

Going-Private Decisions and the Sarbanes-Oxley Act of 2002: A Cross-Country Analysis*

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Abstract

This article investigates whether the regulatory regime created by the Sarbanes-Oxley Act of 2002 (SOX) has driven firms in general, and small firms in particular, out of the public capital market. Previous attempts to address this question have had difficulty controlling for other factors that could have affected exit decisions around the enactment of SOX. To address this difficulty, we examine the post-SOX change in the propensity of public American target firms to favor private acquirers over public ones with the corresponding change for foreign target firms, which were outside the purview of SOX. Our findings are consistent with the hypothesis that SOX induced small firms to exit the public capital market during the first year of its enactment. Large firms, by contrast, do not appear to have been affected.

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Introduction

From its inception, the Sarbanes-Oxley Act of 2002¹ (SOX) was heralded as bringing about significant changes in the governance, accounting, auditing, and reporting environment of firms traded in American securities markets. Only recently, however, have researchers begun to isolate and study its actual its effects on corporate behavior. Some studies have found, for example, that SOX was associated with a decline in the rate of incentive compensation, research and development expenses, and capital expenditures (Cohen, Dey & Lys 2004). There is also evidence that SOX was associated with a reduction in earnings management, although not in the informativeness of earning announcements (Cohen, Dey & Lys 2005).

Nevertheless, the overall effect of SOX on publicly traded firms remains in dispute. Proponents of the Act, such as the chief auditor for the SOX-created Public Company Accounting Oversight Board (PCAOB), argue that SOX facilitates access to the public capital market by encouraging transparency and alleviating investor concerns (Solomon 2004). Some legal commentators tend to agree (e.g., Cunningham 2003). Opponents of the Act, on the other hand, argue that SOX unduly raises the cost of being public. Coustan et al. (2004), for example, estimate the audit fees associated with SOX between 25% to over 100% of previous fees. A number of legal commentators, such as Ribstein (2002), Gordon (2003), and Romano (2005), have joined in this criticism.

¹ 107 Pub. L. No. 107-204, Title VIII, 116 Stat. 745 (July 30, 2002).

Of particular interest in the debate over SOX has been the question whether it disproportionately disadvantages small firms. Although the legislation made no distinction along size dimensions, advocates for small and midsize firms have long argued that the Act would retard competition and growth among these firms (Wolkoff 2005). Heeding these warnings, the Securities and Exchange Commission (SEC) has so far exempted firms whose market capitalization is lower than \$75 million from the core element of SOX, the duty to evaluate annually the effectiveness of the firm's internal controls over financial reporting (Solomon 2005).

In this article, we test the hypothesis that the net cost of complying with SOX has driven firms in general, and small firms in particular, to exit the public capital market. Specifically, we examine whether, after the enactment of SOX, American public firms undergoing acquisitions became more likely to be acquired by private acquirers (which are not subject to SOX) rather than by other public firms (which are themselves subject to SOX) compared to foreign public firms.

We predict that this effect will be especially pronounced for small firms. The reason is twofold. First, small firms are more likely than large firms to be sold in response to SOX. The acquirers in such distress acquisitions, in turn, tend to be financial acquirers, which are typically privately owned. Second, some of the costs of complying with SOX cannot be avoided through a sale to a public acquirer because they are firm-specific. These costs reduce the price that public acquirers would pay for small firms relatively more than they reduce the price they would pay for large firms.

Our results are consistent with the hypothesis that SOX disproportionately burdens small firms. When we examine acquisitions as a whole, we find no relative increase in the rate of acquisition by private acquirers (going private) among American firms. When we differentiate between acquisitions based on firm size, however, we find a relative increase in the rate of going private by small American firms. Moreover, when we differentiate between acquisitions based on the proximity of the acquisition to the enactment of SOX, we find a relative increase in the rate of going private by American firms in the first year after the enactment. Finally, when we differentiate between acquisitions based on both firm size *and* the proximity of the acquisition to the enactment of SOX, we find that the increase in the rate of going private by small American firms was concentrated in the first year after the enactment.

The dampening of the SOX effect in the second year after SOX was enacted is consistent with more than one interpretation. Our preferred interpretation is that maladapted firms realized their susceptibility to the new regime and went private immediately, leaving behind public firms that were better suited to the new regulatory environment.

A second interpretation is that SOX imposed on firms a large upfront cost and a low recurring cost. This interpretation is consistent with the fact that some of the SOX mandates took effect immediately in mid-2002. It is at odds, however, with the fact that the most costly component of SOX — an annual report on the effectiveness of internal controls — took effect only in late 2004 and exceeded early cost estimates. Indeed, this component

of SOX has yet to be applied to small firms — the very firms whose propensity to go private increased after the enactment of SOX.

A third interpretation is that, over time, other countries also tightened the regulation of public firms, bringing going-private rates closer to the American level. In July 2003, for example, the United Kingdom required public firms to establish independent audit committees with at least one financial expert to monitor their internal controls.² While narrow in scope and late in coming compared to SOX, this reform and others like it may have partially muted the difference between going-private trends in the United States and abroad. This interpretation, however, is unlikely to fully explain the disappearance of the SOX effect over time, as we are unaware of foreign reforms similar in scope to SOX.

We do not separate the effect of SOX from the effect of other mechanisms of heightened scrutiny to which public firms in the United States became subject around its enactment. SOX was response to the end of the technology bubble of the late 1990s and the spate of corporate scandals that followed. But it was not the only response. Within the United States, courts, regulators, stock exchanges, and investors all intensified their scrutiny of public firms in additional ways.³ Each of these non-SOX changes could have raised the

² See Financial Services Authority (2003). According to Financial Reporting Council (2004), the SEC identified the British internal control guidelines as consistent with Section 404 of SOX. This reform was narrower than SOX. It did not require, for example, that outside auditors attest to the effectiveness of internal controls, it imposed lighter requirements on small firms, and it allowed firms not to comply. Nevertheless, this reform, and similar reforms in other countries, paralleled SOX.

³ For example, a numerous scholars have documented how the scandals that precipitated SOX caused judges in corporate cases to be more sympathetic to allegations of mismanagement than ever before (Strine 2002; Marcus 2003; Loomis 2003; Subramanian 2003). Moreover, roughly simultaneously with the passage of SOX, Congress dramatically increased the budget of the SEC (Rogers 2002). The SEC, in turn, intensified its

cost of being public. Our study compares the combined effect of SOX and these related changes to that of contemporaneous trends abroad.

The article proceeds as follows. Part I reviews the principal reforms introduced in SOX and their rollout dates. Part II presents existing studies of the effects of SOX and notes their inability to separate the effects of SOX from those of unrelated events. Part III outlines our alternative methodology, which is designed to avoid this pitfall. Part IV describes the data we utilize for the study. Part V reports our main results. Part VI performs a number of robustness checks. Part VII concludes.

I. A Brief Overview of the Sarbanes-Oxley Act

Although a complete description of the reforms introduced by SOX is beyond the scope of this study, the main reforms merit discussion in some detail because their timing was not uniform. While several provisions of SOX were implemented immediately, others

market monitoring activity, leading Loomis (2003) to report “record numbers of high-profile enforcement actions” in 2003 by the SEC and the United States Department of Justice. The year 2003 also saw a proposal by the SEC to allow shareholders to nominate directors in firm proxy statements. While the proposal was later abandoned under pressure from the business community, it became the focus of institutional investors’ shareholder proposals. Indeed, the American Bar Association is currently considering its incorporation into the Model Business Corporation Act (American Bar Association 2005). The national stock exchanges similarly toughened their corporate governance standards in 2003, requiring listed firms, among other things, to have a majority of independent directors. *See* Release No. 34-48745, Self-Regulatory Organizations; New York Stock Exchange, Inc. and National Association of Securities Dealers, Inc.; Order Approving Proposed Rule Changes (Nov. 4, 2003), 68 FR 64154 (Nov. 12, 2003); Release No. 34-48863, Self-Regulatory Organizations; Order Granting Approval of Proposed Rule Change by the American Stock Exchange LLC (Dec. 1, 2003), 68 FR 68432 (Dec. 8, 2003). The changes were made at the SEC’s prodding. *See* Securities and Exchange Commission Press Release No. 2002-23, Pitt Seeks Review of Corporate Governance, Conduct Codes (Feb. 13, 2002), <http://www.sec.gov/news/press/2002-23.txt>. In 2004, the Internal Revenue Service announced its intent to routinely audit executive compensation in public firms based on findings from auditing large public firms since the beginning of 2003. Lublin (2004) (describing the decision); McKinnon (2005) (describing implementation). Also in 2004, the United States Sentencing Commission tightened the sentencing guidelines concerning corporate programs for legal compliance. *See* United States Sentencing Commission, Guidelines Manual, Appendix C (Nov. 2004).

required implementation by the SEC or the PCAOB. The delayed effectiveness of the reforms that were implemented last — notably the duty to establish internal controls — enabled firms to avoid compliance by going private in the first few months after the enactment of SOX.

A. Internal controls

The most notorious mandate introduced by SOX is the requirement under Section 404 of the Act to maintain internal controls over the accuracy of financial reporting and to include in the firm's annual report an attestation by an outside auditor to the effectiveness of these controls, describing any material weaknesses found.⁴

Section 404 has taken long to implement. While the section delegated rulemaking authority to the SEC already in July 2002, it was not until June 2003 that the SEC issued rules implementing the section and requiring so-called accelerated filers (firms with a minimum float of \$75 million and at least one year's worth of financial reporting) to include management and auditor reports on internal controls in annual reports for fiscal years ending after June 14, 2004. Other firms were required to comply with these requirements in annual reports for fiscal years ending after April 14, 2005.⁵ In June 2004, the SEC approved the

⁴ See Securities and Exchange Commission Release No. 33-8238: Management's Report on Internal Control over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports (Jun. 5, 2003), 68 FR 36636 (Jun. 18, 2003).

⁵ See *id.*

auditing standards proposed by the PCAOB in connection with Section 404.⁶ In the time since, however, the SEC has incrementally postponed the start date for compliance. In June 2004, for example, the SEC extended the compliance date to November 15, 2004 for accelerated filers and to July 15, 2005 for other firms.⁷ In March 2005, the SEC extended the compliance date to July 15, 2006 for non-accelerated filers and foreign firms.⁸ Currently the SEC is contemplating pushing back the compliance date for non-accelerated filers to July 2007 (Solomon 2005).

Although Section 404 has taken long to implement compared to other provisions of SOX, it has come to epitomize SOX. As Klingsberg and Noble (2004) note:

Any audit committee member or general counsel will readily tell you that the most burdensome part of the Sarbanes-Oxley Act of 2002 has turned out not to be certifications by the CEO and CFO as to the accuracy of the financial statements, the movement toward real time disclosure as most recently exemplified by new Form 8-K, or even the non-GAAP reconciliation requirement of Regulation G. Memoranda from law firms and accounting firms following the adoption of Sarbanes-Oxley and the initial SEC releases pursuant to the statute usually included only vague references to what some corporate insiders and auditors now claim has turned out to be the neutron

⁶ See Securities and Exchange Commission Release No. 34-49884: Public Company Accounting Oversight Board; Order Approving Proposed Auditing Standard No. 2, An Audit of Internal Control Over Financial Reporting Performed in Conjunction with an Audit of Financial Statements (Jun. 17, 2004), 69 FR 35083 (Jun. 23, 2004).

⁷ See Securities and Exchange Commission Release No. 33-8392: Management's Report on Internal Control over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports (Feb. 24, 2004), 69 FR 9722 (Mar. 1, 2004). In November 2004, the SEC extended the deadline for filing the report by 45 days for accelerated filers with stock capitalization of less than \$700 million. See Release No. 34-50754: Order Under Section 36 of the Securities Exchange Act of 1934 Granting an Exemption from Specified Provisions of Exchange Act Rules 13a-1 and 15d-1 (Nov. 30, 2004), <http://www.sec.gov/rules/exorders/34-50754.htm>.

⁸ See Releases Nos. 33-8545, 34-51293: 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 (Mar. 2, 2005), 70 FR 11528 (Mar. 8, 2005).

bomb within Sarbanes-Oxley: Section 404 — Management Assessment of Internal Controls. Nowadays, Section 404 is the focus and in many circles is literally synonymous with Sarbanes-Oxley.

B. CEO and CFO Certification

Not all of the SOX reforms took as long as the internal controls requirement to implement. For example, under Section 906 of the Act, effective July 2002, chief executive officers (CEOs) and chief financial officers (CFOs) are required to certify the accuracy of the firm's periodic reports, and are subject to criminal penalties for false certifications. In August 2002, the SEC issued a rule under Section 302 of the Act requiring CEOs and CFOs to certify in the firm's periodic reports the effectiveness of internal controls over financial reporting.⁹ The requirement was a precursor to the requirement under Section 404 described above.

C. Extended Statute of Limitations for Shareholder Lawsuits

Another immediate effect of SOX was the extension of the statute of limitations for filing shareholder lawsuits. Before the enactment of SOX, shareholder plaintiffs had been required to file claims within the earlier of three years of the occurrence of the fraud or one

⁹ See Securities and Exchange Commission Release No. 33-8124: Certification of Disclosure in Companies' Quarterly and Annual Reports (Aug. 28, 2002), 67 FR 57276 (Sept. 9, 2002). On June 27, 2002, the SEC ordered the CEOs and CFOs of 947 public firms with revenues exceeding \$1.2 million in the last fiscal year to file by the filing date of the first period report on or after August 14, 2002 sworn statements certifying the accuracy of period reports, immediate reports, and definitive proxy materials in the preceding year. See Securities and Exchange Commission File No. 4-460: Order Requiring the Filing of Sworn Statements Pursuant to Section 21(a)(1) of the Securities Exchange Act of 1934 (Jun. 27, 2002), <http://www.sec.gov/rules/other/4-460.htm>.

year of its discovery. Section 804 of the Act increased these time limits to five years and two years, respectively.

Initially, there was uncertainty whether the filing deadlines were extended even for acts of fraud that preceded the enactment of SOX. The text of Section 804 stated that the limitations extensions “shall apply to all proceedings addressed by this section that are commenced on or after the date of enactment of this Act.” Nevertheless, initially trial courts differed on whether claims for which the pre-SOX statute of limitation had elapsed could be revived.¹⁰ Only in 2004 was the issue resolved by a court of appeals, the Second Circuit court, which ruled that Section 804 did not revive expired claims.¹¹ The courts of appeals for the Fourth Circuit and the Seventh Circuit soon followed.¹² The inapplicability of the extended statute of limitations to expired claims currently appears to be the consensus view.

D. Executive Compensation

SOX made immediate changes to executive compensation on several fronts. Most importantly, Section 402 of the Act, effective immediately, bans most loans by firms to directors or officers. These loans, often on attractive terms, had been viewed as hidden compensation. In addition to the ban on loans, SOX changed executive compensation

¹⁰ Compare *Roberts v. Dean Witter Reynolds, Inc.*, No. 8:02-cv-2115-T-26EAJ, 2003 WL 1936116 (M.D. Fla. Mar. 31, 2003) (holding that Section 804 revives expired claims), with *De La Fuente v. DCI Telecommunications, Inc.*, 206 F.R.D. 369 (S.D.N.Y. Mar. 4, 2003) (holding that Section 804 does not cover claims that were pending at the time of its enactment).

¹¹ See *In re Enterprise Mortgage Acceptance Co., LLC, Sec. Litig.*, 391 F.3d 401 (2d Cir. 2004).

¹² The appellate courts of two other federal circuits have since followed the decision. See *Glaser v. Enzo Biochem, Inc.*, Fed. Sec. L. Rep. (CCH) P93134 (4th Cir. 2005); *Foss v. Bear, Stearns & Co.*, 394 F.3d 540 (7th Cir. 2005).

practices in two ways. First, Section 306 of the Act, which became effective in January 2003, precludes directors and officers from trading in firm securities during pension plan blackout periods unless the trade is part of a preset trading plan.¹³ Second, Section 403 of the Act, which became effective in August 2002, requires directors, officers and 10% shareholders to report their trades in firm securities within two business days following the trade — up from 10 business days after the month of the trade, and in some cases 45 days after the end of the fiscal year of the trade, under previous law.¹⁴ Section 403 further provides that, beginning July 2003, this report must be filed electronically with the SEC and posted on the firm’s website.¹⁵

E. Audit Committees

Although stock exchanges had required listed firms to have audit committees long before the enactment of SOX, for most of that time the composition and duties of these committees had been unregulated. In 1999, the national stock exchanges began requiring that audit committees be independent and state in their charters that the auditor is accountable to the board of directors and that the audit committee is authorized to select,

¹³ In January 2003, the SEC issued a final rule implementing Section 306. *See* Securities and Exchange Commission Release No. 34-47225: Insider Trades During Pension Fund Blackout Periods (Jan. 23, 2003), 68 FR 4338 (Jan. 28, 2003).

¹⁴ In August 2002, the SEC issued a final rule implementing this requirement. *See* Securities and Exchange Commission Release No. 34-46421: Ownership Reports and Trading by Officers, Directors and Principal Security Holders (Aug. 27, 2002), 67 FR 56462 (Sept. 3, 2002).

¹⁵ In May 2003, the SEC issued a final rule implementing this requirement. *See* Securities and Exchange Commission Release No. 33-8230: Mandated Electronic Filing and Website Posting for Forms 3, 4 and 5 (May 7, 2003), 68 FR 25788 (May 13, 2003).

evaluate, and replace the auditor. These changes, however, allowed boards to name one non-independent director to the audit committee and exempted small businesses from the new requirements.

Section 301 of SOX requires that all firms listed on national stock exchanges have audit committees composed exclusively of independent directors. The section broadly defines an independent director as a director who does not receive any fee from the firm other than for being a director and who is not an affiliated person of the firm or any of its subsidiaries. In April 2003, the SEC issued a rule defining an affiliated person as a person who controls the firm, is controlled by it, or is under common control with it.¹⁶ Section 301 also requires firms to provide their audit committees with independent legal counsel and other advisors for fulfilling their duties, and requires audit committees to establish procedures to receive and investigate complaints regarding accounting and auditing matters.

In addition, Section 407 of the Act requires firms to disclose whether any members of their audit committee are financial experts, and if none are to explain why. In January 2003, the SEC issued a rule implementing Section 407.¹⁷ The rule required small business issuers to include the report under Section 407 in annual reports for fiscal years ending after

¹⁶ See Securities and Exchange Commission Release No. 33-8220, Standards Relating to Listed Company Audit Committees (Apr. 9, 2003), 68 FR 18788 (Apr. 16, 2003). The rule contains a safe harbor under which a person who is not an executive officer or a shareholder owning 10% or more of any class of voting stock of a company will be deemed not to control the company.

¹⁷ See Securities and Exchange Commission Release No. 33-8177: Disclosure Required by Sections 406 and 407 of the Sarbanes-Oxley Act of 2002 (Jan. 23, 2003), 68 FR 5110 (Jan. 31, 2003).

December 30, 2003, and required other issuers to include this report in annual reports for fiscal years ending after July 30, 2003.

F. Separation of Audit and Non-Audit Services

Another immediate component of SOX was the prohibition on auditing firms from providing non-audit services to the firms they audit. Section 201 of the Act, effective in July 2002, prohibits a firm's auditing firm from providing a number of other services, including financial information system design and implementation, appraisal or valuation, internal auditing, investment banking, legal and expert services unrelated to the audit, brokerage, and actuarial services. In January 2003, the SEC issued a rule under Section 208 of the Act defining the circumstances in which auditors are not deemed independent.¹⁸

II. Related Literature

Existing empirical studies of the impact of SOX follow three different approaches. One set of studies estimate abnormal stock returns associated with events leading to the enactment of SOX. Another set of studies assesses the accounting and audit costs imposed by SOX. A final set of studies examines firm deregistrations, which result in ceasing to be governed by federal securities law.

A number of event studies analyze abnormal stock returns associated with the enactment of SOX. These studies do not address the effect SOX had on firm behavior and

¹⁸ See Securities and Exchange Commission Release No. 33-8183: Strengthening the Commission's Requirements Regarding Auditor Independence (Jan. 28, 2003), 68 FR 6005 (Feb. 5, 2003).

do not rule out the possibility that events unrelated to SOX affected returns. Li, Pincus, and Rego (2004) find positive returns around legislative events leading to the enactment of SOX and a positive relation between these returns and earnings management.¹⁹ But they also find a negative relation between these returns and practices SOX sought to limit — the proportion of non-independent audit committee members and the extent of non-audit services performed by outside auditors — suggesting that the firms most affected by SOX experienced lower returns. Razaee and Jain (2005) find positive returns around events leading to the enactment of SOX. But they also find a positive relation between these returns and practices SOX sought to promote — effective corporate governance, reliable financial reporting, and credible audit functions — suggesting that the firms least affected by SOX experienced higher returns. Examining a larger set of events, Engel, Hayes, and Wang (2004) find that the returns around the legislative events leading to the enactment of SOX were positively related to firm market value and stock turnover, suggesting that smaller and less actively traded firms reacted less favorably to SOX. Their study does not report whether the returns were positive or negative. Finally, Zhang (2005) finds negative returns around legislative events leading to the enactment of SOX, and no significant returns around events related to the implementation of SOX.

Carney (2005) reviews some of the accounting studies. The common theme of these studies is that public firms' accounting and audit costs have increased substantially since

¹⁹ Razaee and Jain (2004), however, do not find that firms exhibit greater accounting conservatism after the enactment of SOX.

SOX and exceeded early estimates. Asthana, Balsam and Kim (2004), for example, find that the average ratio of audit fees to assets increased between 2000, the year before the Enron scandal that precipitated SOX broke, and 2002, the year SOX was enacted, and that the increase was larger for bigger and riskier firms, and for clients of the Big Four audit firms. They attribute the latter finding to decreased competition in the market for audits of multinational firms. Financial Executives International (2005) reports the results of three surveys of public firms about their costs of complying with Section 404 of the Act. The first survey was conducted in January 2004. The 321 firms that responded to this survey predicted average compliance costs of \$1.93 million, including \$590,100 in auditor attestation fees. The second survey was conducted in July 2004. The 224 firms that responded to this survey predicted average compliance costs of \$3.14 million, including \$823,200 in auditor attestation fees. The third survey was conducted in March 2005. The 217 firms that responded to this survey reported average compliance costs of \$4.36 million, including \$1.3 million in auditor attestation fees. Financial Executives International (2005) does not report how much of the difference between the results is due to the fact that different firms responded to each survey. Eldridge and Kealey (2005) analyze audit fees disclosed in the financial statements of 97 Fortune 1000 firms. They report a \$2.3 million average increase in audit fees from 2003 to 2004 associated with SOX audit costs. They find that SOX audit costs increase in assets, asset growth, effectiveness of internal controls, and 2003 audit fees, but that the ratio of SOX audit costs to assets decreases in assets.

A final strand in the literature, the closest in its approach to this article, examines the effect of SOX on going private and going dark. Section 12(g)(4) of the Securities and

Exchange Act of 1934 provides that public firms can deregister their stock with the SEC and suspend being subject to federal securities law once the number of their shareholders drops below 300. Firms can achieve this result either by arranging for a private acquirer to buy their entire stock (going private), or by cashing out small shareholders to lower the number of shareholders below 300 (going dark). Unlike going dark, going private can achieve a number of business goals other than avoiding federal securities law. For example, Jensen (1989) argues that going private lowers agency costs by concentrating ownership and increasing leverage. Accordingly, Kaplan (1989a), Baker and Wruck (1990), Lichtenberg and Siegel (1990), and Smith (1990) find improvements in profitability and operating efficiency after going private, Ofek (1994) finds no similar improvements after failed attempts to go private, and DeAngelo (1986) finds no evidence that managers of firms that go private understate earnings in the period before the transaction. Moreover, as Kaplan (1989b) finds, going private can yield tax savings. Consistent with the fact that going-dark transactions do not achieve these business goals, studies of the two types of transactions suggest that going-dark transactions are more clearly affected by SOX than going-private transactions.

Block (2004) surveys 110 of the 236 firms that either went private or went dark between January 2001 and July 2003. He finds that the most commonly cited reason for doing so, especially by small firms and after the enactment of SOX, is the cost of being public, and reports a post-SOX increase from \$900,000 to \$1,954,000 in the average cost of being public indicated by respondents.

Marosi and Massoud (2004) identify 196 firms that went dark between January 2001 and May 2004 for reasons unrelated to mergers, bankruptcies, or liquidations. They compare

these firms to firms that did not go dark, and find that going dark is more likely for firms with limited growth opportunities, greater insider ownership, and a higher ratio of audit fees to assets. They also find that going dark lowers stock liquidity and that announcing a plan to go dark is associated with negative returns.

Engel, Hayes, and Wang (2004) identify 353 firms that deregistered their stock either by going private or by going dark between January 1998 and January 2004. Their final sample, after excluding foreign firms, firms in bankruptcy or liquidation, and firms with missing stock or accounting data, contains 182 firms. They compare these firms to firms that did not deregister their stock, and find a modest increase in the incidence of deregistrations after SOX. In addition, they find that small firms and firms with a high book-to-market ratio are more likely to deregister their stock, with no significant difference between the pre-SOX period and the post-SOX period. Finally, they find that small firms experience higher returns at the announcement of a plan to deregister their stock in the post-SOX period compared to the pre-SOX period, especially if they have high inside ownership. The study does not report separate results for going-private transactions and going-dark transactions, probably due to the small sample size. It does report, however, that the portion of going-dark transactions in all deregistrations increases from 13% in the pre-SOX period to 37% in the post-SOX period, suggesting that the increase in the incidence of deregistrations after SOX is driven by going-dark transactions.

Leuz, Triantis, and Wang (2004) identify 374 firms that went private and 421 firms that went dark between January 1998 and December 2003. They compare these firms to firms that neither went private nor went dark, and find a large post-SOX increase in the

incidence of going dark, but no significant increase in the incidence of going private. In addition, they find that small firms, leveraged firms, and firms with fewer shareholders tend to go dark rather than go private. Finally, they find that going dark reduces liquidity and that announcing a plan to go dark is associated with negative returns, especially for small firms and firms that go dark after the enactment of SOX. By contrast, they find that announcing a plan to go private is associated with positive returns. They conclude that, unlike going dark, going private is primarily driven by motivations other than the cost of reporting.

Like the event studies cited earlier, the above studies do not separate the effect of SOX from that of contemporaneous factors that could have increased the rate of going private or going dark. One such factor is financial market liquidity, which can affect the willingness of public and private investors to pursue acquisitions.²⁰ This factor applies mainly to going-private transactions because they require more cash than going-dark transactions. Another factor, applicable to both types of transactions, is the weakness of the public capital market around the enactment of SOX. Firms are more likely to leave the public capital market when stock prices are depressed. Maupin, Bidwell, and Ortegren (1984), for example, report that financial officers commonly cite undervaluation by the market as a reason for going private.²¹ Lerner (1994) and Pagano, Panetta, and Zingales (1998) find that the likelihood of an initial public offering decreases when stock prices are

²⁰ Holstein (2004), MacFayden (2002, 2003, 2004), and Carney (2005), for example, report that the ready availability of private equity financing around the enactment of SOX fueled going-private transactions.

²¹ Whether the belief held by financial officers of firms that go private that the market undervalues their firms is founded is a separate matter. Lee (1992) finds no evidence to support it.

low. And Benninga, Helmantel, and Sarig (2005) develop a model in which going public is positively related, and going private is negatively related, to stock prices.

There is good reason to believe that the weakness of the public capital market around the enactment of SOX increased the pressure on firms to go private. Block (2004), for example, reports that almost 40% of firms that either went private or went dark after the enactment of SOX cited as the primary reason *not* the cost of being public under SOX, but rather pressure and time constraints for top management, lack of coverage by security analysts, absence of liquidity in the public capital market, absence of opportunity for a secondary market, or threat of delisting by Nasdaq.²² While some of these factors may have been the result of SOX, others had independent causes. Indeed, The Economist (2003a, 2003b) notes that dwindling profits and low stock prices induced going-private transactions around the enactment of SOX not only in the United States.

III. Methodology

In light of the difficulties noted above, our empirical strategy is based on differences-in-differences approaches, in which we compare the post-SOX change in the probability that American public firms undergoing an acquisition be acquired by a private acquirer to the correspondent change for foreign firms, while controlling for the level of stock prices in the country of primary listing when the transaction is announced. The advantage of this study design is that it helps to separate the effect of SOX from the effect of contemporaneous

²² The Appendix provides examples of rationales given by firms to their decision to go private or to go dark after the enactment of SOX.

market conditions. It does so in two ways. First, it contrasts the United States with other countries, which were not directly affected by SOX. Second, it contrasts going-private transactions with acquisitions by private acquirers, which also were not affected by SOX. The disadvantage of this study design is that it does not measure the rate of going-dark transactions which, as noted above, are an alternative way to escape SOX. Because going-dark transactions have no parallel outside the United States, excluding these transactions likely underestimates the impact of SOX.

There are at least two reasons to believe that a substantial net cost of complying with SOX would increase the probability that public firms be acquired by private acquirers rather than public ones.

First, the cost of complying with SOX could trigger the sale of some firms which would not be sold otherwise. These sales of typically struggling firms would tend to involve so-called financial acquirers, which aim to invest in underpriced firms, often with target-firm management participation. Financial acquirers are distinguished from so-called strategic acquirers, which aim to integrate the target firm with their own at the operational level. Importantly, for reasons unrelated to SOX, most financial acquirers are privately owned. We refer to this explanation as the “new sales hypothesis”.

Second, the cost of complying with SOX could also cause a shift in the composition of acquirers of firms sold for *any* reason. According to this theory, post-SOX acquisitions would be tend more than pre-SOX acquisitions because private acquirers retain none of the target firm’s SOX obligations after the acquisition, while public acquirers do. The enactment

of SOX should therefore reduce the price that public acquirers would pay in the acquisition relative to private acquirers. We refer to this explanation as the “all sales hypothesis”.

The post-SOX increase in the probability of being sold to a private acquirer should be more pronounced for small firms because their costs of being public, especially after adding the costs of complying with SOX, are relatively higher, and their benefits from being public are relatively lower, than those of large firms. Accordingly, as we explain further below, both the “new sales hypothesis” and the “all sales hypothesis” predict that the effect of SOX on the type of acquirers buying public firms will be most noticeable in small firm acquisitions.

The cost of filing periodic reports is a case in point. Even before SOX, small firms lacked the scale economies that large firms enjoy in preparing these reports. The requirement of Section 404 of SOX that periodic reports also evaluate the internal controls of the reporting firm only deepened this disadvantage. According to a recent Wall Street Journal editorial, “while Section 404 costs the average multibillion-dollar firm about 0.05% of revenue, the figure can approach 3% for small companies” (Wall Street Journal 2005). The new burden was especially heavy for small firms because, unlike large firms, many of them had neither a system of internal controls nor accounting staff to oversee it. Consistently, Doyle, Ge, and McVay (2005) find that small firms are more likely to have ineffective internal controls than large firms, and Eldridge and Kealey (2005) find that the increase in audit fees in the first year of complying with SOX is higher for firms with ineffective internal controls, and that the increase is higher relative to assets for small firms.

At the same time, small firms gain from being public relatively less than large firms. The financial press routinely stresses this point. The Economist (2003a), for example, reports an increasing marginalization of small firms in the public capital market. Similarly, Deutsch (2005) notes that small firms often derive low benefits from being public due to limited market attention and liquidity, and quotes the president of Corfacts, a small telemarketing firm that left the public capital market in 2004, explaining: “We have been unable to gain a significant following in the market, yet we have been spending large sums of money for accounting and legal services needed to maintain our reporting status.” By comparison, Deutsch (2005) notes, leaving the public capital market is “not an option for huge companies” because “their identities and structures are inextricably linked with their status as publicly listed entities.”

Studies of going public echo this theme. Pagano and Röell (1998) model the decision to go public as involving a tradeoff between obtaining liquidity and being subject to costly monitoring, and conclude that the incentive to go public is stronger when the amount of external funding required is larger. Pagano, Panetta, and Zingales (1998) test this model and find that the likelihood of an initial public offering increases in firm size. And Jain, Kim, and Razaee (2004) find that large firms experienced a larger increase in stock market liquidity after the enactment of SOX than small firms, consistent with the difference between the benefits of being public for large firms and small firms widening after SOX.

The differences between small firms and large firms in the costs and benefits of being public can make small firms more likely to go private in response to SOX both under the “new sales hypothesis” and under the “all sales hypothesis”.

First, because small firms derive relatively lower net benefits from being public, they stand closer to being sold in response to any increase in the costs of being public, especially when the increase itself is relatively higher for them. As noted above, this sale will likely involve a financial acquirer, which is typically private, rather than an acquirer aiming to integrate the target firm's business with its own, which can be either private or public. In other words, SOX is likely to cause small firms in particular to gravitate towards private acquirers under the "new sales hypothesis".

Second, to the extent that small firms' relatively higher costs of complying with SOX are firm-specific and therefore not avoidable by a sale to other public firms, SOX should reduce the price public acquirers would pay for small firms relatively more than it reduces the price these acquirers would pay for large firms. The duty to establish internal controls under Section 404 of SOX is again a case in point. As Aquila and Golden (2002), Walton and Greenberg (2003), Glover and Krause (2004), and Klingsberg and Noble (2004) explain, because the acquirer will assume responsibility for these controls after the acquisition, it will demand that they pass muster in advance. The relatively higher cost that small firms incur to establish internal controls thus cannot be avoided through a sale to a public acquirer even though the acquirer has established its own internal controls. Put differently, SOX is likely to cause small firms in particular to gravitate towards private acquirers also under the "all sales hypothesis".

To estimate the difference between the post-SOX change in the probability of being acquired by a private acquirer for American public firms and the corresponding change for

foreign public firms, we specify the utility of a public firm undergoing an acquisition from being bought by a private acquirer

$$\pi_{ikt} = f(\text{After}_t, x_i, z_{kt}, \zeta_{kt}, \varepsilon_i), \quad (1)$$

where i denotes the target firm, k denotes the stock exchange, and t denotes the time of announcement. The indicator variable After_t equals 1 if the acquisition is announced after the enactment of SOX, and 0 otherwise. The vector x_i represents observed characteristics of the target firm. One of these characteristics is the indicator variable US_i , which equals 1 if the target firm is traded in the United States, and 0 otherwise. An interaction term between US_i and After_t (indicating an acquisition of an American firm announced after the enactment of SOX) is the key variable in our specifications below. The vector z_{kt} represents observed characteristics of the stock exchange. The vector χ_i represents unobserved characteristics of the target firm. The vector ζ_{kt} represents unobserved characteristics of the stock exchange.

Following Bertrand and Mullainathan (1999), Gruber (2000), Athey and Stern (2002), and Donohue, Heckman, and Todd (2002), we assume that the unobserved characteristics of the stock exchange can be decomposed into a fixed component specific to each stock exchange and a component that varies over time but is common to all stock exchanges. Specifically, we assume that $\zeta_{kt} = \delta_k + \eta_t$, where δ_k comprises stock exchange fixed effects, and η_t comprises quarter fixed effects. Moreover, following Bertrand, Duflo, and Mullainathan (2004) we allow the different stock exchanges to undergo changes that persist over time by clustering standard errors at the country in which the stock exchange is located.

In our basic model, then, we specify the latent utility of a target firm from being acquired by a private acquirer as

$$\pi_{ikt}^* = a_0 + a_1 US_i \times After_t + \beta x_i + \gamma \lambda_{ikt} + \delta_k + \eta_t + \varepsilon_i. \quad (2)$$

We use this specification to study the impact of SOX on the probability of being acquired by a private acquirer conditional on being acquired. A positive a_1 implies that SOX increased the probability that a public firm be acquired by a private acquirer conditional on being acquired. While we do not observe the actual value of latent utility π_{ikt}^* , we observe an outcome variable that equals 1 (indicating an acquisition by a private acquirer) if $\pi_{ikt}^* > 0$, and 0 (indicating an acquisition by a public acquirer) otherwise. Accordingly, we estimate the parameters of π_{ikt}^* by fitting a probit model. We extend of the basic model to allow the coefficient of $US_i \times After_t$ to differ between full and partial acquisitions, between small and large target firms, and between acquisitions announced in the first year after the enactment of SOX and acquisitions announced thereafter.²³

IV. Data

Our primary data source is Thomson's Securities Data Company Platinum database (SDC). We initially include in our sample all transactions involving public target firms

²³ In principle, this framework could be expanded to a nested set of decisions, with the first decision concerning whether to be sold and the second decision concerning the type of acquirer. Because of data restrictions, we focus on the second decision by investigating firms' propensity to be sold to private acquirers rather than public ones conditional on being sold. In Part VI, however, we return to the first decision by investigating whether the number of acquisitions increased after the enactment of SOX.

announced between January 1, 2000 and December 31, 2004 other than spinoffs, recapitalizations, self-tenders, exchange offers, repurchases, and privatizations.

We classify an acquirer as private when both it and its ultimate parents are private. We classify a target firm as public when it is traded on an established public stock exchange, and classify it as an American public firm when it is traded on any such market in the United States other than Pink Sheets. We do not treat firms traded on Pink Sheets as American public firms because many of these firms are not registered with the Securities and Exchange SEC and are therefore not subject to SOX. The American public firms in our sample are traded on American Stock Exchange, Boston Stock Exchange, Nasdaq, New York Stock Exchange, OTC Bulletin Board, and Philadelphia Stock Exchange.

SDC does not identify which of the firms primarily traded abroad have secondary listing in the United States. Because these firms are subject to some of the provisions of SOX, an inability to identify them biases our results toward zero. This weakening should nevertheless be minimal because firms traded primarily abroad, which tend to be large, are unlikely to give up their access to the public capital market abroad just to avoid SOX. Indeed, a more attractive option would be to go dark in the United States while maintaining their listing abroad. Moreover, the most onerous aspect of SOX — the duty under Section 404 to establish effective internal controls — will apply to these firms only in 2006, or possibly 2007. Accordingly, Whoriskey (2005) notes that some of the almost 1,000 foreign firms that were registered with the SEC at the end of 2004 were actively weighing whether to deregister — but focuses on deregistration by going dark, rather than by going private, and mentions no firm that had taken either route.

Additionally, we distinguish between transactions that involve acquirers seeking to own all of the target firm's stock (full acquisitions) and transactions that involve acquirers seeking to own only part of the target firm's stock (partial acquisitions). Full acquisitions mark the line between going private (when they involve private acquirers) and staying public (when they involve public acquirers) and should therefore be affected by SOX.

Our initial sample contains 19,947 announced acquisitions between January 2000 and December 2004. We exclude, in the following order, 1,562 withdrawn acquisitions, 413 acquisitions of American firms by foreign public firms or their subsidiaries (which, despite being direct or indirect acquisitions by public acquirers, would relieve the target firms of their SOX duties), 711 acquisitions of foreign firms by American public firms or their subsidiaries (which, despite being acquisitions of public firms, would bring the target firms into the ambit of SOX), 29 acquisitions by the target firms themselves, 3,200 acquisitions of firms partially owned by public firms (which would not relieve the parent firms of their SOX duties even if made by private acquirers), 661 acquisitions of firms whose primary stock exchange is unknown, 854 acquisitions whose status is "Intended", "Rumor", "S buyer" (seeking buyer), or "Unknown", 786 acquisitions lacking information about the percentage of target firm stock sought to be owned by the acquirer after the transaction, and 3,933 acquisitions lacking information about the target firm's stock market value. Of the remaining 8,266 acquisitions, 3,333 are full acquisitions and 4,933 are partial acquisitions.

We record each target firm's primary stock exchange, single-digit Standard Industry Classification (SIC) code, stock market value 4 weeks before the announcement of the acquisition, and announcement date — all as provided in SDC. These firm characteristics

are included in the vector x_i in specification (2). We scale the stock market value of the firm by the United States Consumer Price Index in the month in which the transaction was announced, and define firms as small if their scaled stock market value is in the bottom quartile of our sample, \$15 million.

We complement the SDC data with the Morgan Stanley Capital International, Inc. (MSCI) stock price index data. MSCI provides monthly stock indices for developed and emerging countries. For each transaction, we compute the log of the difference between the value of the stock price index for the target firm's country of primary listing when the acquisition was announced and the value of that index in January 1999. This variable is included in the vector z_{kt} in specification (2).

V. Analysis

Table 1 reports summary statistics. The percentage of small target firms is similar in the United States and abroad, and increases in both regions after the enactment of SOX. Focusing on full acquisitions, however, this percentage increases from 12% to 20% in the United States, while decreasing from 8% to 7% abroad. The difference between these changes is significant at the 1% level. The percentage of acquisitions by private acquirers also increases after the enactment of SOX in both regions. Focusing on full acquisitions of small firms, this percentage increases from 43% to 56% in the United States, while increasing from 46% to 50% abroad. The difference between these changes is not significant. In Canada and Western Europe, whose markets are arguably more integrated with the American market than the markets in other parts of the world, the percentage of acquisitions by private acquirers out of full acquisitions of small firms decreases after the

enactment of SOX from 52% to 47%. The difference between the increase in the United States and the decrease in Canada and Western Europe is significant at the 5% level. Taken as a whole, these statistics are consistent with the hypothesis that SOX increased the probability that small firm acquisitions involve private acquirers. The results reported below provide additional evidence consistent with this hypothesis.

We first test for the effect of SOX without distinguishing acquisitions according to target size or the proximity of the acquisition to the enactment of SOX. We do distinguish, however, between full acquisitions and partial acquisitions. Full acquisitions are acquisitions in which the acquirer seeks to own all of the target firm's stock following the transaction. A public firm that is fully acquired by a private acquirer exits the public capital market and ceases to be subject to SOX. The same is not true for a public firm that is only partially acquired. Even if the acquirer in a partial acquisition is private, the target firm remains public and continues to be subject to federal securities law. Accordingly, we expect SOX to affect only full acquisitions. Because full and partial acquisitions are otherwise affected by similar economic conditions, partial acquisitions serve as useful a control group (in addition to foreign acquisitions) for isolating the effect of SOX. Accordingly, we modify specification (2) by estimating

$$\pi_{ikt}^* = a_0 + a_1 US_i \times After_t + a_2 US_i \times After_t \times Full_i + \beta x_i + \gamma \lambda_{kt} + \delta_k + \eta_t + \varepsilon_i, \quad (3)$$

where x_i includes the indicator US_i for whether the target firm is traded in the United States, the indicator $Full_i$ for whether the acquirer seeks to own all of the target firm's stock, the

interaction term $US_i \times Full_k$, the indicator $Small_k$ for whether the market value of the target firm is in the bottom quartile of the sample (\$15 million), industry indicators based on the target firm's single-digit SIC code; z_{kt} is the log of the normalized stock price index of the target firm's country of primary listing at announcement; δ_k comprises stock exchange fixed effects, and η_t comprises quarter fixed effects.

Table 2 reports the results. Column (1) assumes that the same changes over time in unobserved economic conditions (η_t) affect full acquisitions and partial acquisitions. Column (2) relaxes this assumption by adding to the regression model a set of quarter fixed effects interacted with $Full_k$. The difference between the post-SOX change in the probability that full acquisitions of American firms involve private acquirers and corresponding change for foreign firms is estimated by $a_1 + a_2$. The corresponding difference-in-differences estimate for partial acquisitions is a_1 . The Wald tests reported in the table do not reject the null hypothesis that SOX affected neither full nor partial acquisitions.

Next we estimate a similar regression model while distinguishing between large firms and small firms to test the hypothesis that SOX affected small firms more than others. We do so by modifying specification (3) as

$$\begin{aligned} \pi_{ikt}^* = & a_0 + a_1 US_i \times After_t + a_2 US_i \times After_t \times Full_k + a_3 US_i \times After_t \times Small_k \\ & + a_4 US_i \times After_t \times Full_k \times Small_k + \beta x_i + \gamma z_{kt} + \delta_k + \eta_t + \varepsilon_i, \end{aligned} \quad (4)$$

where x_i includes the variables it included in specification (3) — target firm industry indicators, US_i , $Full_k$, $US_i \times Full_k$, and $Small_k$ — as well as the interaction terms $US_i \times Small_k$, $Full_k \times Small_k$, and $US_i \times Full_k \times Small_k$.

Table 3 reports the results. As before, the column (1) assumes that all acquisitions are affected by the same changes over time in unobserved economic conditions. Column (2) relaxes this assumption by adding to the regression model three sets of quarter fixed effects interacted, respectively, with $Full_k$, $Small_k$, and $Full_k \times Small_k$. The difference between the post-SOX change in the probability that full acquisitions of American firms involve private acquirers and corresponding change for foreign firms is estimated by $a_1 + a_2 + a_3 + a_4$ for small firms and $a_1 + a_2$ for large firms. The corresponding difference-in-differences estimates for partial acquisitions are $a_1 + a_3$ and a_1 , respectively. The difference-in-differences estimate is positive and significant for full acquisitions of small firms, consistent with SOX driving small firms to exit the public capital market. By contrast, the difference-in-differences estimate is insignificant for partial acquisitions of small firms and for full acquisitions of large firms. The difference-in-differences estimate is negative and significant for partial acquisitions of large firms, a finding that does not have a clear interpretation within our theoretical framework.²⁴

²⁴ We obtain similar results when we estimate for a sample of full acquisitions (3,297 observations) a modified version of specification (4) that omits $Full_k$ and its interactions, and includes the quarter fixed effects alone and in interaction with $Small_k$. In an unreported estimation of this alternative specification, the difference-in-differences estimate is 0.24 ($p = 0.03$) for acquisitions of small firms and -0.09 ($p = 0.12$) for acquisitions of large firms.

To investigate whether the SOX triggered an immediate exodus by maladapted firms from the public capital market, we distinguish between acquisitions announced within the first year after the enactment of SOX and acquisitions announced thereafter. Specifically, we estimate for a sample of small firm acquisitions

$$\begin{aligned} \pi_{ikt}^* = & a_0 + a_1 US_i \times Period1_t + a_2 US_i \times Period1_t \times Fulk_k + a_3 US_i \times Period2_t \\ & + a_4 US_i \times Period2_t \times Fulk_k + \beta x_i + \gamma \bar{z}_{kt} + \delta_k + \eta_t + \varepsilon_i, \end{aligned} \quad (5)$$

where $Period1_t$ indicates whether the acquisition was announced between August 1, 2002 and June 30, 2003, and $Period2_t$ indicates whether the acquisition was announced between July 1, 2003 and December 31, 2004. The difference between the post-SOX change in the probability that full acquisitions of American firms involve private acquirers and corresponding change for foreign firms is estimated by $a_1 + a_2$ for the first year after the enactment of SOX and $a_3 + a_4$ in for the subsequent period. The corresponding estimates for partial acquisitions are a_1 and a_1 , respectively.

Table 4 reports the results. As before, column (1) assumes that the same unobserved economic conditions affect full and partial acquisitions, while column (2) relaxes this assumption. In both columns, the difference-in-difference estimate for full acquisitions announced in the first year after the enactment of SOX is positive and significant, consistent with the hypothesis that anticipated SOX compliance costs caused firms to exit the public

capital market in that period. The difference-in-differences estimate for partial acquisitions announced more than a year after the enactment of SOX is negative and significant.²⁵ By contrast, we are unable to find robust significant effects for partial acquisitions announced in the first year after the enactment of SOX or full acquisitions announced more than a year after the enactment of SOX.

The last two specifications focused, respectively, on the effects of SOX based on firm size (Table 3), and on time since enactment (Table 4). In both cases, we detected a significant SOX effect. These findings, however, tell us little about any systematic relationship between the firm-size and temporal effects of SOX. We therefore proceed to test whether the effect on small firms we detected is concentrated in the first year after the enactment of SOX. We do so by estimating specification (5) for a sample of small firm acquisitions.

Table 5 reports the results. As before, column (1) assumes that the same unobserved economic conditions affect full and partial acquisitions, while column (2) relaxes this assumption. In both columns, we find that the probability of acquisition by a private acquirer is significantly higher for full acquisitions of American firms announced in the first year after the enactment of SOX. The estimated effect is not only statistically significant, but also economically meaningful, raising the mean predicted probability of going private by

²⁵ The results are robust to substituting $After1_t$, $After2_t$, $After1_t \times Full_t$, and $After2_t \times Full_t$ for the quarter fixed effects and their interactions with $Full_t$. In an unreported estimation of this alternative specification, the difference-in-differences estimate is 0.24 ($p = 0.01$) for full acquisitions announced in the first year after the enactment of SOX, -0.13 ($p = 0.08$) for full acquisitions announced more than a year after the enactment of SOX, 0.09 ($p = 0.29$) for partial acquisitions announced in the first year after the enactment of SOX, and -0.22 ($p = 0.03$) for partial acquisitions announced more than a year after the announcement of SOX.

small American firms in our sample from 0.43 to 0.66, a 53% increase.²⁶ By contrast, we do not find a robust significant effect for full acquisitions announced more than a year after the enactment of SOX or for partial acquisitions announced at any time after the enactment of SOX.²⁷ This evidence is consistent with the hypothesis that SOX induced small firms, but not large firms, to go private within a year of its enactment.

VI. Robustness Checks

We now turn to a number of robustness checks of our results. We begin with Table 6, which presents sensitivity analyses of specification (4). Column (1) reproduces column (2) of Table 3. Columns (2) to (4) present the results of estimating specification (4) for different samples. Column (5) presents the results of estimating a modified version of specification (4) for the original sample.

Column (2) reports the results of estimating specification (4) while excluding acquisitions by acquirers with more than one generation of parents. In our original sample, we define acquirers as private when both they and their ultimate parents are private. This definition, however, will cause us to label acquirers with private ultimate parents but public intermediate parents as private acquirers. SDC reports the Committee on Uniform

²⁶ The figures 0.43 and 0.66 are, respectively, the mean predicted probability that the American firms in our sample go private when both $Period1_t$ and $Period2_t$ are set to 0, and the mean predicted probability that the American firms in our sample go private when $Period1_t$ is set to 1 and $Period2_t$ is set to 0.

²⁷ The results are robust to substituting $After1_t$, $After2_t$, $After1_t \times Full_t$, and $After2_t \times Full_t$ for the quarter fixed effects and their interactions with $Full_t$. In an unreported estimation of this alternative specification, the difference-in-differences estimate is 0.45 ($p = 0.01$) for full acquisitions announced in the first year after the enactment of SOX, -0.06 ($p = 0.71$) for full acquisitions announced more than a year after the enactment of SOX, 0.25 ($p = 0.14$) for partial acquisitions announced in the first year after the enactment of SOX, and -0.03 ($p = 0.88$) for partial acquisitions announced more than a year after the announcement of SOX.

Securities Identification Procedures (CUSIP) code of immediate parents of acquirers, but does not report whether these parents are public. To ensure that we do not label acquirers with public intermediate parents as private acquirers, we exclude acquisitions in which the immediate parent and the ultimate parent of the acquirer have different CUSIP codes.

Column (3) reports the results of estimating specification (4) while excluding acquisitions by acquirers classified by SDC as financial acquirers. SDC defines a financial acquirer as a financial firm (such as a buyout firm, venture capital firm, merchant bank, or commercial bank) that is acquiring more than 50% of a firm whose main industry is non-financial for financial, rather than strategic, reasons. We exclude acquisitions by financial acquirers to rule out the possibility that our results are driven solely by an increase in the availability of private equity in the United States relative to other countries after the enactment of the SOX. Excluding acquisitions by financial acquirers, moreover, serves an additional purpose of testing whether the “new sales hypothesis” alone accounts for our results.

Column (4) reports the results of estimating specification (4) for a sample of acquisitions of firms traded in North America and Western Europe to control for cross-country variation in market conditions not captured by the stock price index. Over the sample period, the correlation between the stock price index in the United States and the mean stock price index in the Western European countries in our sample is 0.95, and the corresponding correlation between the stock price indices in the United States and Canada is 0.89. By contrast, the corresponding correlation between the stock price index in the United

States and the mean stock price index in the remaining countries in our original sample is 0.15.

Column (5) relaxes the assumption that the stock exchanges in our sample undergo the same unobservable changes over time. Specifically, following Athey and Stern (2002), we assume that $\xi_{kt} = \delta_k + \eta_{kt}$, where $\eta_{kt} = (\theta_0 + \theta_1 \ln \xi_{kt}) \gamma_t$, and add to specification (4) a set of quarter fixed effects interacted with the log of the normalized stock price index of the target firm's country of primary listing at announcement. We estimate the modified specification for the original sample.

As Table 6 suggests, our results appear to be robust. Indeed, the difference-in-differences estimate for full acquisitions of small firms retains not only its sign and significance, but also its magnitude, in most specifications. Moreover, in some specifications the economic magnitude of our estimates increases. This is the case also in column (4), which reports results for acquisitions in the most comparable markets to the American market (North America and Western Europe), even though the sample in this column is half the size of our original sample.

Although column (3) of Table 6 suggests that the “new sales hypothesis” alone is not likely to be driving our results, one might also be interested in whether it is playing any role at all. To address this question, we test whether the number of full acquisitions of small firms in the United States increased in the first year after the enactment of SOX relative to the corresponding trend abroad. Specifically, we estimate the number of acquisitions announced per quarter for a sample of full acquisitions announced between January 1, 2000 and June 30, 2003 using the ordinary-least-squares specification

$$\begin{aligned}
Acquisition_{jkt} = & a_0 + a_1 US_k \times After_t + a_2 US_k \times After_t \times Small_j + \beta_1 US_k \\
& + \beta_2 Small_j + \beta_3 Small_j \times US_k + \eta_t + \varepsilon_j,
\end{aligned} \tag{6}$$

where j denotes the group of acquisitions, k denotes the stock exchange, and t denotes the time of announcement.

Table 7 reports the results. The difference-in-differences estimate is positive and significant for small firms, consistent with the notion that SOX compliance fears drove small firm acquisitions in the first year after its enactment. By contrast, the difference-in-differences estimate is negative and significant for large firms.²⁸ When we extend specification (6) for an analogous sample ending in December 31, 2004, the difference-in-differences estimate for small firms becomes smaller in magnitude and statistically insignificant, while the difference-in-differences estimate for large firms becomes smaller but remains significant. (Table 7 does not report the latter results.)

VII. Conclusion

In this article, we have reported evidence consistent with the hypothesis that the Sarbanes-Oxley Act of 2002 disproportionately burdens small firms. In particular, using foreign firms as a control group, we have found that the propensity of small public American firms to be acquired by private acquirers rather than public ones increased substantially in the first year after enactment of SOX. By contrast, we have not found a

²⁸ The results are robust to substituting $After_t$ and $After_t \times Small_j$ for the quarter fixed effects and their interactions with $Small_j$.

similar effect for large firms. These results have been robust in a number of alternative specifications.

We have offered two complementary interpretations of these findings. According to the “new sales hypothesis,” the enactment of SOX induced struggling small firms to be sold. The acquirers of these firms, in turn, tended to be financial acquirers for reasons unrelated to SOX. According to the “all sales hypothesis,” SOX reduced the price that public acquirers would pay for target firms without affecting the price that private acquirers would pay because only public acquirers would inherit any firm-specific compliance costs associated with the target firm. These compliance costs are relatively higher for small firms.

Our findings bear on the ongoing debate about the desirability of SOX and the regulatory regime it catalyzed. To the extent that SOX induced small firms to exit the public capital market, it represents a burden on entrepreneurship that transcends the immediate effects we have estimated. Creating an environment in which entrepreneurship can flourish is seen by many as a fundamental virtue of the American economy. In the words of a recent newspaper report: “How else could a small software company become a Microsoft, or its founder become a famous millionaire?” (Deutsch 2005). While this consideration should not drive all policy decisions, neither should it be ignored.

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Table 1: Acquisitions of Public Firms Announced Between January, 1 2000 and December 31, 2004

Panel A: Acquisitions Announced Between January 1, 2000 and July 30, 2002			
	United States	W. Europe & Canada	All Abroad
Number of observations	1,458	667	2,395
Market value			
Mean	853	712	1,273
Standard deviation	4,310	2,879	30,064
% stock the acquirer seeks to own			
Mean	76	82	54
Standard deviation	38	32	39
% small firms	20	23	23
% full acquisitions	67	72	35
% full acquisitions of small firms	12	15	8
% private acquirers	36	46	47
% private acquirers in full acquisitions of small firms	43	52	46
Panel B: Acquisitions Announced Between August 1, 2002 and December 31, 2004			
	United States	W. Europe & Canada	All Abroad
Number of observations	925	1,007	3,488
Market value			
Mean	1,187	783	624
Standard deviation	15,964	5,559	10,084
% stock the acquirer seeks to own			
Mean	83	58	42
Standard deviation	32	41	37
% small firms	29	34	29
% full acquisitions	73	43	24
% full acquisitions of small firms	20	12	7
% private acquirers	42	55	56
% private acquirers in full acquisitions of small firms	56	47	50

Table 2: The Probability of Being Acquired by a Private Acquirer

This table reports the results of estimating a probit model in which the dependent variable is being acquired by a private acquirer rather than by a public acquirer. Panel A reports coefficient estimates and, in parentheses, standard errors clustered at the country in which the target firm has its primary listing. Panel B reports differences-in-differences estimates and, in parentheses, the significance (p-value) of these estimates based on Wald tests. US is an indicator for acquisitions of firms primarily listed in the United States. Small is an indicator for acquisitions of firms whose CPI-adjusted stock market value 4 weeks before the acquisition is announced is less than \$15 million. Full is an indicator for acquisitions designed to result in the acquirer owning all of the target firm's stock. Log of country stock price index is the log of the difference between the value of the monthly Morgan Stanley Capital International stock price index for the target firm's country of primary listing when the acquisition was announced and the value of that index in January 1999. After is an indicator for acquisitions announced after July 31, 2002. Quarter fixed effects are based on the quarter and year in which the acquisition is announced. The regressions include unreported stock exchange fixed effects based on the stock exchange on which the target firm is primarily listed, and unreported industry fixed effects based on the single-digit SIC code of the target firm. Significance (p-value): * 10%, ** 5%, *** 1%.

Panel A: Coefficient Estimates		
	(1)	(2)
US	-0.17* (0.13)	-0.16 (0.14)
Small	0.41*** (0.08)	0.41*** (0.08)
Full	-0.46*** (0.11)	-0.49** (0.16)
US × Full	-0.64*** (0.11)	-0.64*** (0.14)
Log of stock price index	0.14 (0.16)	0.14 (0.16)
US × After	-0.098* (0.06)	-0.095 (0.08)
US × After × Full	0.16*** (0.00)	0.14* (0.09)
Quarter fixed effects	Included	Included
Quarter fixed effects × Full	-	Included
Number of observations	8,240	8,240
Panel B: Difference-in-Differences Estimates		
	(1)	(2)
Full acquisitions		
US × After + US × After × Full	0.06 (0.30)	0.04 (0.47)
Partial acquisitions		
US × After	-0.10* (0.10)	-0.10 (0.24)

**Table 3: The Probability of Being Acquired by a Private Acquirer
SOX Effect Is Differentiated by Firm Size**

This table reports the results of estimating a probit model in which the dependent variable is being acquired by a private acquirer rather than by a public acquirer. Panel A reports coefficient estimates and, in parentheses, standard errors clustered at the country in which the target firm has its primary listing. Panel B reports differences-in-differences estimates and, in parentheses, the significance (*p*-value) of these estimates based on Wald tests. US is an indicator for acquisitions of firms primarily listed in the United States. Small is an indicator for acquisitions of firms whose CPI-adjusted stock market value 4 weeks before the acquisition is announced is less than \$15 million. Full is an indicator for acquisitions designed to result in the acquirer owning all of the target firm's stock. Log of country stock price index is the log of the difference between the value of the monthly Morgan Stanley Capital International stock price index for the target firm's country of primary listing when the acquisition was announced and the value of that index in January 1999. After is an indicator for acquisitions announced after July 31, 2002. Quarter fixed effects are based on the quarter and year in which the acquisition is announced. The regressions include unreported stock exchange fixed effects based on the stock exchange on which the target firm is primarily listed, and unreported industry fixed effects based on the single-digit SIC code of the target firm. Significance (*p*-value): * 10%, ** 5%, *** 1%.

Panel A: Coefficient Estimates		
	(1)	(2)
US × After	-0.16*** (0.06)	-0.16** (0.06)
US × After × Full	0.12*** (0.009)	0.09 (0.08)
US × After × Small	0.24*** (0.02)	0.24 (0.15)
US × After × Full × Small	-0.03 (0.023)	0.11 (0.18)
US	0.35** (0.17)	-0.04 (0.13)
Full	-0.45*** (0.12)	-0.24*** (0.27)
US × Full	-0.76*** (0.12)	-0.75*** (0.15)
Small	0.33*** (0.08)	0.58* (0.33)
US × Small	-0.11 (0.09)	-0.08 (0.12)
Full × Small	-0.05 (0.09)	-0.40 (0.50)
US × Full × Small	0.53*** (0.1)	0.43*** (0.16)
Log of stock price index	0.13 (0.16) (0.023)	0.15 (0.16) (0.18)
Quarter fixed effects	Included	Included
Quarter fixed effects × Full	-	Included
Quarter fixed effects × Small	-	Included
Quarter fixed effects × Full × Small	-	Included
Number of observations	8,240	8,240
Panel B: Difference-in-Differences Estimates		
	(1)	(2)
Full acquisitions of small firms		
US × After + US × After × Full + US × After × Small + US × After × Full × S	0.17** (p=0.002)	0.28** (p=0.02)
Full acquisitions of large firms		
US × After + US × After × Full	-0.03 (p=0.57)	-0.07 (p=0.23)
Partial acquisitions of small firms		
US × After + US × After × Small	0.08 (p=0.17)	0.08 (p=0.62)
Partial acquisitions of large firms		
US × After	-0.16** (p=0.006)	-0.16** (p=0.01)

**Table 4: The Probability of Being Acquired by a Private Acquirer
SOX Effect Is Differentiated by Proximity to the Enactment of SOX**

This table reports the results of estimating a probit model in which the dependent variable is being acquired by a private acquirer rather than by a public acquirer. Panel A reports coefficient estimates and, in parentheses, standard errors clustered at the country in which the target firm has its primary listing. Panel B reports differences-in-differences estimates and, in parentheses, the significance (*p*-value) of these estimates based on Wald tests. US is an indicator for acquisitions of firms primarily listed in the United States. Small is an indicator for acquisitions of firms whose CPI-adjusted stock market value 4 weeks before the acquisition is announced is less than \$15 million. Full is an indicator for acquisitions designed to result in the acquirer owning all of the target firm's stock. Log of country stock price index is the log of the difference between the value of the monthly Morgan Stanley Capital International stock price index for the target firm's country of primary listing when the acquisition was announced and the value of that index in January 1999. Period1 is an indicator for acquisitions announced between August1, 2002 and June 30, 2003. Period2 is an indicator for acquisitions announced after June 30, 2003. Quarter fixed effects are based on the quarter and year in which the acquisition is announced. The regressions include unreported stock exchange fixed effects based on the stock exchange on which the target firm is primarily listed, and unreported industry fixed effects based on the single-digit SIC code of the target firm. Significance (*p*-value): * 10%, ** 5%, *** 1%.

Panel A: Coefficient Estimates		
	(1)	(2)
US × Period1	0.11* (0.06)	0.10 (0.08)
US × Period1 × Full	0.18*** (0.01)	0.17* (0.11)
US × Period2	-0.23*** (0.06)	-0.22** (0.09)
US × Period2 × Full	0.14*** (0.009)	0.11 (0.12)
US	0.32** (0.16)	0.26 (0.17)
Small	0.41*** (0.08)	0.41*** (0.08)
Full	-0.46*** (0.11)	-0.56** (0.19)
US × Full	-0.64*** (0.11)	-0.63*** (0.14)
Log of stock price index	0.12 (0.16)	0.13 (0.16)
Quarter fixed effects	Included	Included
Quarter fixed effects × Full	–	Included
Number of observation	8,240	8,240
Panel B: Difference-in-Differences Estimates		
	(1)	(2)
Full acquisitions announced in Period1 US × Period1 + US × Period1 × Full	0.28*** (0.00)	0.27*** (0.00)
Full acquisitions announced in Period2 US × Period2 + US × Period2 × Full	-0.09 (0.17)	-0.11* (0.09)
Partial acquisitions announced in Period1 US × Period1	0.11* (0.08)	0.10 (0.19)
Partial acquisitions announced in Period2 US × Period2	-0.23*** (0.00)	-0.22** (0.02)

**Table 5: Small Firms' Probability of Being Acquired by a Private Acquirer
SOX Effect Is Differentiated by Proximity to the Enactment of SOX**

This table reports the results of estimating a probit model in which the dependent variable is being acquired by a private acquirer rather than by a public acquirer. Panel A reports coefficient estimates and, in parentheses, standard errors clustered at the country in which the target firm has its primary listing. Panel B reports differences-in-differences estimates and, in parentheses, the significance (*p*-value) of these estimates based on Wald tests. US is an indicator for acquisitions of firms primarily listed in the United States. Small is an indicator for acquisitions of firms whose CPI-adjusted stock market value 4 weeks before the acquisition is announced is less than \$15 million. Full is an indicator for acquisitions designed to result in the acquirer owning all of the target firm's stock. Log of country stock price index is the log of the difference between the value of the monthly Morgan Stanley Capital International stock price index for the target firm's country of primary listing when the acquisition was announced and the value of that index in January 1999. Period1 is an indicator for acquisitions announced between August 1, 2002 and June 30, 2003. Period2 is an indicator for acquisitions announced after June 30, 2003. Quarter fixed effects are based on the quarter and year in which the acquisition is announced. The regressions include unreported stock exchange fixed effects based on the stock exchange on which the target firm is primarily listed, and unreported industry fixed effects based on the single-digit SIC code of the target firm. Significance (*p*-value): * 10%, ** 5%, *** 1%.

Panel A: Coefficient Estimates		
	(1)	(2)
US × Period1	0.28** (0.12)	0.20 (0.16)
US × Period1 × Full	0.16*** (0.035)	0.39 (0.25)
US × Period2	-0.019 (0.13)	-0.06 (0.17)
US × Period2 × Full	0.09** (0.04)	0.03 (0.22)
US	0.45** (0.18)	0.34 (0.23)
Full	-0.47*** (0.12)	-0.30 (0.31)
US × Full	-0.30** (0.13)	-0.37** (0.19)
Log of stock price index	0.13 (0.32)	0.15 (0.32)
Quarter fixed effects	Included	Included
Quarter fixed effects × Full	-	Included
Number of observations	2,067	2,067

Panel B: Difference-in-Differences Estimates		
	(1)	(2)
Full acquisitions announced in Period1		
US × Period1 + US × Period1 × Full	0.44*** (0.00)	0.59*** (0.00)
Full acquisitions announced in Period2		
US × Period2 + US × Period2 × Full	0.07 (0.59)	-0.03 (0.86)
Partial acquisitions announced in Period1		
US × Period1	0.28** (0.02)	0.20 (0.22)
Partial acquisitions announced in Period2		
US × Period2	-0.019 (0.88)	-0.063 (0.71)

**Table 6: Sensitivity Analysis of Specification 4
SOX Effect Is Differentiated by Firm Size**

This table reports difference-in-differences estimates obtained from fitting a probit model in which the dependent variable is being acquired by a private acquirer rather than by a public acquirer. The significance (p -value) of these estimates based on Wald tests is provided in parentheses. Column (1) reproduces column (2) of Table 3. Columns (2) to (4) report the results of estimating the same specification for different samples. Column (5) reports the results of estimating a modified specification that includes additional quarter fixed effects interacted with the [log of the] the difference between the value of the monthly Morgan Stanley Capital International stock price index for the target firm's country of primary listing when the acquisition was announced and the value of that index in January 1999. US is an indicator for acquisitions of firms primarily listed in the United States. Small is an indicator for acquisitions of firms whose CPI-adjusted stock market value 4 weeks before the acquisition is announced is less than \$15 million. Full is an indicator for acquisitions designed to result in the acquirer owning all of the target firm's stock. After is an indicator for acquisitions announced after July 31, 2002. Quarter fixed effects are based on the quarter and year in which the acquisition is announced. Significance (p -value): * 10%, ** 5%, *** 1%.

	Column (2) of Table 3 (1)	Acquirers With Multiple Parents Excluded (2)	Financial Acquirers Excluded (3)	North America and Western Europe Only (4)	Additional Quarter Fixed Effects Interacted With Stock Price Index (5)
Full acquisitions of small firms					
US \times After + US \times After \times Full + US \times After \times Small + US \times After \times Full \times Small	0.28** (0.02)	0.30** (0.02)	0.21* (0.08)	0.52*** (0.01)	0.25** (0.04)
Full acquisitions of large firms					
US \times After + US \times After \times Full	-0.07 (0.23)	-0.04 (0.52)	0.002 (0.98)	-0.13 (0.11)	-0.09 (0.11)
Partial acquisitions of small firms					
US \times After + US \times After \times Small	0.08 (0.62)	-0.015 (0.93)	-0.07 (0.64)	-0.05 (0.83)	0.08 (0.66)
Partial acquisitions of large firms					
US \times After	-0.16*** (0.01)	-0.19*** (0.00)	-0.24*** (0.00)	-0.27** (0.02)	-0.18** (0.03)
Number of observations	8,240	7,780	7,235	4,056	8,240

**Table 7: Number of Full Acquisitions Announced Through June 30, 2003
SOX Effect Is Differentiated by Firm Size**

This table reports the results of estimating an ordinary-least-squares model in which the dependent variable is the number of acquisitions announced per quarter per country. Panel A reports coefficient estimates and, in parentheses, standard errors clustered at the country in which the target firms have their primary listing. Panel B reports difference-in-differences estimates and, in parentheses, the significance (*p*-value) of these estimates based on Wald tests. US is an indicator for acquisitions of firms primarily listed in the United States. Small is an indicator for acquisitions of firms whose CPI-adjusted stock market value 4 weeks before the acquisition is announced is less than \$15 million. After is an indicator for acquisitions announced after July 31, 2002. Quarter fixed effects are based on the quarter and year in which the acquisition is announced. Significance (*p*-value): * 10%, ** 5%, *** 1%.

Panel A: Coefficient Estimates		
US	74.62*** (1.70)	74.68*** (1.68)
Small	-1.22* (0.66)	-4.66** (2.21)
US × Small	-58.88*** (2.44)	-58.89*** (2.41)
US × After	-34.63*** (3.19)	-34.58*** (3.15)
US × After × Small	45.20*** (4.55)	45.10*** (4.50)
After	Included	–
After × Small	Included	–
Quarter fixed effects	–	Included
Quarter fixed effects × Small	–	Included
Number of observations	427	427
Panel B: Difference-in-Differences Estimates		
Acquisitions of small firms		
US × After + US × After × Small	10.56*** (0.00)	10.52*** (0.00)
Acquisitions of large firms		
US × After	-34.63*** (0.00)	-34.58*** (0.00)

Appendix

Below we provide reasons offered by firms for their decision to go private or to go dark after the enactment of SOX.

Landair Corporation explains in a Schedule TO it filed on December 23, 2003 as part of its going private:

Over the past year, [the CEO and the chief operating officer] discussed in general terms the disadvantages faced by Landair as a smaller sized publicly-traded company. In particular, they noted:

- the historically low trading volume for the common stock of Landair that resulted in an illiquid market for Landair’s public shareholders;
- Landair’s limited ability to attract institutional investors and equity research analyst coverage;
- the costs of (and efforts of management required as a result of) being a public company; and
- the reduced flexibility to focus on long-term business goals, as opposed to the more short-term focus that can result from quarterly earnings releases and filing requirements of the SEC.

In late September and early October of 2002, [they] concluded that these disadvantages were significantly outweighing the advantages of leaving Landair as a publicly-traded company controlled by [the CEO]. A factor contributing to this conclusion . . . was the enactment of the Sarbanes-Oxley Act of 2002 and the adoption of related rule proposals by the NASD. As a result of these developments and the current environment relating to the regulation of public companies, [they] anticipated significant increased costs in operating as a public company. They also believed that such increased regulation would place additional burdens on management that would further distract them from managing the business operations of Landair.

Similarly, Coast Dental Services explains in a Schedule TO it filed on March 4, 2003 as part of its going dark:

The Board of Directors of Coast Dental (the “Board”) believes that the public market has not shown much interest in Coast Dental Shares the past few years and that Coast Dental has been unable to realize the principal benefits of

being a publicly-traded company. Coast Dental Shares are very thinly traded and provide little, if any, liquidity for shareholders, particularly those shareholders with larger equity positions in Coast Dental. During the twelve months prior to February 1, 2003, the average daily trading volume of our Shares has been less than 2,000 and on approximately 27% of the trading days there were no Shares traded. In addition, it is unlikely that Coast Dental could issue additional Shares to obtain financing because of the low trading price, low trading volume and illiquidity of the Shares.

The Board also believes that there are considerable costs and detriments in remaining a publicly-traded company. In addition to the substantial time expended by Coast Dental management, the legal, auditing, accounting and other expenses involved in the preparation, filing and dissemination of annual and other periodic reports are considerable and will likely increase significantly in the future as a result of the Sarbanes-Oxley Act of 2002. Additionally, management believes that required public disclosures under the Exchange Act give its competitors, some of which are not publicly-traded companies, certain information and insights about us that may help such competitors in competing against us.