Yes		Yes	Yes
Firm clustering		Yes		Yes	Yes
Estimation		Logit		Logit	Logit
N		3,716		3,716	3,716
Pseudo R^2		31.2%		6.6%	5.3%
Area under ROC curve		0.861		0.682	0.659
Marginal effect of *POST* × *NAF*		-0.101		0.054	0.067

The sample for this table is expanded to include firms that do not raise external capital. Variables are defined in Appendix A. Marginal effects are computed using the method of Ai and Norton (2003) and Norton et al. (2004).
***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by one-tailed tests for test variables with a predicted sign and two-tailed tests otherwise.

Table A1
Growth Measures for Issuers and Non-Issuers

	Issuers			Non-Issuers		
	N	Mean	Median	N	Mean	Median
Asset growth	1,327	0.367***	0.204***	2,389	-0.030	-0.010
Sales growth	1,327	0.376***	0.158***	2,389	0.068	0.033
Employee growth	1,327	0.195***	0.095***	2,389	-0.016	-0.004
Investment growth1	1,327	0.101***	0.021***	2,389	-0.021	-0.007
Investment growth2	1,327	0.041***	0.015***	2,389	-0.007	-0.002
Market-to-book ratio	1,327	3.228***	1.806***	2,389	1.734	1.279

This table shows that growth rates for our main sample of common stock or debt issuers are higher than for non-issuers with similar public float. We also include Market-to-book ratio as a forward-looking measure of the investment opportunity set. The selection criteria for our sample of issuers are detailed in Section IV. The non-issuer sample is selected using the same criteria, with the exception that they do not issue common stock or debt. Growth rates are computed as the current year amount less the prior year amount, divided by the prior year amount. The resulting rates are winsorized at the top and bottom percentiles of their respective distributions. Variables are defined as follows [Compustat data items in brackets]: Assets [AT], Sales [SALE], Employees [EMP]. For Investment growth1, investment is measured as in Leary and Roberts (2010): the sum of capital expenditures, increase in investments, acquisitions, and other investing activities, less sale of PP&E, and sale of investments [CAPX + IVCH + AQC + IVACO – SPPE – SIV]. For Investment growth2, investment is measured as in Gao et al. (2009): the sum of capital expenditures, R&D expenditures, and advertising expenses, less the sale of PP&E [CAPX + XRD + XAD – SPPE]. Market-to-book ratio is defined the same as *MTB* in Appendix A.
***, **, and * indicate significant difference from the value for non-issuers at the 1%, 5%, and 10% levels, respectively.

Table A2
Dual Issuers

Panel A: Sample Characteristics by Issuer Type

Variable	Dual Issuers	Common Stock Only	Debt Only
PRICE_CHG	1.759	1.465**	1.269***
MTB	5.566	4.531*	1.835***
LEV_DEV	0.002	0.021	0.080***
ROA	-0.389	-0.367	0.052***
LOSS	0.662	0.744*	0.269***
LN_ASSETS	3.604	3.590	4.865***
TANGIBLE	0.284	0.196***	0.302
RD_SALES	6.652	5.023	0.117***
MTR	0.163	0.145*	0.285***
AGE	9.644	11.166**	14.690***
N	160	464	703

Panel A provides mean values of sample characteristics across issuer types. Dual issuers are firms that issue both common stock and debt. Variables are defined in Appendix A.
***, **, and * indicate significant difference from the value for dual issuers at the 1%, 5%, and 10% levels, respectively.

Panel B: Sensitivity Tests with Alternative Approaches to Dual Issuers

		Exclude Dual Issuers	Code Dual Issuers based on Larger Source of Financing
	Predicted Sign	Coefficient (Standard Error)	Coefficient (Standard Error)
NAF		0.023	0.092
		(0.224)	(0.200)
POST × NAF	**–**	**-1.118*** **	**-1.302*** **
		(0.405)	**(0.367)**
PRICE_CHG		0.215**	0.166**
		(0.086)	(0.079)
MTB		-0.046	-0.069**
		(0.051)	(0.031)
LEV_DEV		1.749***	1.193**
		(0.606)	(0.520)
ROA		-0.213	0.082
		(0.256)	(0.221)
LOSS		0.862***	0.856***
		(0.229)	(0.208)
LN_ASSETS		-1.044***	-0.911***
		(0.162)	(0.136)
TANGIBLE		-0.434	-0.488
		(0.459)	(0.424)
RD_SALES		0.073	0.008
		(0.050)	(0.008)
MTR		-3.399***	-4.403***
		(1.125)	(1.019)
AGE		-0.022**	-0.026***
		(0.010)	(0.009)
Industry fixed effects		Yes	Yes
Year fixed effects		Yes	Yes
Firm clustering		Yes	Yes
N		1,167	1,327
Pseudo R^2		37.8%	33.5%
Area under ROC curve		0.881	0.865
Marginal effect of *POST × NAF*		-0.141	-0.180

Panel B provides logistic regression results based on alternative approaches to dual issuers: first by excluding them from the sample, and second by coding them as either common stock issuers or debt issuers based on which source of financing is larger. (Our main analysis in the paper treats dual issuers as issuers of common stock.) The dependent variable is *COMSTK_ISSUE*. Marginal effects are computed as in Ai and Norton (2003) and Norton et al. (2004). Variables are defined in Appendix A.

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, determined by one-tailed tests for test variables with a predicted sign and two-tailed tests otherwise.

Table A3
Common Stock Issuance for U.S Registrants with Different Levels of Public Float

	Float Range ($ Millions)	Filing Status	Pre-SOX N	Pre-SOX Proportion Issuing Common Equity	Post-SOX N	Post-SOX Proportion Issuing Common Equity	Difference (Post – Pre)	Difference-in-Differences (relative to Group (1))	Difference-in-Differences from Regression with Controls[#]
Treatment Sample:									
(1)	**50 – 75**	**Non-Accelerated Filers**	**291**	**0.485**	**157**	**0.471**	**-0.013**	**NA**	**NA**
Other Groups:									
(2)	Less than 50	Non-Accelerated Filers	2,960	0.408	1,854	0.480	0.072**	-0.085**	-0.099**
(3)	50 – 75	Accelerated Filers	128	0.320	146	0.596	0.276***	-0.289***	-0.281***
(4)	75 – 100	Accelerated Filers	338	0.393	267	0.554	0.161***	-0.174***	-0.180***
(5)	100 – 125	Accelerated Filers	267	0.416	231	0.563	0.147***	-0.160***	-0.151***
(6)	125 – 150	Accelerated Filers	205	0.400	184	0.511	0.111**	-0.124**	-0.145***
(7)	150 – 175	Accelerated Filers	179	0.374	164	0.482	0.107**	-0.121**	-0.082*
(8)	175 – 200	Accelerated Filers	133	0.414	118	0.492	0.078	-0.091	-0.080*

This table presents the portion of firm-years with *COMSTK_ISSUE* = 1 for U.S. registrants with different levels of public float. Group (1) is our treatment sample of non-accelerated filers near the $75 million threshold. Groups (3) and (4) comprise our main control sample. Other groups are provided here for comparative purposes. Samples are selected using the same criteria outlined in Section IV of the text, with the exception of different levels of public float.
[#] The column labeled "Difference-in-Differences from Regression with Controls" reports the marginal effect on the interaction of *POST* and *NAF*, along with the significance level of the associated coefficient, from estimating Model (1) using Group (1) and the indicated control group as the sample.
***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A4
Separate Regressions for Non-Accelerated Filers and Control Firms

	Non-Accelerated Filers	Control Firms
	Coefficient (Standard Error)	Coefficient (Standard Error)
POST	-0.685**	0.682***
	(0.348)	(0.222)
PRICE_CHG	0.090	0.330***
	(0.118)	(0.095)
MTB	-0.002	-0.038
	(0.102)	(0.050)
LEV_DEV	1.553*	1.402**
	(0.865)	(0.646)
ROA	0.137	-0.531
	(0.324)	(0.405)
LOSS	1.030***	0.579**
	(0.358)	(0.272)
LN_ASSETS	-1.212***	-0.819***
	(0.251)	(0.181)
TANGIBLE	0.254	0.227
	(0.612)	(0.537)
RD_SALES	0.037	0.138
	(0.030)	(0.137)
MTR	-1.575	-4.341***
	(2.085)	(1.259)
AGE	-0.018	-0.032***
	(0.013)	(0.012)
Industry fixed effects	Yes	Yes
Year fixed effects	No	No
Firm clustering	Yes	Yes
Estimation	Logit	Logit
N	448	879
Pseudo R^2	33.3%	36.7%
Area under ROC curve	0.864	0.872
Marginal effect of *POST*	-0.103	0.096

This table shows that non-accelerated filers have a significant decrease in their likelihood of issuing common stock in the post-SOX period, after including control variables. For completeness we also include separate regression results for the control firms. The dependent variable is *COMSTK_ISSUE*. Relative to the main regression results in Table 2, the variable *NAF* and its interaction with *POST* are omitted because each regression here only has one group. Similarly, year fixed effects are omitted because they are collinear with *POST*, which is the independent variable of interest here. Marginal effects are the averages across the effects evaluated at each individual sample observation. They represent the change in the likelihood of issuing common stock for a change in *POST* from 0 to 1. Variables are defined in Appendix A.
***, **, and * indicate significance at the 1%, 5%, and 10% levels.