

The Effects of the 2002 Sarbanes-Oxley Act on Small Firms and Entrepreneurship

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ABSTRACT

The 2002 Sarbanes-Oxley Act (SOX) was enacted to protect investors by improved accuracy and transparency of corporate financial reporting. It is seen as one of the most influential revisions of federal securities laws in the last sixty years. Some research criticizes SOX's imposition of disproportional costs on smaller public companies, particularly due to Section 404, which mandates management assessment of internal controls. I conduct an event study of legislative events related to the passage of SOX in 2002, and two additional events in 2005 and 2006, during which the Securities and Exchange Commission (SEC) delayed compliance with SOX's Section 404 for small firms (defined by the SEC as firms with a market capitalization less than \$75 million). I examine stock returns of 2,776 public companies on these events, using stock returns and financial characteristics from the CRSP and COMPUSTAT databases.

Events during the passage of SOX in 2002, which increased the likelihood it would become law, decreased overall stock returns of the market. Furthermore, the stock returns of smaller and more entrepreneurial firms in comparison to the entire market were differentially decreased by the 2002 events. The 2005 compliance extension for small firms from SOX's Section 404 differentially increased stock returns for smaller firms, while the 2006 compliance extension for small firms from SOX's Section 404 showed no effect on stock returns for smaller firms. Thus only the first compliance extension was seen by investors as differentially benefitting smaller firms. The two compliance extension dates were not seen as differentially benefitting more entrepreneurial firms. The results indicate that investors viewed SOX during its passage as a negative regulation upon smaller, more entrepreneurial firms, and viewed at least the first of two compliance extensions to Section 404 of SOX as differentially beneficial to smaller firms.

Table of Contents

Abstract.....	Page 2
Table of Contents.....	Page 3
I. Introduction.....	Page 4
II. Background.....	Page 6
A. Provisions of SOX.....	Page 6
B. Definition of Small Firms.....	Page 10
C. Small Firms and SOX.....	Page 10
D. Definition of Entrepreneurial Firms.....	Page 12
E. Entrepreneurial Firms and SOX.....	Page 13
F. Alternative Explanation to Negative Effects.....	Page 13
III. Literature Review.....	Page 14
IV. Hypotheses.....	Page 18
V. Data and Methods.....	Page 20
A. Testing the Effects of SOX on Firms of Various Sizes.....	Page 20
B. Testing the Effects of SOX on Firms of Various Levels of Entrepreneurship.....	Page 22
C. Description of Data.....	Page 24
D. Analytic Approach.....	Page 24
E. Problems with Event Studies.....	Page 25
F. Dependent Variable – Stock Price.....	Page 26
G. Events Relating to Passage and Interpretation of SOX.....	Page 26
H. Pre-SOX Events.....	Page 27
I. Post-SOX Events.....	Page 29
J. Independent Variables.....	Page 30
K. Summary Statistics.....	Page 34
VI. Results.....	Page 35
VII. Conclusions and Future Research.....	Page 56
Bibliography.....	Page 58
Appendix.....	Page 61

I. INTRODUCTION

By the summer of 2002, accounting and financial scandals had developed at several major U.S. companies, including Adelphia, Enron, Global Crossing, Tyco, WorldCom, and Xerox. A continuously growing list of such corporate scandals increased doubts about the credibility of corporate financial reporting.¹ Investors pressured for action from their representatives, and the 2002 Sarbanes-Oxley Act (SOX) was quickly signed into law. SOX was enacted “to protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws”.² When President George W. Bush signed the Act into law, he described it as “the most far-reaching reform of American business practices since the time of Franklin Delano Roosevelt”.³ SOX is therefore seen as one of the most influential revisions of federal securities laws in the last sixty years.³ Understanding the effects of SOX is relevant because of its historical importance, and more so today given the surge of government involvement in the U.S. financial sector as of September 2008.

SOX may have affected small firms and entrepreneurial activity in particular. Small firms are defined by the Securities and Exchange Commission (SEC) as firms with a market capitalization of less than \$75 million. An entrepreneur, according to the U.S. Small Business Administration, is “one who assumes the financial risk of the initiation, operation and management of a given business or undertaking”.⁴ There exist several government and policy-influencing bodies, such as the SEC’s Advisory on Smaller Public Companies, the U.S. Senate Committee on Small Business & Entrepreneurship, the U.S. Small Business Advisory, the Kauffman-RAND Institute for Entrepreneurship Public Policy, and the Small Business &

¹ Bratton, William. 2003. Enron, Sarbanes-Oxley, and Accounting: Rules versus Standards versus Rents. *Villanova Law Review* 48: 1023-56.

² “Sarbanes-Oxley Act 2002”. *Political Information*. www.legislation.politicalinformation.com.

³ “SEC Rulemaking and Other Initiatives”. *U.S. Securities and Exchange Commission*. www.sec.gov.

⁴ “Entrepreneur”; Glossary. *U.S. Small Business Administration*. <http://web.sba.gov/glossary>.

Entrepreneurship Council, that are interested in the effects of SOX on small firms and entrepreneurship. I examine the effect of SOX on small firms and entrepreneurial firms. While the effect of SOX on entrepreneurship is a topic of public concern, there is a lack of literature on the subject.

I examine the effect of SOX by observing stock returns during fourteen legislative and rulemaking events related to SOX. Stock returns, assuming the market is efficient, reflect all publicly available information. If investors view an event as negative, this generates negative stock returns. If investors view an event as positive, this generates positive stock returns. Stock returns are a common measure of how events like federal legislation and rulemaking, in this case the Sarbanes-Oxley Act, affects different public companies. Observing changes in daily stock returns during particular events is called the “event study” approach. I chose to use this approach, first explained in Brown and Warner (1985), because it has become the norm in examining the effects of SOX. Studies using this approach include those of Zhang (2007), Engel et al. (2006), Li et al. (2008), Jain and Rezaee (2006), Linck et al. (2008), Litvak (2007), and Wintoki (2007). Stock price, financial, and accounting data was obtained from the CRSP and COMPUSTAT databases.

I examine the effect of SOX on small firms and entrepreneurship by observing stock returns of firms with differing sizes and differing levels of entrepreneurial characteristics. I then draw conclusions about the effects of SOX on small and entrepreneurial firms. I examine the stock returns of a sample of 2,776 firms during twelve events in 2002 that lead up to the passage of SOX on July 30, 2002. These twelve events have been examined by Chhaochharia and Grinstein (2005), Zhang (2007), Li et al. (2008), Jain and Rezaee (2006), Litvak (2007), and Wintoki (2007), among others. There is substantial agreement on the accuracy of these events. I

also observe stock returns of those firms during two post-SOX-related announcements of the SEC, one in 2005 and one in 2006. These two later events are the dates when the SEC announced a compliance extension for small firms (firms with a market capitalization of less than \$75 million) from SOX's Section 404. They have not been examined in existing research. SOX's Section 404 has been considered most burdensome on smaller firms (Zhang 2007), and I believe on entrepreneurial firms as well. Due to the fact that many entrepreneurial firms are smaller in size and because they often have a single entrepreneur as management, I hypothesize that entrepreneurial firms (perhaps simultaneously classified as small firms) will be affected by the supposed burden of Section 404 on small firms and on the time of management. I believe it is important to study the two SOX Section 404 compliance extension events in 2005 and 2006 because they provide an effective test for examining the effect of Section 404 itself on small firms and entrepreneurial firms. These two events may indicate the value of such an extension for small and entrepreneurial firms.

II. BACKGROUND

In the following section, I first detail the important provisions of SOX. I then explain the definition of small firms and provide reasoning for why small firms may be critically affected by SOX. Lastly, I explain the definition of entrepreneurial firms and provide reasoning for why entrepreneurial firms may be critically affected by SOX.

A. Provisions of SOX

The Congressional intent of SOX was to protect investors by improved accuracy and reliability in financial reporting.⁵ The SEC and the oversight body formed in SOX's Title I, the Public Company Accounting Oversight Board (PCAOB), are responsible for rulemaking,

⁵ H.R.3763. The Library of Congress *Thomas*. <http://thomas.loc.gov/>

interpretation, implementation, and enforcement of the Act. Thus these governing bodies may shape the extent to which SOX affects firms. The following is my summary of SOX's main provisions from The American Institute of Certified Public Accountants' (AICPA) website.⁶

Section 201: "Services Outside the Scope of Practice of Auditors"

Section 201 makes it "unlawful" for a registered public accounting firm to provide non-audit services to an issuer contemporaneously with the audit.⁶ Restricted non-audit services include bookkeeping related to the accounting records or financial statements of the client, financial information systems design and implementation, appraisal or valuation services, management functions or human resources, among other actions that too-closely tie the auditor to the client.⁶

Section 301: "Public Company Audit Committees"

Section 301 mandates issuers establish and maintain an audit committee. Each member of the audit committee must be a member of the board of directors and otherwise independent. ("Independent" means that the member does not receive, other than for his/her service on the board, any consulting, advisory, or compensatory fees from the issuer).⁶ The audit committee is responsible for the appointment, compensation, and oversight of any registered public accounting firm employed by the issuer. The audit committee also establishes procedures for the "receipt, retention, and treatment of complaints" received by the issuer on accounting, internal controls, and auditing matters.⁶

Section 302: "Corporate Responsibility for Financial Reports"

Section 302 requires the CEO and CFO to prepare a statement in accompaniment of the audit report that certifies "the appropriateness of the financial statements and disclosures

⁶ "Summary of the Provisions of the Sarbanes-Oxley Act of 2002". The American Institute of Certified Public Accountants. www.aicpa.org

contained in the periodic report, and that those financial statements and disclosures fairly present, in all material respects, the operations and financial condition of the issuer”.⁶

Section 401: “Disclosures in Periodic Reports”

Section 401 requires that each financial report that needs to be prepared in according with the Generally Accepted Accounting Principles (GAAP) must “reflect all material correcting adjustments...that have been identified by a registered accounting firm”.⁶ Additionally, each quarterly and annual financial report must “disclose all material off-balance sheet transactions” as well as “other relationships” with “unconsolidated entities” that may have a current or future material effect on the financial condition of the issuer.⁶ The SEC will issue rules that pro forma financial information must be presented without untrue information or omission of material facts necessary so that pro forma financial information is not misleading. The SEC will also study off-balance sheet disclosures to examine the extent of off-balance sheet transactions and whether generally accepted accounting rules result in financial statements of issuers reflecting the economics of off-balance sheet transactions to investors in a transparent way before making a report of these recommendations to the Congress.⁶

Section 404: “Management Assessment of Internal Controls”

Section 404 requires each annual report of an issuer to contain an “internal control report” that must:

- 1) State responsibility of management for establishing and maintaining sufficient internal control structure and procedures for financial reporting.⁶
- 2) Contain an assessment from the end of the issuer’s fiscal year of the effectiveness of the internal control structures and procedures of the issuer for financial reporting.⁶

Furthermore, each issuer's auditor must attest to and report on the assessment made by the management of the issuer. The SEC is directed to require each issuer to disclose whether it has adopted a code of ethics for its senior financial officers and what the contents of that code include. The SEC is also directed to revise its regulations regarding prompt disclosure on Form 8-k to require immediate disclosure of changes in an issuer's code of ethics.⁶

Section 409: "Real Time Issuer Disclosures"

Section 409 requires rapid and current disclosure of information on material changes in the financial condition or operations of the issuer.⁶

Title VIII: "Corporate and Criminal Fraud Accountability" (Sections 801-807)

Title VIII states that it is a felony to "knowingly" destroy or create documents to "impede, obstruct or influence" existing or contemplated federal investigations.⁶ Auditors are thus mandated to hold "audit or review work papers" for five years.⁶ Employees of issuers and accounting firms are provided "whistleblower protection" that prohibits employers from taking certain actions against employees that lawfully disclose private employer information to parties in a judicial proceeding involving a fraud claim.⁶ Additionally, a new crime for securities fraud has penalties of fines and up to ten years imprisonment.

Title IX: "White Collar Crime Penalty Enhancements" (Sections 901-906)

Title IX increases the maximum penalty for mail and wire fraud from five to ten years. It creates a crime for tampering with a record or impeding an official from proceeding. The SEC is given authority to seek court freeze of extraordinary payments to directors, officers, partners, etc and may prohibit anyone convicted of securities fraud from being an officer or director of any publicly traded company.⁶ Furthermore, financial statements filed with the SEC must be certified by the CEO and CFO and state that the financial statements and disclosures fully comply with

provisions of the Securities Exchange Act and fairly present the operations and financial condition of the issuer. Maximum penalties for knowing violations of this section are a fine of not more than \$500,000 and/or imprisonment for up to five years.⁶

B. Definition of Small Firms

Small firms are those defined by the SEC as firms with a market capitalization less than \$75 million. This definition was partly based on the requirements for registration of primary offerings for cash on Form S-3.⁷ Form S-3 is a simplified securities registration form used by public companies required to register their securities with the SEC.⁷ In my analysis, I adopt the SEC definition of small firms as those with a market capitalization less than \$75 million and implement a dummy variable equal to one when firms' market capitalization is less than \$75 million (variable called *smallfirms*). I also measure firm size with a continuous variable of market capitalization (variable called *marketcap*). In my final analyses, I use a third measure of firm size through a dummy variable equal to one if firms' market capitalization is within the smallest quartile of market capitalization between \$0 and \$44.09 million (variable called *sizequartile1*).

C. Small Firms and SOX

Small firms may have been affected most by SOX's Section 404 and its cost of compliance. Section 404 is being conservatively interpreted by external auditors. Conservative interpretation of Section 404 increases the depth of examinations of a company's internal controls that external auditors perform. With companies of all sizes needing to pay external auditors around \$200 an hour to examine their internal controls, compliance with Section 404 is costly for all firms.⁸ Yet because costs are not scaled down for smaller firms, those firms may

⁷ "Revisions to Accelerated Filer Definition and Accelerated Deadlines for Filing Periodic Reports". December 21, 2005. Securities and Exchange Commission. <http://www.sec.gov/rules/final/33-8644.pdf>.

face a higher burden than larger firms in compliance with this particular section of SOX because they have less revenue to expend on compliance. A 2006 Government Accountability Office (GAO) report requested by Senators Olympia Snowe (R-Maine) and Michael Enzi (R-Wyo.), Chairs of the Senate Committee on Small Business and Entrepreneurship, found small public companies were spending substantially more on implementing SOX, and Section 404 of SOX in particular. The report found the following results:

- Small firms (using the less than \$75 million market capitalization definition) were spending 877 percent more than larger firms. This was \$1.14 in audit fees per \$100 of revenue for smaller firms, compared to \$0.13 per \$100 of revenue for firms with over \$1 billion in market capitalization.⁸
- Small companies that responded to the GAO survey reported that their CFOs and accounting staff spent up to ninety percent of their time for the period leading up to their first Section 404 report on SOX compliance issues.⁸
- Smaller companies reported paying fees to external consultants for the period prior to their first Section 404 report that ranged from \$3,000 to more than \$1.4 million.⁸
- The number of public companies that went private rose from 143 in 2001 to 245 in 2004.⁸
- From 1999 through 2004, IPOs by companies with revenues of \$25 or less fell from 70 percent of all IPOs in 1999 to 46 percent in 2004.⁸

During the enactment of SOX, the SEC estimated that the aggregate costs of implementing Section 404 for all public companies would be about \$1.24 billion (or \$91,000 per

⁸ Snowe, Enzi: GAO Report on Sarbanes-Oxley Finds Burdensome Compliance Costs. *Committee on Small Business & Entrepreneurship*. May 8, 2006.
http://sbc.senate.gov/republican/HTML/news/GAO_report_compliance_costs.html

company).⁹ Research by the American Electronics Association shows estimated costs for all public companies near \$35 billion, more than twenty times what the SEC estimated (American Electronics Association, 2005). The full cost is not yet known because deadlines for compliance with Section 404 has been delayed based on firm size, with the largest firms needing to comply first and smallest firms only recently (as of 2007). For this reason, I examine two event dates on which the SEC announced the last two extensions for compliance with Section 404 to small firms with market capitalization less than \$75 million.¹⁰ If SOX was harmful to small firms, the announcement of compliance extensions on those event dates will result in positive stock returns since these firms gained a few additional months of exemption from the costs of Section 404.

D. Definition of Entrepreneurial Firms

An entrepreneur, according to the U.S. Small Business Administration, is “one who assumes the financial risk of the initiation, operation and management of a given business or undertaking”.¹¹ Entrepreneurship can create several advantages in the short and long run for both the entrepreneur and society, including enormous financial gain, creation of jobs, healthy competition and higher quality goods and services, more goods and services overall, market development, and promotion of new technology and research. Because of its significant social benefits, regulations such as SOX that can harm entrepreneurship must be examined carefully. In my analysis, I define entrepreneurial firms as those that are fast-growing, as measured by annual percent change in sales, and operating in entrepreneurial industries. I use annual percent change in sales as a measure of fast-growth for the examined years of 2002, 2005, and 2006, creating three dummy variables that equal one when firms’ annual percent change in sales for a respective

⁹ “Speech by SEC Commissioner: Remarks before the Joint Meeting of SEC Government-Business Forum on Small Business Capital Formation Forum and the SEC Advisory Committee on Smaller Public Companies”. *U.S. Securities and Exchange Commission*. September 19, 2005. <http://www.sec.gov/news/speech/spch091905psa.htm>.

¹⁰ See Appendix Table 3 for details on compliance extension dates

¹¹ “Entrepreneur”; Glossary. *U.S. Small Business Administration*. <http://web.sba.gov/glossary>.

year is above the mean of the sample market of all firms' annual percent change in sales for that year (variable called *fastgrowing_i*). I also distinguish particular SIC industry codes as part of more entrepreneurial industries than others, creating a dummy variable that equals one when firms are part of the more entrepreneurial industries coded for. Such entrepreneurial industries include pharmaceuticals and biotechnology, chemical engineering, and high technology (variable called *ESIC*). See Appendix Table 4 for a list of entrepreneurial industries coded.

E. *Entrepreneurial Firms and SOX*

In addition to small firms, entrepreneurial firms may be negatively affected by SOX, and Section 404 in particular. Any negative effect of SOX on small firms is relevant to entrepreneurial firms as well because most entrepreneurial firms are smaller in size, often “start-ups” by nature. Negative attitudes towards SOX’s effect on entrepreneurship is prevalent in the press. Carrie Johnson of the *Washington Post* states that “tech firms with 500 employees or less say they’re particularly hard hit because they run fast and lean...they warn of added bureaucracy and stifled innovation” from Section 404.¹² One study examining entrepreneurship in the healthcare industry concluded that SOX’s provisions decrease the degree of control for entrepreneurs by imposing “significant governmental and regulatory burdens, and increasing uncertainty” which has “negatively impacted the healthcare industry” (Borkowski and Kulzick, 2006). Because entrepreneurship is a vital component of economic growth in all industries within the United States and globally, understanding how the entrepreneurial process may be affected by SOX is crucial.

F. *Alternative Explanation to Negative Effects*

While research has focused greatly on the negative effects of SOX on the market and on smaller firms, we can also view this negative effect as an indication of the Act’s effectiveness. If

¹² Johnson, Carrie. *Washington Post*. December 1, 2004.

we observe negative stock returns during the passage of SOX for companies with poor governance, we could interpret this as SOX devaluing these companies as it appropriately should. This paper examines the direction (positive, negative, or neither) of stock returns during legislative events related to SOX. It must be noted that negative stock returns could be beneficial to strengthening the market's corporate governance through isolating differentially poorly governed firms. In response to decreased stock prices, such poorly governed firms can take action such as improving governance or, conversely, leaving the public market.

This interpretation holds true for smaller firms and entrepreneurial firms within the context of the market as well.

III. LITERATURE REVIEW

Since the Sarbanes-Oxley Act was passed in 2002, its effects have been controversial. The research most often debates whether the Act was beneficial or not. Research also scrutinizes the effect of SOX on quite a few aspects of firm-level characteristics; from the rate of firms going private (Engel et al., 2006) to the changes in foreign firms listed on the United States stock exchanges (Litvak, 2007).

Even prior to its enactment, SOX's effectiveness as a law was questioned. Romano (2005) examines the substantive corporate governance mandates of SOX and the extent to which specific provisions could be characterized as efficacious. She looks at data on the effects of SOX's mandates, shortly after the Act was passed, as well as data on regulations across the world that promoted aims similar to some of SOX's provisions. She believes SOX was too hastily passed in a politically charged environment in response to several high-profile scandals

and her findings suggest that the corporate governance provisions of SOX are ill-conceived and ineffective. Furthermore, she advocates that SOX be an optional, not mandatory, regulation.

Some studies have examined whether SOX imposed significant costs on all firms in the market. Zhang (2007) examines stock price reactions on event dates during the Act's passage. She finds that SOX imposed significant net costs on all firms because cumulative abnormal returns were significantly negative during the passage of SOX. Zhang states that the loss in total market value of firms on the event dates she observes is \$1.4 trillion. If SOX is effective in upholding tighter corporate governance standards that protect investors, then stock returns of firms with poor governance might increase during the passage of SOX. Zhang observes the opposite; she finds that poorly governed firms faced decreasing stock returns around event dates, indicating that investors believed the compliance costs for poorly governed firms would be greater than any benefits.

While Zhang finds an overall negative effect of SOX on firm value, Li et al. (2008) and Jain and Rezaee (2006) find an overall positive effect of SOX on firm value. Li et al. examine stock price reactions during the passage of SOX and find significantly positive abnormal returns for firms that managed their earnings prior to SOX. Earnings management occurs when managers use judgment in financial reporting, that may mislead investors and stakeholders about the actual economic performance of the company and affect contractual outcomes that depend on reported accounting data (Healy and Wahlen, 1999). The result of Li et al. suggests investors anticipated that the more extensively firms managed their earnings the more SOX would constrain earnings management and enhance the quality of financial statement information. Jain and Rezaee examine stock price reactions during the passage of SOX and find positive stock returns on event dates that increased the probability of SOX passing into law. They also find that

more positive stock returns are associated with firms that were better governed before SOX. This shows that firms with more corporate governance, more transparent financial reports, and more credible audit functions pre-SOX were more positively affected by SOX than other firms. One interpretation of this result is that SOX benefits all firms, but imposes higher compliance costs on firms with poor corporate governance and disclosure standards. Whether this interpretation is accurate or not, Jain and Rezaee argue that benefits of SOX significantly outweigh its costs based on the overall positive stock returns during the passage of SOX.

Additionally, Litvak (2007) observed negative effects on firms subject to SOX by examining cross-listed firms (firms simultaneously listed on both American and foreign stock exchanges) on event dates during the passage of SOX. Litvak finds that stock prices of cross-listed firms subject to SOX decreased (increased) significantly compared to cross-listed firms not subject to SOX and to non-cross listed firms during event dates that would (would not) apply SOX to fully to cross-listed firms. Her findings are consistent with the view that investors expected SOX to have a negative effect on companies to which it applied.

Other research examines the effects of SOX on smaller firms, such as studies by Chhaochharia and Grinstein (2007), Engel et al. (2006), and Linck et al. (2008). Chhaochharia and Grinstein (2007) observe stock returns of firms with varying degrees of pre-SOX compliance with the Act's provisions, during the passage of SOX. They find that the announcements of SOX's rules caused firms less compliant with the provisions of the rules (prior to SOX) to earn positive abnormal returns in comparison to firms more compliant (prior to SOX). They also found that larger, less compliant (prior to SOX) firms earned positive abnormal returns while smaller, less compliant (prior to SOX) firms earned negative abnormal returns, which they believe indicates that certain provisions are detrimental to small firms.

With SOX being so costly, it makes sense that firms exhibited avoidance strategies, as Engel et al. (2006) observe. Engel et al. found that if firms can avoid the costs of SOX by going private then they will do so if the benefits to shareholders from SOX are small and if the net benefits of being public are small even prior to SOX. They also found that abnormal returns during the passage of SOX were positively associated with firm size and share turnover, therefore smaller firms are most likely those with lesser pre-SOX net benefit of being public and are thus more likely to go private. Leuz (2007) examines going-private decisions by analyzing the research of Zhang and Engel et al. and claims that studying the overall costs and benefits of SOX includes many empirical difficulties and it is thereby difficult to accurately make such conclusions. Leuz concludes that more research is needed before claiming that SOX imposed any significant negative costs on firms. He suggests that research focus on the implementation of SOX by the SEC and the PCAOB, as well as changes in its implementation over time, because they provide more constrictive settings in comparison to researching the overall costs and benefits of SOX and its effect on the economy.

Linck et al. (2008) examine the effect of SOX by measuring firm characteristics in a before-and-after-SOX comparison. Among other findings, they found significant increases in director pay and overall director costs among smaller firms in particular. For example, they found that small firms paid \$3.19 in director fees per \$1,000 of net sales in 2004, which is \$0.84 more than they paid in 2001 and \$1.21 more than they paid in 1998. Large firms, however, paid \$0.32 in director fees per \$1,000 of net sales in 2004, only \$0.07 more than they paid in 2001 and \$0.10 more than they paid in 1998.

While the effects of SOX on entrepreneurship per se have not been thoroughly examined, a study by Wintoki (2007) touches on the question. Among other findings, Wintoki found that

SOX negatively affected young, small, growth firms operating in uncertain business environments (a definition that can characterize entrepreneurial firms). Wintoki observed events during the passage of SOX and found that changes in stock returns were positively related to firm size and age and negatively related to growth opportunities and uncertainty of the firm's operating environment. His results suggest that the blanket "one size fits all" governance regulation could be particularly harmful to young, small, growth firms operating in uncertain business environments.

IV. HYPOTHESES

In the following section, I outline the five hypotheses examined. The first three hypotheses test the possible effects of pre-SOX events in 2002 on all firms, small firms, and entrepreneurial firms. The last two hypotheses test the possible effects of post-SOX compliance extensions for Section 404 in 2005 and 2006 on small firms and entrepreneurial firms.

A. H1: If SOX imposed net costs on US firms, I expect stock returns around the time of SOX rulemaking events to be negative, regardless of firm size.

If investors consider SOX harmful to the overall market, then stock returns around rulemaking events, when adjusted for contemporaneous economic influences, will be negative for firms of all sizes. The strength of the market's response to individual events will be from the legal implications on firms and the probability SOX becomes law.

B. H2: If SOX imposed net costs on firms, I expect small firms to incur greater costs and experience more negative stock returns around SOX rulemaking events than larger firms.

If investors consider SOX to be negative or costly for small firms, then the stock returns for small firms around rulemaking events when adjusted for contemporaneous economic influences will be negative compared to stock returns of larger firms.

C. H3: If SOX imposed net costs on firms, I expect entrepreneurial firms to incur greater costs and experience more negative stock returns around SOX rulemaking events than larger firms.

Because SOX increases the litigation risks on management, some researchers believe SOX may decrease risk-taking of management thereby decreasing entrepreneurial activity (Ribstein, 2002; Walliston, 2003). If investors consider SOX negative or costly for entrepreneurial firms, then the stock return for entrepreneurial firms around rulemaking events, when adjusted for contemporaneous economic influences, will be negative.

D. H4: If deferment of SOX compliance was beneficial to small firms, then I expect that the small firms qualified for the compliance extensions will experience more positive stock returns around the announcements of compliance deferment than firms required to comply with SOX earlier.

If investors consider deferment of SOX compliance beneficial or cost-reducing news for small firms, then the stock returns for small firms around rulemaking events, when adjusted for contemporaneous economic influences, will be positive compared to all firms. This effect is only the impact of compliance deferment because enforcement of Section 404 will only occur in the future beyond the announcement.

E. H5: If deferment of SOX compliance was beneficial to entrepreneurial firms, then I expect more entrepreneurial firms qualified for the compliance extensions will experience more positive stock returns around the announcements of compliance deferment than firms required to comply with SOX earlier.

If investors consider deferment of SOX compliance beneficial or cost-saving news for entrepreneurial firms, then the stock returns for entrepreneurial firms around rulemaking events, when adjusted for contemporaneous economic influences, should be positive compared to all firms. This effect is only the impact of compliance deferment because enforcement of Section 404 will only occur in the future beyond the announcement.

V. DATA AND METHODS

In the following section, I detail the methods of testing the possible effects of SOX on all firms, small firms, and entrepreneurial firms. I describe the data collected and used. I then explain the analytic approach chosen, and describe possible problems with this approach. I describe the dependent variable of stock price as well as the events, both pre-SOX and post-SOX, used to test my hypotheses. Lastly, I provide information about the control variables used.

A. Testing the Effect of SOX on Firms of Various Sizes (Hypotheses H1, H2, H4)

I use OLS regression models to analyze firms' stock returns on the event dates. I run three different regression models for each of the fourteen event dates chosen (twelve event dates before the passage of SOX in 2002 and two event dates after the passage of SOX). The dependent variable of stock returns is called *retx*. The first regression model includes only the effect of the event date dummy variable (*DE_i*) on stock returns. This variable equals one when a particular date in each regression is being observed. (I later also use a variable called *DE2002*, in

which all events 1 through 12 are specified as equaling one for the dummy variable). The second regression model includes the effect of the event date, small firms (dummy variable *smallfirms* that equals one when market capitalization is less than \$75 million using the SEC definition), and an interaction term of $DE_i * smallfirms$, on stock returns. The interaction term $DE_i * smallfirms$ measures the effect of small firms and the event date on stock returns. The third regression model includes the effect of the DE_i , *marketcap* (a continuous variable of market capitalization), and an interaction term of $DE_i * marketcap$, on stock returns. The interaction term $DE_i * marketcap$ measures the effect of firm size and the event date on stock returns. Below is the list of regression models using stock returns as the dependent variable and “i” as the event number from 1 through 14:

$$(1) \quad retx_i = \beta_0 + \beta_1 * DE_i + \varepsilon_i$$

$$(2) \quad retx_i = \beta_0 + \beta_1 * DE_i + \beta_2 * small\ firms + \beta_3 * DE_i * smallfirms + \varepsilon_i$$

$$(3) \quad retx_i = \beta_0 + \beta_1 * DE_i + \beta_2 * marketcap + \beta_3 * DE_i * marketcap + \varepsilon_i$$

I ran all three of these regression models on the fourteen event dates twice in order to test two different event windows for robustness of the results. The first test uses an event window of (0), meaning the dummy variable for event date (DE_i) is set to one for the date(s) on which the event occurs.¹³ The second test, shown in Tables 6 through 9, uses an event window of (-1,0), meaning the dummy variable for event date (DE_i) is set to one for the date(s) on which the event occurs as well as one day prior. Running the regressions with an expanded event window before the event date occurs is important because information about news on topics such as legislation, business, and politics may leak into the public several hours or even an entire day before the news is formally released. Running the regressions with a wider event window, then, should

¹³ Tests with event window (0) not included in Appendix

account for the possibility of this leakage occurring. It also allows for a test of robustness of the results.

B. Testing the Effect of SOX on Firms with Various Levels of Entrepreneurship (Hypotheses H3, H5)

I use OLS regression models to analyze firms' stock returns on the event dates. I run three different regression models for each of the fourteen event dates chosen (twelve event dates before the passage of SOX in 2002 and two event dates after the passage of SOX, in 2005 and 2006). The dependent variable of stock returns is *retx*. The first regression model, again, includes only the effect of the event date (*DEi*) on stock returns. In testing hypotheses H3 and H5, I use *DEi = DE20002*, *DE13*, and *DE14* only, each testing the years of 2002 (pre-SOX events combined) and then 2005 (*DE13*) and 2006 (*DE14*), the two post-SOX compliance extension announcements. The second regression model includes the effect of the *DEi*, *ESIC*, and an interaction term with the *DEi*ESIC*, on stock returns. The variable *ESIC* proxies for firms in more entrepreneurial industries, a dummy variable equal to one when firms' SIC codes are of more entrepreneurial industries. The interaction term *DEi*ESIC* measures the effect of firm size and the event date on stock returns. The third regression model includes the effect of the *DEi*, firms that are fast-growing for the particular year of the regression (*fastgrowing_i*), and an interaction term with the *DEi*fastgrowing_i*, on stock returns. The variable *fastgrowing_i* is a dummy variable, with 'i' = 2002, 2005, or 2006, that is coded as one for companies that have an annual percent change in sales for each of the given years that is greater than the sample market's mean annual percent change in sales for that year. The interaction term *DEi*fastgrowing_i* measures the effect of fast-growing firms and the event date on stock returns. The fourth regression model includes the effect of *DEi*, *ESIC*, *fastgrowing_i*, and *sizequartile1*.

The variable *sizequartile1* measures firms in the lowest quartile of market capitalization as those of smallest firm size, and is a dummy variable equal to one when market capitalization is within the first quartile of the sample's overall market capitalization. The fifth regression model includes the effect of *DE_i*, *ESIC*, *fastgrowing_i*, and *sizequartile1*, as well as an interaction term between *fastgrowing_i* and *sizequartile1* to measure the effect of small, fast-growing firms on stock returns. This is important because we often consider entrepreneurial firms to be small and fast-growing, and clustered in particular industries that often foster innovation. Below is the list of regression models using stock returns as the dependent variable and “i”, again, is the event number of 2002 (the combined dummy variable for all of the 2002 events), 13 (the 2005 event), or 14 (the 2006 event):

- (1) $retx_i = \beta_0 + \beta_1 * DE_i + \varepsilon_i$
- (2) $retx_i = \beta_0 + \beta_1 * DE_i + \beta_2 * ESIC + \beta_3 * DE_i * ESIC + \varepsilon_i$
- (3) $retx_i = \beta_0 + \beta_1 * DE_i + \beta_2 * fastgrowing_i + \beta_3 * DE_i * fastgrowing_i + \varepsilon_i$
- (4) $retx_i = \beta_0 + \beta_1 * DE_i + \beta_2 * ESIC + \beta_3 * fastgrowing_i + \beta_4 * sizequartile1 + \varepsilon_i$
- (5) $retx_i = \beta_0 + \beta_1 * DE_i + \beta_2 * ESIC + \beta_3 * fastgrowing_i + \beta_4 * sizequartile1 + \beta_5 * fastgrowing_i * sizequartile1 + \varepsilon_i$

I ran these regression models on the fourteen event dates twice in order to test two different event windows for robustness of the results. The first test uses an event window of (0) as a test for robustness.¹³ The second test uses an event window of (-1,0), and can be seen in Tables 11 through 13. Running the regressions with a wider event window, then, should account for the possibility of information leakage.

C. Description of Data

The sample consists of 2,776 publicly traded firms, randomly chosen from the Center for Research in Security Prices (CRSP), which holds historical firm data. I attained the entire list of publicly traded firms that existed in January 2002, and then used random number generation in STATA to pool the smaller sample of firms. These firms are listed on the NYSE, AMEX, and NASDAQ. The stock return data was gathered from CRSP. The accounting and business segment data was gathered from COMPUSTAT.

The original randomly generated smaller sample contained 3,703 firms, and was filtered as the datasets were merged by the removal of firms with no data on the COMPUSTAT database. The final smaller sample became 2,776 firms, a twenty-five percent decrease from the original 3,703 sample of firms generated. I first test the effect of SOX on the market as a whole, represented by the random sample of firms on the NYSE, AMEX, and NASDAQ stock exchanges. After determining the overall SOX-related effect on firms, I explore my second, third, fourth, and fifth hypotheses by examining the differential effect of SOX on small and entrepreneurial firms.

D. Analytic Approach

I use the “event study” approach to examine the effect of twelve event dates during (and two event dates after) the passage of SOX. This approach was first explained in Brown and Warner (1985). I use this approach because most recent studies examining stock returns during SOX legislative events use this approach and because it is an effective method to examine the effects of a policy change like SOX on stock returns. Studies using the event study approach to examine SOX include Zhang (2007), Engel et al. (2006), Li et al. (2008), Jain and Rezaee (2006), Linck et al. (2008), Litvak (2007), and Wintoki (2007). As mentioned, stock prices will

reflect publicly available information, assuming the market is efficient. Therefore stock returns will change immediately after the release of new information to the market. Since all publicly traded firms will be affected by SOX, new information on SOX should have an effect (positive or negative) on all stock returns. Stock returns are thus a common measure of how events like federal legislation and rulemaking affect public companies.

E. Problems with the “Event Study” Approach

There are noted limitations, however, to using the “event study” approach (Schwert, 1981). These limitations include the fact that other contemporaneous news is incorporated into daily stock returns. The effects of this other news, unfortunately, cannot be separated from the effects of SOX on event dates. Additionally, investors’ expectations are unobservable, and perhaps investors expected stronger rules than SOX provided (Zhang, 2007). Another problem, if my first hypothesis is correct, is that the market may have overestimated the net costs of SOX during its passage and the actual Act had a less negative impact than initially assumed and reflected in stock prices (Zhang, 2007). A final problem with the “event study” approach is difficulty in pinpointing key event dates to observe. The exact event dates examined can affect the chance of finding significant results, and it is difficult to choose the most important. To mitigate this final problem, I have relied on the event dates chosen by recent researchers that cross-checked their event dates with publications and archival databases like the *Wall Street Journal* index, *Wall Street Journal*, *New York Times*, the Library of Congress, the SEC website (Litvak, 2007), and the Dow Jones Newswire (Zhang, 2007).¹⁴

¹⁴ See Appendix Table 2 for event dates

*F. Dependent Variable - Stock Price (variable: *retx*)*

I examine the market reaction to events relating to SOX. If the market, or a segment of the market, such as smaller firms, views an event as positive or negative, this will translate into stock price reactions. I examine twelve legislative events leading up to the passage of SOX and two legislative events after the passage of SOX regarding exemptions for smaller firms from certain segments of SOX. Stock prices should reflect publicly available information about these events, assuming the market is efficient. If an event is viewed by investors as something positive, then stock prices will go up, and if an event is viewed by investors as negative, then stock prices will go down. I examine daily stock returns on the event dates I have chosen to include. Information on daily stock returns was taken from the CRSP database. According to CRSP, “*retx* contains stock returns without dividends. Ordinary dividends and certain other regularly taxable dividends are excluded from the returns calculation”.¹⁵

G. Events Relating to the Passage and Interpretation of SOX

I examine stock prices from January 2002 to August 2002 for the key pre-passage dates. During these key dates, investors’ expectations about SOX’s passage might have been affected.¹⁴ These pre-SOX events, I believe, were seen as increasing the chance that SOX would pass because they outline steps of the rulemaking process to pass a regulation during the time of public support for government action after a series of financial scandals. These event dates were also used in recent studies by Chhaochharia and Grinstein (2005), Rezaee and Jain (2005), Zhang (2007), Li et al. (2008), and Litvak (2007). I also examine two event dates that occurred after the passage of SOX, one in 2005 and the other in 2006, when the SEC provided compliance extensions to small firms (market capitalization less than \$75 million). As mentioned above, I am

¹⁵ Variable Description, CRSP. <http://wrds.wharton.upenn.edu/ds/crsp/dstk/dsf/>

the first to examine stock returns around these two later dates. To determine the event window for each event date chosen, I relied on existing research practices in Rezaee and Jain (2005), Zhang (2007), Li et al. (2008) and others. I therefore use an event window of (-1, 0), meaning I examine stock returns on the day(s) of the event itself and one day prior.¹⁶

H. *Pre-SOX events (variable: DEi)*

The following is a review of the events in Appendix Table 2. These events all took place in 2002 and describe legislative and rulemaking events leading to and including the passage of the Sarbanes-Oxley Act. Between December 2001 and April 2002, the Senate Committee on Banking, Housing, and Urban Affairs and the House Committee on Financial Services held several hearings regarding Enron and other investor protection and accounting concerns (Chhaochharia and Grinstein, 2007). These hearings and a backdrop of financial scandals (Adelphia, Enron, Global Crossing, Tyco, WorldCom, and Xerox) led to the eventual passage of SOX. Investors pressured their representatives for action and within a few months, the Sarbanes-Oxley Act swiftly passed on July 30, 2002. The events described below could have increased or decreased the chance of SOX passing into law.

Event 1 on January 17, 2002: On January 17, the SEC Chairman Harvey Pitt announced an accounting overhaul plan to create an independent regulatory organization.

Event 2 on February 13, 2002: On February 13, Republican Representative Michael Oxley's reform bill was introduced in the House, which was then introduced to the House Committee on Financial Services as H.R. 3763. At this time, the SEC asked the NYSE and NASDAQ to review their corporate governance requirements.

Event 3 on April 24, 2002: On April 24, the House passed Oxley's bill to enhance corporate and auditing accountability, responsibility, and transparency (Chhaochharia and Grinstein, 2005).

¹⁶ See event date windows in Appendix Table 2 and Table 3

Event 4 on May 8, 2002: Senator Paul Sarbanes circulated his reform bill in the Senate Banking Committee on May 8.

Event 5 on June 11 and 12, 2002: In June and July of 2002, events to legislate the future Sarbanes-Oxley bill began to speed up. On June 11 and 12, Democrats in the Senate Banking Committee united behind Sarbanes' bill, the Senate Banking Committee issued a press release and planned the June 18 mark-up of the "Public Accounting Reform and Investor Protection Act of 2002" (Sarbanes' bill, S. 2673), and the SEC proposed rules to require executives to certify financial reports.

Event 6 on June 18, 2002: On June 18, the Senate Banking Committee met and approved the Sarbanes bill.

Event 7 on June 25 and 26, 2002: On June 25 and 26, the Sarbanes bill was introduced in the Senate, WorldCom announced improper classification of \$3.8 billion of costs as assets, the SEC filed suit against WorldCom, and NASDAQ stopped trading in WorldCom.

Event 8 on July 8 through 12, 2002: From July 8 through 12, the Senate debated the Sarbanes bill. President Bush delivered his Wall Street speech on corporate reforms on July 9, after which the passage of the Sarbanes bill seemed likely. On July 10, the Senate passed (97 to 0) Title VIII of the future SOX bill, a tough amendment to strengthen criminal penalties for white-collar crime.

Event 9 on July 15 and 16, 2002: The Senate passed the Sarbanes bill (97 to 0) on July 15. At the time, SEC Chairman Pitt called S. 2673 "meaningful and effective oversight of accounting regulation".¹⁷ On July 16, H.R. 5118, the Corporate Fraud Responsibility Act, to strengthen criminal penalties, was introduced and passed in the House. Also on July 16, President Bush

¹⁷ Public Statement by SEC Chairman: Remarks at the 29th Annual Securities Regulation Institute. *U.S. Securities and Exchange Commission*. January 23, 2002. <http://www.sec.gov/news/speech/spch536.htm>.

made an announcement that he wanted the new bill out before August break, hastening the legislation process of SOX further.

Event 10 on July 19 and 20, 2002: The House and Senate formed a conference committee and, on July 19, began discussion of merging the bills. On July 20, President Bush pushed for a speedup in rulemaking during a radio address.

Event 11 on July 24 and 25, 2002: By July 24, the conference report was filed. The report passed the next day in the House (423 to 3) and in the Senate (99 to 0). It was speculated that President Bush would sign the bill.

Event 12 on July 30, 2002: President Bush signed the bill into law on July 30, 2002.

I. Post-SOX events (variable: DEi)

The following is a review of the two events in Appendix Table 3. On these two events, the SEC extended the compliance of small firms (with market capitalization less than \$75 million) with Section 404 of SOX. These two events are critically important because the extension of Section 404 compliance for small firms may be highly valued by investors of small firms as well as investors of entrepreneurial firms. Due to this, small and entrepreneurial firms may have experienced positive stock returns on upon the announcement of compliance extensions.

Event 13 on September 21, 2005: On September 21, 2005, the SEC postponed the compliance date for small firms until their first fiscal years ending on or after July 15, 2007. This provided an additional year of non-compliance for small firms.

Event 14 on December 15, 2006: On December 15, 2006, the SEC again postponed the compliance date for small firms, moving it from their first fiscal years ending on or after July 15,

2007 to their first fiscal years ending on or after December 15, 2007. This provided an additional five months of non-compliance for small firms.

J. Independent Variables

1. Firm Size (variables: marketcap, smallfirms, sizequartile1)

It is important to test the effect of SOX rulemaking announcements on firm size because I hypothesize that smaller firms' stock returns will be affected differently than larger firms'. I measure firm size in two different ways. The first is based on the SEC definition of a small firm as being one with a market capitalization smaller than \$75 million. I created a dummy variable called *smallfirms* that equals one when the market capitalization of a firm in the sample is less than \$75 million. The second way is by using size as a continuous variable; that is, simply using market capitalization as a measure of firm size and observing the reaction of stock prices in a positive or negative relation to market capitalization. I created a continuous variable called *marketcap*. Thirdly, I created a dummy variable called *sizequartile1* to test the effect of the smallest firms in the sample on stock price. The dummy variable equals one when a firm's market capitalization is within the first quartile of the sample market's market capitalization (\$44.09 million). The information on market capitalization was collected from the COMPUSTAT database. According to COMPUSTAT, the definition of the variable is the total market value, by each company's fiscal year. Market capitalization is measured in millions of dollars.¹⁸

¹⁸ Variable Descriptions, *COMPUSTAT*. <http://wrds.wharton.upenn.edu/ds/crsp/dstk/dsf/>

2. Entrepreneurship

It is important to test the effect of SOX rulemaking announcements on entrepreneurship because I hypothesize that entrepreneurial firms' stock returns will be affected differently than less entrepreneurial firms', implying that SOX was seen as affecting entrepreneurial firms differently than less entrepreneurial firms. It is very difficult, as discussed earlier, to define entrepreneurship so I have created several proxy variables to measure entrepreneurship. These variables include fast-growth measured in percent change in sales and industry.

i. Annual Percent Change in Sales (variable: $fastgrowing_i$)

It is important to test the effect of SOX rulemaking announcements on percent change in sales because I hypothesize that fast-growing firms' stock returns will be affected differently by SOX than slow-growing firms'. An annual percent change in sales variable was generated for each company, using annual sales data from the years of the event dates and the single years prior. For example, percent change in sales for companies in 2002 was created by calculating each company's percent change in sales between 2001 and 2002 using data of sales from COMPUSTAT. According to COMPUSTAT, "*sales* is the annual sales for a particular company in millions of dollars. The value for sales was taken from the company's income statement. Sales includes: any revenue source that is expected to continue for the life of the company, other operating revenue, installment sales, and franchise sales, when corresponding expenses are available".¹⁸ Fast-growing firms are those with percent change in sales greater than the mean for all companies' percent change in sales for the year of the events examined. There is thus a fast-growth variable from percent change in sales for 2002 (called *fastgrowing02*), 2005 (called *fastgrowing05*), and 2006 (called *fastgrowing06*). These three variables are dummy variables that equal one when a company's percent change in sales for a year is greater than the mean of

the sample market's annual percent change in sales. The sample market's mean annual percent change in sales is 12.28% (2002), 20.22% (2005), and 21.52% (2006). The purpose of generating percent change in sales is to create a proxy for growth rates of firms.

ii. Industry (variable: ESIC)

It is important to test the effect of SOX rulemaking announcements on firms in entrepreneurial industries because I hypothesize that entrepreneurial firms' stock returns will be affected differently than less-entrepreneurial firms' stock returns, implying that SOX was seen as affecting entrepreneurial firms differently than less-entrepreneurial firms. A four-digit Standard Industrial Classification (SIC) code for each firm is used to control for industry. The information on industrial classification was collected from the COMPUSTAT database. According to COMPUSTAT, "SIC contains the code that identifies the line of business best representative of the company as a whole. It consists of a four-digit numeric code. The Standard Industrial Classification Manual contains descriptions of categories recognized by the US Government. SIC code is an integer between 100 and 9999. The first two digits refer to a major group. The first three digits refer to an industry group. All four digits indicate an industry".¹⁸ In the sample, there are 306 unique SIC codes.

I chose 869 SIC codes as "entrepreneurial" industries and 68 of them are present in the sample. The 68 SIC codes of "entrepreneurial" industries are used to create a dummy variable called *ESIC* that equals one for any of the "entrepreneurial" industries. The percentage of entrepreneurial industries to all industries in the sample is 22.22 percent, yet the percentage of firms in entrepreneurial industries to firms in non-entrepreneurial industries 32.64 percent. Such entrepreneurial industries include biotechnology, high technology, and chemical engineering, all of which often necessitate entrepreneurial activity for competition and success. Industry is

important to my analysis since I believe firms of differing levels of entrepreneurship are affected differently by SOX. See Appendix Table 4 for list of entrepreneurial industries coded.

Table 5.

SUMMARY STATISTICS

VARIABLES	Description	Mean	Std. Dev	Min	Max	Obs
<i>ticker</i>	Ticker is the unique identifier for a company	-	-	-	-	2776
<i>retx</i>	Daily stock returns without dividends	-0.0025473	0.0459584	-0.6019635	0.8085105	2776 (2002)
		-0.0052326	0.0243832	-0.2287409	0.1785715	2776 (2005)
		0.0010879	0.0182131	-0.1316456	0.2127659	2775 (2006)
<i>DEi</i>	Dummy variable for each event 'i' with window (-1,0). 'i' begins with event 1 and goes to event 14. There is also a DE2002 variable representing a dummy That -1 for all events 'i' in 2002.	-	-	0	1	33 (2002)
		-	-	-	-	2 (2005)
		-	-	-	-	2 (2006)
<i>marketcap</i>	Market capitalization (size of companies in millions)	1689.347	6584.207	0.2406	96326.57	2180 (2002)
		3265.674	10948.31	3.4739	138386.7	2256 (2005)
		3717.607	12256.97	2.038	167199.3	2291 (2006)
<i>smallfirms</i>	Dummy variable for the SEC definition of small firms. Variable =1 when market capitalization is less than \$75 million.	0.1922669	0.3940853	0	1	217 (2002)
		0.0800781	0.2714436	0	1	96 (2005)
		0.0610842	0.2395153	0	1	82 (2006)
<i>sale</i>	Annual sales on Income Statement in millions	1752.703	5575.544	0	184214	2751 (2002)
		2987.18	10114.89	0	190215	2752 (2005)
		3568.314	12373.33	0	207349	2751 (2006)
<i>pcsales02</i>	Percent change in sales for 2002 <i>sale</i> 2002- <i>sale</i> 2001/ <i>sale</i> 2001	12.28182	110.7714	-100	3686.304	2776 (2002)
<i>pcsales05</i>	Percent change in sales for 2005 <i>sale</i> 2005- <i>sale</i> 2004/ <i>sale</i> 2004	20.22477	58.234	-100	1656.522	2775 (2005)
<i>pcsales06</i>	Percent change in sales for 2002 <i>sale</i> 2006- <i>sale</i> 2005/ <i>sale</i> 2005	21.52111	104.487	-100	3986.842	2774 (2006)
<i>fastgrowing02</i>	Dummy variable for fast growing firms in 2002 that =1 when the percent change in sales for 2005 is greater than the annual mean for percent change in sales of 12.28182	0.5938026	0.4911268	0	1	1133 (2002)
<i>fastgrowing05</i>	Dummy variable for fast growing firms in 2005 that =1 when the percent change in sales for 2005 is greater than the annual mean of percent change in sales of 20.22477	0.9567459	0.2034305	0	1	1460 (2005)
<i>fastgrowing06</i>	Dummy variable for fast growing firms in 2006 that =1 when the percent change in sales for 2005 is greater than the annual mean of percent change in sales of 21.52111	0.9633272	0.1879588	0	1	1458 (2006)
<i>SIC</i>	SIC codes identify the line of business best representative of the company as a whole	-	-	-	-	2776 (2002)
		-	-	-	-	2776 (2005)
		-	-	-	-	2776 (2006)
<i>ESIC</i>	Dummy variable that =1 for SIC codes that Have been chosen to represent entrepreneurial industries	-	-	0	1	869 (2002)
		-	-	0	1	869 (2005)
		-	-	0	1	869 (2006)
<i>sizequartile1</i>	Dummy variable for the smallest quartile of firms based on size. <i>Sizequartile1</i> =1 when market capitalization is less than \$44.0919 million	0.1415722	0.348614	0	1	162 (2002)
		0.044922	0.207155	0	1	54 (2005)
		0.040468	0.19708	0	1	55 (2006)

VI. RESULTS

The following discussion explains the results found from the effect of the variables examined on stock returns during the passage of SOX as well as during two dates after the passage of SOX.

Result for H1: the effect of SOX on all firms during the passage of SOX

Tables 6 through 9 present the results of the effects of SOX on all firms during the passage of SOX. I hypothesized that if investors consider SOX harmful to the overall market, then stock returns around rulemaking events, when adjusted for contemporaneous economic influences, will be negative for firms of all sizes and that the strength of investors' response to individual events will be from the legal implications on firms and the probability SOX becomes law from that event. The overall effect of SOX on all firms during the passage of SOX is indeed negative. I examine this first hypothesis through the effects of *DEi* on stock returns, holding other variables constant. More of the twelve events are associated with negative stock returns as opposed to positive stock returns, which is consistent with the first hypothesis.

Figure 1 presents the results of the effect of event dates on stock returns during the passage of SOX. Events associated with negative stock returns have at least one of three regression specifications significant at the one-percent level. The events associated with negative stock returns include events five, seven, eight, nine, ten, and eleven. These events are the following: Democrats in Senate Banking Committee uniting behind Sarbanes' bill SEC proposing rules to require executives to certify financial reports, Senate Banking Committee issuing press release for bill (event five), introduction of Sarbanes' bill in Senate, WorldCom's announcement of \$3.8 billion of improper cost classification, SEC suit against WorldCom (event

seven), Senate debating Sarbanes' bill, Bush delivering Wall Street speech, Senate passing criminal penalties amendment (event eight), Senate passing Sarbanes' bill, introduction of Corporate Fraud Responsibility Act in House, President pushing to finish bill by August break (event nine), Conference Committee negotiations to merge bills using Senate bill and President's radio address to hasten rulemaking (event ten), and House-Senate Conference Committee filing report which was then agreed to in House and Senate (event eleven).

The events associated with a positive effect on market stock returns include events two, four, six, and twelve. These events are the introduction of the Oxley bill in the House Financial Services Committee (event two), Sarbanes circulating his reform bill in the Senate Banking Committee (event four), the Senate Banking Committee passing the Sarbanes bill (event six), and the final signing of the Act by the President (event twelve). The only two events with no statistical significance were events one and three. Event one was the SEC chairman proposing an accounting overhaul plan and event three was the House Financial Services Committee approving the Oxley bill. There are a greater number of events associated with negative stock returns (six events) of the overall market compared to positive stock returns (four events).

There is some variation in the magnitude of stock return effects, indicating that investors react to these particular legislative events, and their influence on SOX's probability of passing, in the differing ways. Interestingly, event twelve, the final signing of the Act by the President, did have a large positive effect compared to other events. This might indicate investors' positive views towards passing SOX and its potential benefits to all firms. Events four (Sarbanes circulating his reform bill in the Senate Banking Committee) and six (Senate Banking Committee passing the Sarbanes bill) also show stock returns of positive larger magnitudes. The results indicate that passing SOX did in fact have an overall negative effect on the market as a

whole because of the higher number of events associated with negative stock returns. Additionally, the fact that the individual event dates had consistently statistically significant effects on stock returns (ten of twelve events), regardless of the direction of the effect, is important because it provides reassurance on the timing accuracy of key events chosen.

Table 6.

TABLE OF RESULTS FOR EVENTS 1 THROUGH 3 DURING THE PASSAGE OF SOX IN 2002

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx	(6) retx	(7) retx	(8) retx	(9) retx
<i>DE1</i>	-9.59 (118.0)	36.4 (140.0)	-1.86 (141.0)						
<i>smallfirms</i>		-46.3 (51.7)			-27.2 (51.6)			-54.2 (51.7)	
<i>DE1*smallfirms</i>		-152.0 (257.0)							
<i>marketcap</i>			0.00507 (0.00365)			0.00516 (0.00365)			0.00539 (0.00365)
<i>DE1*marketcap</i>			-0.00665 (0.0207)						
<i>DE2</i>				572.0*** (118.0)	774.0*** (141.0)	611.0*** (141.0)			
<i>DE2*smallfirms</i>					-674.0*** (258.0)				
<i>DE2*marketcap</i>						-0.00671 (0.0207)			
<i>DE3</i>							40.9 (118.0)	0.000296 (0.00141)	89.6 (141.0)
<i>DE3*smallfirms</i>								0.000410 (0.00258)	
<i>DE3*marketcap</i>									-0.0167 (0.0207)
<i>Constant</i>	-255.0*** (23.2)	-242.0*** (27.4)	-292.0*** (27.7)	-278.0*** (23.2)	-270.0*** (27.4)	-316.0*** (27.7)	-257.0*** (23.2)	-242.0*** (27.4)	-295.0*** (27.7)
Observations	37200	37200	30935	37200	37200	30935	37200	37200	30935
R-squared	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10)

Table 7.

TABLE OF RESULTS FOR EVENTS 4 THROUGH 6 DURING THE PASSAGE OF SOX IN 2002

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx	(6) retx	(7) retx	(8) retx	(9) retx
<i>DE4</i>	880.0*** (118.0)	954.0*** (141.0)	781.0*** (141.0)						
<i>smallfirms</i>		-45.5 (51.6)			-29.7 (52.2)			-29.3 (51.6)	
<i>DE4*smallfirms</i>		-246.0 (258.0)							
<i>marketcap</i>			0.00292 (0.00365)			0.00506 (0.00368)			0.00426 (0.00365)
<i>DE4*marketcap</i>			0.0663*** (0.0207)						
<i>DE5</i>				-270.0*** (97.6)	-0.00163 (0.00117)	-270.0** (116.0)			
<i>DE5*smallfirms</i>					-0.00356* (0.00213)				
<i>DE5*marketcap</i>						-0.00556 (0.017)			
<i>DE6</i>							1020.0*** (118.0)	0.0122*** (0.00141)	1090.0*** (141.0)
<i>DE6*smallfirms</i>								-0.00665** (0.00258)	
<i>DE6*marketcap</i>									0.0244 (0.0207)
<i>Constant</i>	-290.0*** (23.2)	-277.0*** (27.4)	-323.0*** (27.7)	-240.0*** (23.5)	-231.0*** (27.7)	-276.0*** (28.0)	-295.0*** (23.2)	-286.0*** (27.4)	-335.0*** (27.7)
Observations	37200	37200	30935	37200	37200	30935	37200	37200	30935
R-squared	0.001	0.002	0.002	0.000	0.000	0.000	0.002	0.002	0.002

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10)

Table 8.

TABLE OF RESULTS FOR EVENTS 7 THROUGH 9 DURING THE PASSAGE OF SOX IN 2002

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx	(6) retx	(7) retx	(8) retx	(9) retx
<i>DE7</i>	-419.0*** (97.7)	-220.0* (117.0)	-444.0*** (116.0)						
<i>smallfirms</i>		-10.6 (52.2)			-82.0 (53.3)			-49.8 (51.6)	
<i>DE7*smallfirms</i>		-662.0*** (213.0)							
<i>marketcap</i>			0.00526 (0.00368)			0.00513 (0.00374)			0.00534 (0.00365)
<i>DE7*marketcap</i>			0.0106 (0.0170)						
<i>DE8</i>				-555.0*** (77.2)	-656.0*** (92.2)	-593.0*** (92.0)			
<i>DE8*smallfirms</i>					343.0** (169.0)				
<i>DE8*marketcap</i>						-0.0062 (0.0134)			
<i>DE9</i>							-354.0*** (118.0)	-342.0** (141.0)	-334.0** (141.0)
<i>DE9*smallfirms</i>								-34.6 (259.0)	
<i>DE9*marketcap</i>									-0.0170 (0.0207)
<i>Constant</i>	-231.0*** (23.5)	-228.0*** (27.7)	-266.0*** (28.0)	-202.0*** (23.9)	-179.0*** (28.2)	-234.0*** (28.6)	-242.0*** (23.2)	-228.0*** (27.4)	-279.0*** (27.7)
Observations	37200	37200	30935	37200	37200	30935	37200	37200	30935
R-squared	0.000	0.001	0.001	0.001	0.002	0.002	0.000	0.000	0.000

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10)

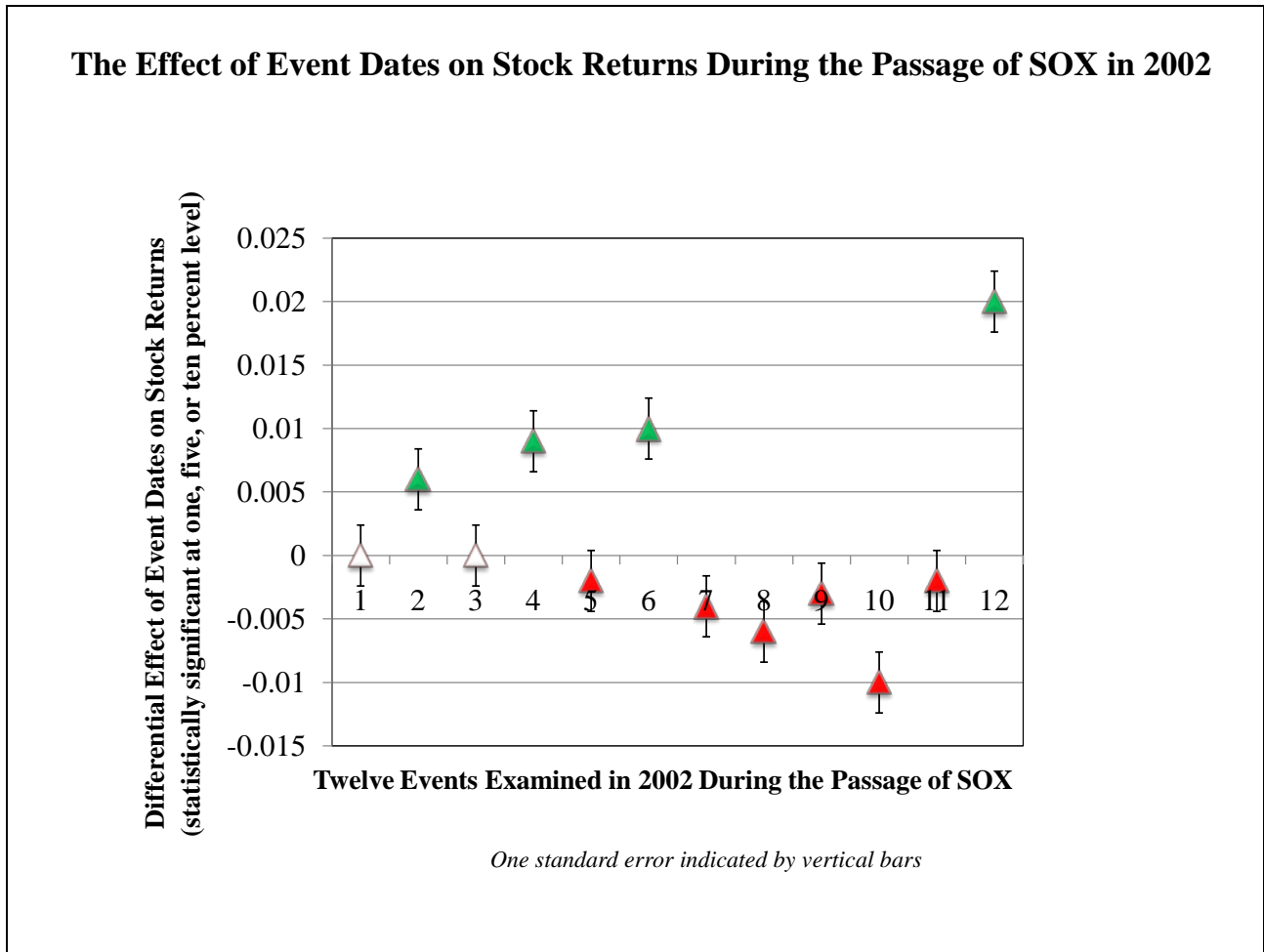
Table 9.

TABLE OF RESULTS FOR EVENTS 10 THROUGH 12 DURING THE PASSAGE OF SOX IN 2002

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx	(6) retx	(7) retx	(8) retx	(9) retx
<i>DE10</i>	-1520.0*** (118.0)	-2050.0*** (141.0)	-1610.0*** (141.0)						
<i>smallfirms</i>		-118.0** (51.5)			-18.7 (52.2)			-35.0 (51.4)	
<i>DE10*smallfirms</i>		1770.0*** (258.0)							
<i>marketcap</i>			0.00527 (0.00364)			0.00421 (0.00368)			0.00379 (0.00364)
<i>DE10*marketcap</i>			-0.0206 (0.0206)						
<i>DE11</i>				-273.0*** (97.7)	-110.0 (117.0)	-266.0** (116.0)			
<i>DE11*smallfirms</i>					-540.0** (213.0)				
<i>DE11*marketcap</i>						0.0128 (0.017)			
<i>DE12</i>							0.0213*** (0.00118)	2310.0*** (141.0)	2220.0*** (141.0)
<i>DE12*smallfirms</i>								-616.0** (257.0)	
<i>DE12*marketcap</i>									0.0447** (0.0206)
<i>Constant</i>	-197.0*** (23.2)	-164.0*** (27.3)	-229.0*** (27.7)	-240.0*** (23.5)	-234.0*** (27.7)	-277.0*** (28.0)	-337.0*** (23.1)	-327.0*** (27.3)	-379.0*** (27.6)
Observations	37200	37200	30935	37200	37200	30935	37200	37200	30935
R-squared	0.004	0.006	0.005	0.000	0.000	0.000	0.009	0.009	0.009

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10

Figure 1.



Result for H2: the effect of SOX on small firms during the passage of SOX

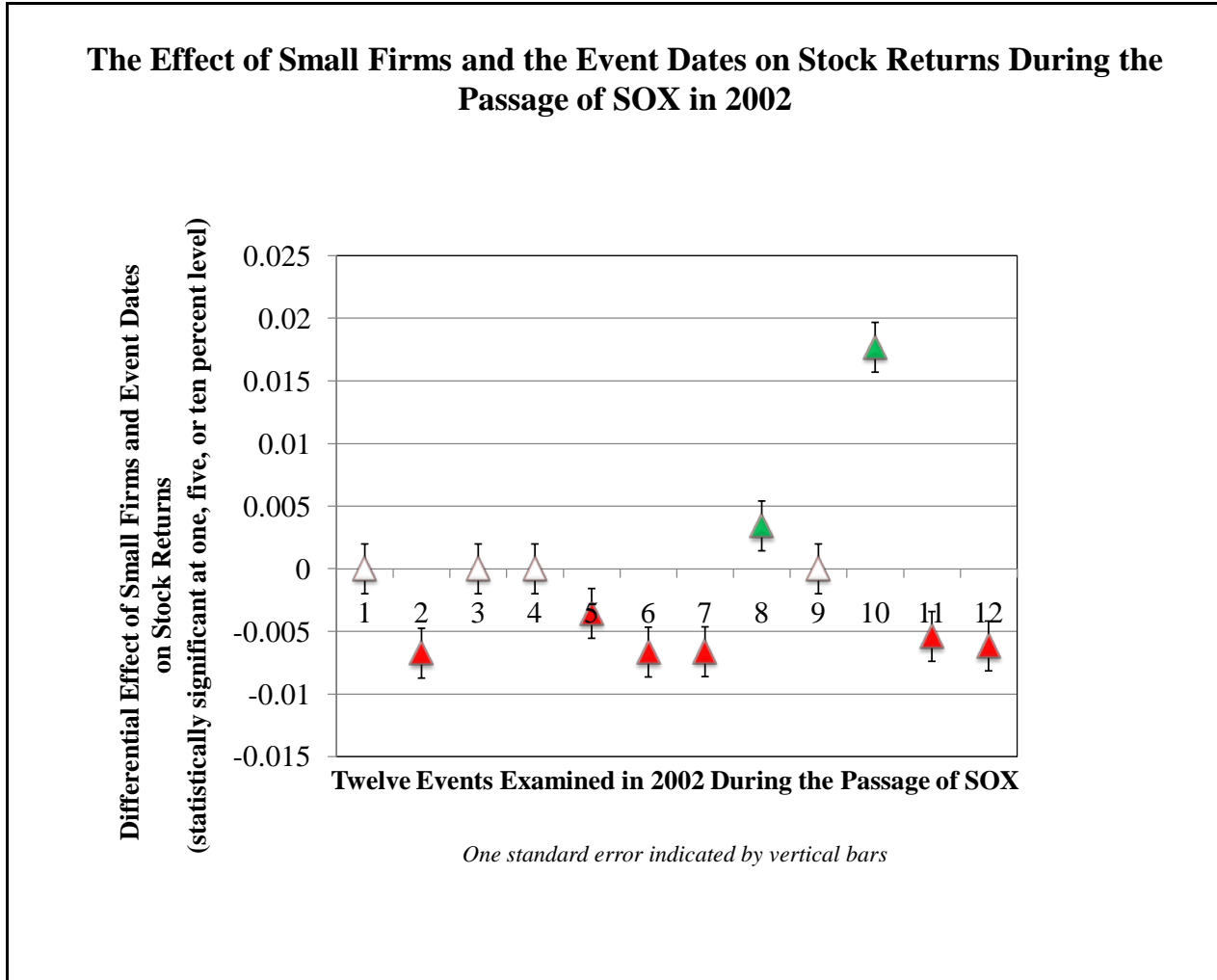
My second hypothesis is if investors consider SOX to be negative or costly for small firms, then the stock returns for small firms around rulemaking events when adjusted for contemporaneous economic influences will be negative compared to stock returns of larger firms. The effect on small firms was measured in two ways. The first was by using a dummy variable called *smallfirms*, for firms with a market capitalization less than \$75 million, the SEC definition of small firms. According to the results in Tables 6 through 9, only event ten (when the Conference Committee negotiated a merging of bills and the President called for a hastened rulemaking process in a radio address) shows a significant negative effect of the *smallfirms* variable alone on stock returns (significant at the five-percent level). There is, however, an overall significant negative effect of small firms and the event date (the interaction term $DEi*smallfirms$).

Out of the twelve pre-SOX events examined, the specifications for $DEi*smallfirms$ for six of the events, are associated with negative stock returns at the one, five, or ten-percent significance level. Figure 2 presents the results of the effect of small firms and the event dates on stock returns during the passage of SOX. The six events don't necessarily correspond with the six events which were associated with negative stock returns for the overall market; these events are mostly events in which the SOX bill was in the final stages of negotiation before passage, indicating a realization by investors of the terms of SOX and a possible negative effect on smaller firms if the bill were to pass. The events include: the introduction of the Oxley bill in the House Financial Services Committee (event two), Democrats in Senate Banking Committee uniting behind Sarbanes' bill SEC proposing rules to require executives to certify financial reports, the Senate Banking Committee issuing press release for bill (event five), the Senate

Banking Committee passing the Sarbanes bill (event six), introduction of Sarbanes' bill in Senate, WorldCom's announcement of \$3.8 billion of improper cost classification, SEC suit against WorldCom (event seven), filing of the House-Senate Conference Committee's report which was then agreed to in the House and Senate (event eleven), and the final signing of the Act by the President (event twelve). Two of the twelve events are associated with positive stock returns at the five or ten-percent significance level. These events include: the Senate passing criminal penalties amendment (event eight) and the Conference Committee negotiations to merge bills using Senate bill and President's radio address to hasten rulemaking (event ten). The overall more negative stock returns for small firms across events is consistent with my hypothesis that SOX was seen as negatively affecting smaller firms compared to larger firms during its passage.

Firm size was also measured using market capitalization as a continuous variable, *marketcap*. No significant effects were generated on stock returns from the variable *marketcap* for any of the twelve events. The interaction term *DEi*marketcap*, however, is associated with slightly positive stock returns during event four (Sarbanes circulating his reform bill in the Senate Banking Committee) and is statistically significant at the one-percent level. The interpretation of this single effect is that as firm size increases, stock returns increase, which represents a positive relationship between firm size and stock returns. The overall negative association of smaller firm size and stock returns, by examining the outcomes of the two variables and two interaction terms described in this section, is consistent with the hypothesis that SOX was seen as more negatively affecting small firms when compared to larger firms during its passage.

Figure 2.



Result for H3: the effect of SOX on entrepreneurial firms during the passage of SOX

Because SOX increases the litigation risks on management, some research proposes that SOX decreases the risk-taking of management thereby decreasing entrepreneurial activity (Ribstein, 2002; Wallison, 2003). If investors consider SOX negative or costly for entrepreneurial firms, then the stock returns for entrepreneurial firms around rulemaking events, when adjusted for contemporaneous economic influences, will be negative. Using a single combined event (*DE2002*) for all twelve events in 2002, I examine the effect of SOX on entrepreneurial firms during the passage of SOX in Table 11. The variable *ESIC*, a dummy variable that equals one for entrepreneurial industries, is associated with negative stock returns for three out of three regression specifications at the one-percent level. This indicates that firms in more entrepreneurial industries were seen by investors as negatively affected by the passage of SOX, which is in accordance with my third hypothesis. Figure 3 presents the results of the effect of entrepreneurial industries on stock returns during the passage of SOX. For one of these three regression specifications, the variable *DE2002*ESIC* is associated with positive stock returns and is significant at the five-percent level. The variable for fast-growth in sales of firms in 2002 is also associated with positive stock returns for three out of three regression specifications, at the one, five, and ten-percent significance levels. Overall, firms in more entrepreneurial industries were seen as more negatively affected than firms in less entrepreneurial industries during the passage of SOX. Additionally, firms experiencing fast-growth in sales were seen as positively affected during the passage of SOX.

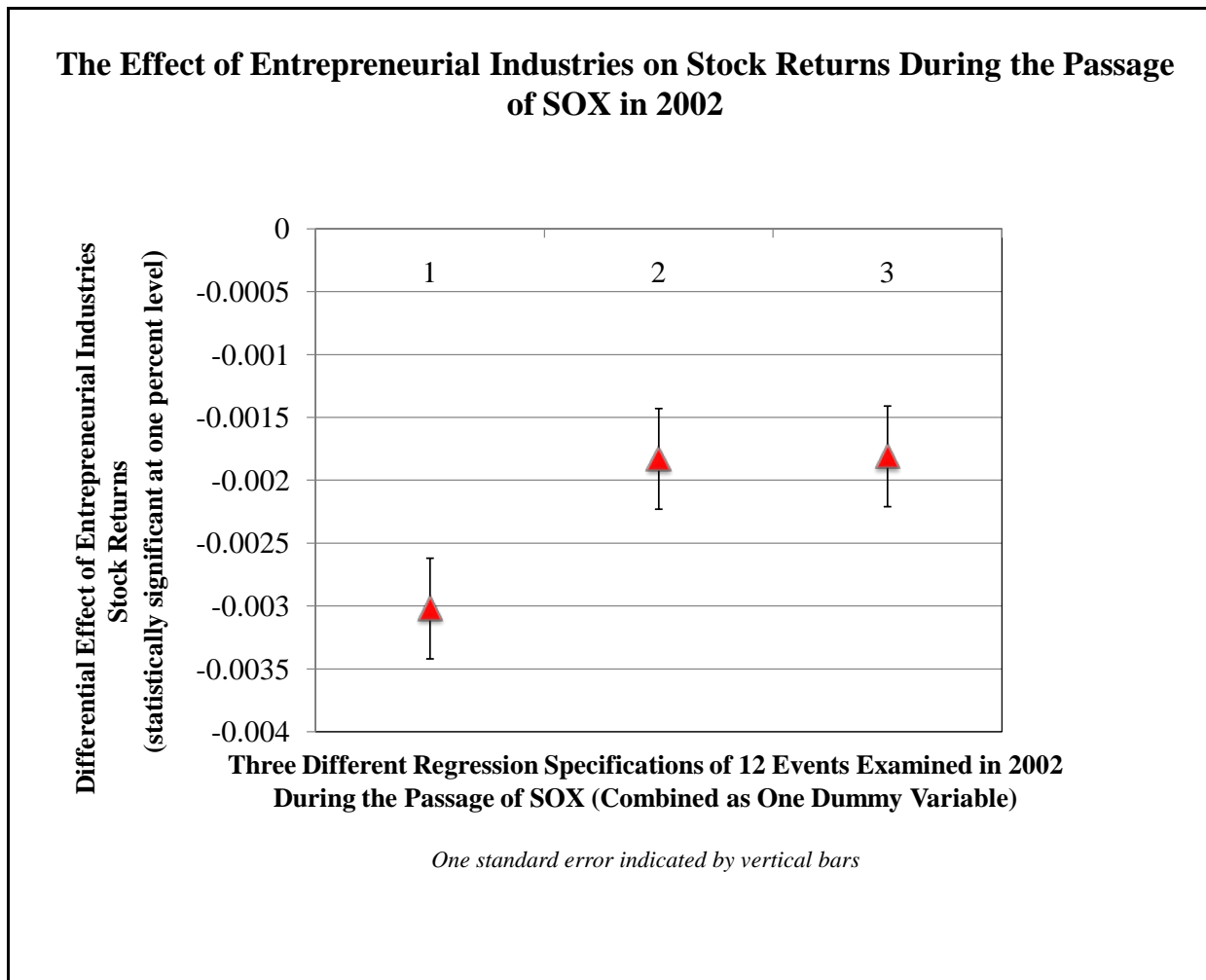
Table 11.

TABLE OF RESULTS FOR ALL EVENTS DURING THE PASSAGE OF SOX IN 2002

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx
<i>DE2002</i>	6.97 (46.1)	-54.8 (55.2)	31.4 (63.6)	28.6 (46.8)	29.2 (46.8)
<i>ESIC</i>		-302.0*** (76.5)		-183.0*** (49.6)	-181.0*** (49.8)
<i>DE2002*ESIC</i>		207.0** (100.0)			
<i>fastgrowing02</i>			126.0* (70.4)	123.0*** (47.3)	133.0** (51.9)
<i>DE2002*fastgrowing02</i>			-8.47 (94.0)		
<i>Q1</i>				-5.83 (57.1)	12.1 (68.3)
<i>fastgrowing02*sizequartile1</i>					-59.6 (124.0)
<i>Constant</i>	-259.0*** (35.1)	-169.0*** (42.0)	-327.0*** (51.4)	-269.0*** (47.6)	-274.0*** (49.0)
Observations	37200	37200	37200	37200	37200
R-squared	0.000	0.000	0.000	0.001	0.001

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10)

Figure 3.



Result for H4: the effect of the SEC compliance extension on small firms in 2005 and 2006

If investors consider deferment of SOX compliance beneficial news for small firms, then the stock returns for small firms around rulemaking events, when adjusted for contemporaneous economic influences, will be positive compared to all firms. This effect is only the impact of compliance deferment because enforcement of Section 404 will occur in the future beyond the announcement. Effects on small firms, again, was measured in two ways. The first was by using a dummy variable for firms with a market capitalization less than \$75 million, the SEC definition of a small firm (*smallfirms*). The second was using market capitalization as a continuous variable (*marketcap*).

According to the results in Table 10, the SEC compliance extension event date in 2005 is associated with negative stock returns, statistically significant in three of three regression specifications at the one-percent significance level. The only other variable with statistical significance (at the five-percent level) is *DE13*smallfirms*, the interaction of the 2005 event with small firms of market capitalization less than \$75 million. The variable *DE13*smallfirms* is associated with a positive effect on stock returns. This is in accordance with my third hypothesis; while there is a negative effect of the compliance extension on the market overall, small firms on this event date are associated with positive stock returns. In other words, investors thought that the compliance extension announcement by the SEC on September 21, 2005 was substantially beneficial to small firms. Figure 4 presents the results of the effect of small firms and the event dates on stock returns during the two SEC compliance extensions.

According to the results in Table 10, the SEC compliance extension event date in 2006 is associated with positive stock returns, statistically significant in three of three regression specifications at the one-percent significance level. This may be due to investors viewing the

second compliance extension as beneficial to the market since it is the last extension granted after which all firms will be in compliance with Section 404. There are no other variables with any statistically significant effect on stock returns. Perhaps small firms were not seen by investors as benefitting from this second compliance extension announcement as much as they did from the first because it was only an extension of six months, after which the small firms (using SEC's definition) were expected to comply with Section 404. In other words, investors thought that the compliance extension announcement of the SEC on September 21, 2005 benefitted smaller firms, while the compliance extension announcement on December 15, 2006 did not necessarily benefit smaller firms.

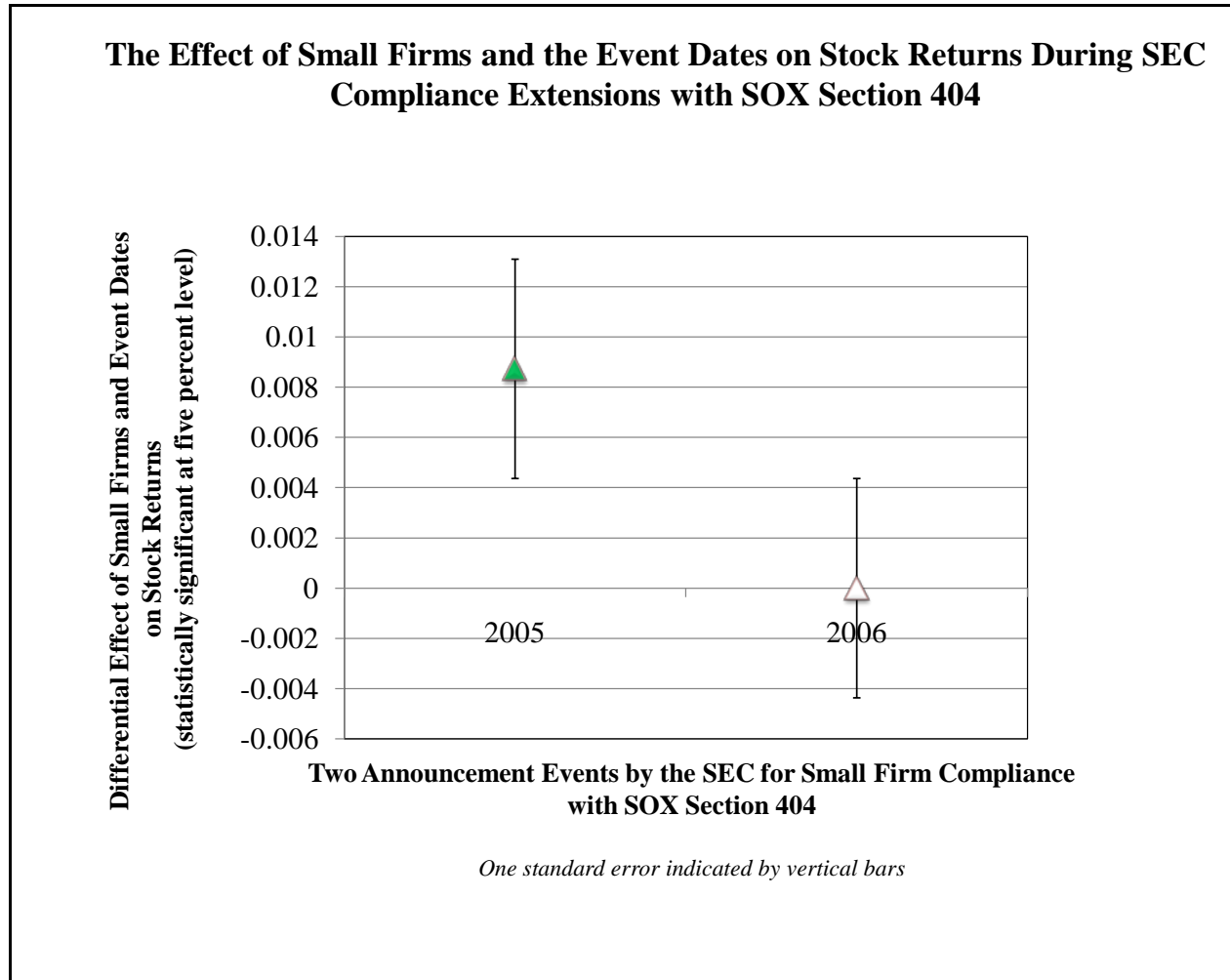
Table 10.

**TABLE OF RESULTS FOR TWO COMPLIANCE EXTENSION ANNOUNCEMENT
EVENTS (2005 & 2006) AFTER THE PASSAGE OF SOX**

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx	(6) retx
<i>DE13</i>	-563.0*** (128.0)	-704.0*** (139.0)	-645.0*** (154.0)			
<i>smallfirms</i>		-82.7 (51.2)			-41.1 (51.2)	
<i>DE13*smallfirms</i>		873.0** (357.0)				
<i>marketcap</i>			0.00606 (0.00374)			0.00444 (0.00376)
<i>DE13*marketcap</i>			-0.00844 (0.0137)			
<i>DE14</i>				409.0*** (132.0)	421.0*** (142.0)	438.0*** (160.0)
<i>DE14*smallfirms</i>					-129.0 (380.0)	
<i>DE14*marketcap</i>						-0.000396 (0.0128)
<i>Constant</i>	-237.0*** (23.2)	-213.0*** (27.4)	-272.0*** (27.6)	-268.0*** (23.1)	-256.0*** (27.4)	-304.0*** (27.6)
Observations	37200	37200	30935	37200	37200	30935
R-squared	0.001	0.001	0.001	0.000	0.000	0.000

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10)

Figure 4.



Result for H5: the effect of the SEC compliance extension on entrepreneurial firms in 2005 and 2006

If investors consider deferment of SOX compliance beneficial news for entrepreneurial firms, then stock returns for entrepreneurial firms around rulemaking events, when adjusted for contemporaneous economic influences, will be positive compared to all firms. Again, this effect is only the impact of compliance deferment because enforcement of Section 404 will occur in the future beyond the announcement. According to results in Table 12, the SEC compliance extension event date in 2005 is associated with negative stock returns, statistically significant in five of five regression specifications at the one or five-percent significance levels. The only other variables with statistical significance is the variable for firms in comparatively entrepreneurial industries (*ESIC*) and the interaction term for the smallest quintile (by market capitalization in millions of dollars) of firms with fast growth in sales in 2005 (*fastgrowing05*sizequartile1*). The variable *ESIC* is associated with negative stock returns at the one-percent significance level in three out of three regression specifications. The interaction term *fastgrowing05*sizequartile1* is associated with negative stock returns at the ten-percent significance level in its only specified regression. While I hypothesized that firms in more entrepreneurial industries, as well as smaller firms experiencing fast growth in sales, would be associated with positive stock returns, evidence for the opposite is true. In other words, investors viewed the compliance extension announcement of the SEC on September 21, 2005 as not differentially benefiting firms in entrepreneurial industries or fast growing, smaller firms.

According to results reported in Table 13, the SEC compliance extension event date in 2006 is associated with positive stock returns, statistically significant in four of five regression specifications at the one or ten-percent significance levels. The only other variable showing

statistical significance is the variable for firms in comparatively entrepreneurial industries (*ESIC*) and the variable for firms with fast growth in sales in 2006 (*fastgrowing06*). The variable *ESIC* is associated with negative stock returns at the one-percent significance level in three out of three regression specifications. The variable *fastgrowing06* is associated with negative stock returns at the ten-percent significance level in one of three regression specifications. While I hypothesized that firms in more entrepreneurial industries, as well as firms experiencing fast growth in sales, would be associated with positive stock returns, evidence for the opposite is true. In other words, investors seemed to think that the compliance extension announcement of the SEC on December 15, 2006 did not differentially benefit firms in entrepreneurial industries or fast growing firms. This negative effect is opposite to how the market viewed the event overall, as the event was associated with statistically significant and positive stock returns. The results of Table 13, therefore do not provide sufficient evidence in favor of my fifth hypothesis.

Table 12.

**TABLE OF RESULTS FOR 2005 COMPLIANCE EXTENSION ANNOUNCEMENT
EVENT AFTER THE PASSAGE OF SOX**

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx
<i>DE13</i>	-563.0*** (128.0)	-558.0*** (152.0)	-588.0** (235.0)	-487.0*** (150.0)	-488.0*** (150.0)
<i>ESIC</i>		-182.0*** (50.4)		-179.0*** (49.6)	-179.0*** (49.6)
<i>DE13ESIC</i>		-22.7 (280.0)			
<i>fastgrowing05</i>			101.0 (168.0)	150.0 (140.0)	225.0 (147.0)
<i>DE13* fastgrowing05</i>			191.0 (305.0)		
<i>Q1</i>				-45.5 (56.3)	558.0 (361.0)
<i>fastgrowing06*sizequartile1</i>					-618.0* (366.0)
<i>Constant</i>	-237.0*** (23.2)	-182.0*** (27.7)	-336.0** (166.0)	-321.0** (141.0)	-392.0*** (147.0)
Observations	37200	37200	37200	37200	37200
R-squared	0.001	0.001	0.001	0.001	0.001

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10)

Table 13.

**TABLE OF RESULTS FOR 2006 COMPLIANCE EXTENSION ANNOUNCEMENT
EVENT AFTER THE PASSAGE OF SOX**

VARIABLES	(1) retx	(2) retx	(3) retx	(4) retx	(5) retx
<i>DE14</i>	409.0*** (132.0)	300.0* (155.0)	-22.1 (290.0)	276.0* (168.0)	277.0* (168.0)
<i>ESIC</i>		-192.0*** (50.3)		-180.0*** (49.6)	-180.0*** (49.6)
<i>DE14ESIC</i>		373.0 (292.0)			
<i>fastgrowing06</i>			-415.0* (238.0)	-215.0 (177.0)	-235.0 (185.0)
<i>DE14* fastgrowing06</i>			465.0 (355.0)		
<i>sizequartile1</i>				-21.4 (56.3)	-174.0 (409.0)
<i>fastgrowing06*sizequartile1</i>					156.0 (413.0)
<i>Constant</i>	-268.0*** (23.1)	-210.0*** (27.7)	143.0 (237.0)	4.20 (178.0)	23.5 (185.0)
Observations	37200	37200	37200	37200	37200
R-squared	0.000	0.001	0.000	0.001	0.001

Values of all variables in this table have been multiplied by 10,000
Standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.10)

VII. CONCLUSIONS AND FUTURE RESEARCH

This research has investigated the effect of the Sarbanes-Oxley Act on small firms and entrepreneurship by examining stock returns during the passage of the Act as well as during two events after its passage. Although the goals of SOX were to strengthen corporate governance and create more transparent financial reporting, it also imposes high compliance costs that may particularly affect small and entrepreneurial firms. I find that the legislative events around the passage of SOX are associated with an overall negative effect on the market. I also find that this negative effect increases as firm size decreases. There are four events associated with positive stock returns during the passage of SOX as well, perhaps indicating that investors preferred the government regulation amidst the corporate scandals of the time. SOX may have been simultaneously seen as too costly or excessive and yet necessary given the current environment, accounting for some events during the passage of SOX to be associated with positive returns. Still, small and entrepreneurial firms show evidence of being negatively affected during the passage of SOX.

The event dates in 2005 and 2006 that tested the value of an extension for compliance with Section 404 of SOX to small and entrepreneurial firms, produced some results according to the hypotheses as well. I hypothesized that smaller firms would have more positive stock returns, because investors value the additional time small firms were granted without having to expend high costs for compliance with SOX's Section 404. There was a statistically significant benefit to smaller firms from the 2005 compliance extension. There was not the same benefit for smaller firms in 2006, perhaps because the second extension was less valued after the first extension or because it only provided an extension of half a year of compliance deferment. The compliance extension announcement events in 2005 and 2006 were associated with statistically significant

negative stock returns for firms in comparatively entrepreneurial industries, fast-growing firms, and fast-growing, small firms in comparison to the overall market. The results for the 2006 event were similar, showing negative stock returns for these firms with statistical significance.

There remains substantial room for research to further explore the effects of SOX on various aspects of the market. As this is the first attempt to examine the effects of SOX through post-SOX compliance extension dates after the Act's passage, research can continue to explore the effect of SOX and Section 404 using this method. Furthermore, this is the first attempt to examine the effects of SOX on entrepreneurship, so there is much room to further examine its effects on entrepreneurship, a critically important aspect of the American and global economy.

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APPENDIX

Pages 61-65

Table 1.

MAJOR PROVISIONS OF THE 2002 SARBANES-OXLEY ACT (from Small et al.)

Title	
I.	Public Company Accounting Oversight Board (Sections 101-109)
II.	Auditor Independence (Sections 201-209)
	Section 201 Prohibits auditor from providing certain non-audit-related services
	Section 203 Requires rotation of the senior audit officials
	Section 204 Requires the firm's auditor to communicate with the audit committee
	Section 206 Addresses conflicts of interest that may arise if management were employed by the auditor
III.	Corporate Responsibility (Sections 301-308)
	Section 301 Requires audit committee members be independent board members
	Section 302 Requires CEO/CFO certification of the firm's financial statements
	Section 303 Addresses improper influence of audits
IV.	Enhanced Financial Disclosures (Sections 401-409)
	Section 401 Requires periodic reports including off-balance sheet transaction
	Section 403 Requires disclosure of transactions involving management and principal stockholders
	Section 404 Addresses management's assessment of internal controls
	Section 407 Requires audit committee contain one financial expert
V.	Analyst Conflicts of Interest (Section 501)
VI.	Commission Resources and Authority (Sections 601-604)
VII.	Studies and Reports (Sections 701-705)
VIII.	Corporate and Criminal Fraud Accountability (Sections 801-807)
	Section 802 Imposes criminal penalties for altering documents
	Section 803 Makes debts non-dischargeable if incurred in violation of Securities fraud laws
	Section 806 Provides protection for employees of publicly traded companies who provide evidence of fraud
	Section 807 Provides criminal penalties for defrauding shareholders of publicly traded companies
IX.	White-Collar Crime Penalty Enhancements (Sections 901-906)
	Section 906 Imposes corporate responsibility for financial reports
X.	Corporate Tax Returns (Section 1001)
XI.	Corporate Fraud and Accountability (Section 1101-1107)
	Section 1102 Covers tampering with a record or otherwise impeding an official proceeding
	Section 1106 Increases criminal penalties under the Securities and Exchange Act of 1934
	Section 1107 Addresses retaliation against informants

Table 2.

DESCRIPTION OF EVENTS THAT TOOK PLACE DURING THE PASSAGE OF SOX

EVENT NUMBER	AUTHOR(S) THAT USED EVENT ON SAME DATE	DESCRIPTION OF EVENT	EVENT DATE	EVENT WINDOW (0)	EVENT WINDOW (-1,0)
1	Wintoki, Zhang, Litvak	•SEC chairman proposes an accounting overhaul plan	1/17/2002	1/17/2002	1/16/2002 - 1/17/2002
2	Chhaochharia and Grinstein, Wintoki, Zhang, Litvak, Jain and Rezaee	•SEC asks NYSE and NASDAQ to review their corporate governance requirements •Oxley introduced an accounting reform bill, H.R.3763 in the House Financial Services Committee	2/13/2002	02/13/2002	02/11/2002 - 02/14/2002
3	Litvak, Wintoki, Chhaochharia and Grinstein, Zhang	•House Financial Services Committee approves Oxley bill (H.R.3763), Committee report issued on H.R.3763, House considers and passes H.R.3763 to enhance corporate and auditing accountability, responsibility, and transparency	4/24/2002	4/24/2002	04/23/2002 - 04/24/2002
4	Wintoki, Zhang	•Sarbanes circulated his reform bill in the Senate Banking Committee	05/08/2002	05/08/2002	05/07/2002 - 05/08/2002
5	Zhang, Litvak	•Democrats in Senate Banking Committee united behind Sarbanes' bill (A) •SEC proposed rules to require executives to certify financial reports (B) •Senate Banking Committee issues press release and plans a June 18 mark-up of "Public Company Accounting Reform and Investor Protection Act of 2002" (S.2673) (B)	06/11/2002 (A) 06/12/2002 (B)	06/11/2002 - 06/12/2002	06/10/2002 - 06/12/2002
6	Litvak, Zhang, Jain and Rezaee	•Senate Banking Committee passes the Sarbanes bill (S.2673)	06/18/2002	06/18/2002	06/18/2002 - 06/19/2002
7	Jain and Rezaee, Zhang, Chhaochharia and Grinstein, Li, et al., Litvak	•Introduction of the Sarbanes bill (S.2673) in the Senate (A) •WorldCom announces improper classification of \$3.8 billion of costs as assets (A) •SEC files suit against WorldCom and NASDAQ halts trading in WorldCom (B)	06/25/2002 (A) 06/26/2002 (B)	06/25/2002 - 06/26/2002	06/24/2002 - 06/26/2002
8	Zhang, Li et al., Jain and Rezaee, Litvak	•Senate debates the Sarbanes bill (S.2673) (A) •Bush delivers Wall Street speech on corporate reforms and passage of the Sarbanes bill seems likely (B) •Senate passes a tough amendment (97 to 0) to strengthen criminal penalties (C)	07/08/2002-07/12/2002 (A) 07/9/2002 (B) 07/10/2002 (C)	07/08/2002 - 07/12/2002	07/07/2002 - 07/12/2002

9	Chhaochharia and Grinstein, Wintoki, Jain and Rezaee, Li et al.,	•The Senate passes the bill of Senator Sarbanes (S.2673) 97 to 0 to enhance auditing related procedures, corporate responsibility, and financial disclosure. (A)	07/15/2002 (A)	07/15/2002 - 07/16/2002	07/14/2002 - 07/16/2002
	Zhang, Litvak	•Introduction and passage of the Corporate Fraud Responsibility Act in the House (H.R.5118) to strengthen criminal penalties (B) •Bush reportedly wants bill before August break (B)	07/16/2002 (B)		
10	Zhang, Jain and Rezaee	•Conference Committee start negotiations to merge bills, with the Senate bill as the framework (A)	07/19/2002 (A)	07/19/2002 - 07/20/2002	07/18/2002 - 07/20/2002
		•Bush pushes to speedup rulemaking in a radio address (B)	07/20/2002 (B)		
11	Chhaochharia and Grinstein,	•House-Senate Conference Committee's report filed (A)	07/24/2002 (A)	07/24/2002 - 07/25/2002	07/23/2002 - 07/25/2002
	Wintoki, Jain and Rezaee,	•Conference Report agreed to in the House (423 to 3) (B)	07/25/2002 (B)		
	Li et al., Litvak, Zhang	•Conference report agreed to in the Senate (99 to 0) (B)			
12	Li et al., Litvak Jain and Rezaee, Chhaochharia and Grinstein	•President Bush signs Sarbanes-Oxley bill into law	07/30/2002	07/30/2002	07/29/2002 - 07/30/2002

Table 3.

DESCRIPTION OF EVENTS THAT TOOK PLACE AFTER THE PASSAGE OF SOX

EVENT NUMBER	AUTHOR(S) THAT USED EVENT ON SAME DATE	DESCRIPTION OF EVENT	EVENT DATE	EVENT WINDOW (0)	EVENT WINDOW (-1,0)
13	N/A	•SEC postpones small firm (market capitalization <\$75 million) compliance with SOX Section 404 internal control requirements until fiscal years ending on or after July 15, 2007	9/21/2005	9/21/2005	09/20/2005 - 09/21/2005
14	N/A	•SEC postpones small firm (market capitalization <\$75 million) compliance with SOX Section 404 internal control requirements until fiscal years ending on or after December 15, 2007	12/15/2006	12/15/2006	12/14/2006 - 12/15/2006

Table 4.

ENTREPRENEURIAL INDUSTRY CODES

0721 Crop Plntng,Cultvtng,Protect, 0722 Crop Harvesting-By Machine, 0722 Crop Prep Svcs,Ex Cotton Gin, 1730 Electrical Work, 1731 Electrical Work, 2800 Chemicals and Allied Products, 2810 Indl Inorganic Chemicals, 2812 Alkalies and Chlorine, 2813 Industrial Gases, 2816 Inorganic Pigments, 2819 Indl Inorganic Chemicals,Nec, 2820 Plastic,Synth Matls;Ex Glass, 2821 Plastics,Resins,Elastomers, 2822 Synthetic Rubber, 2823 Cellulosic Man-Made Fibers, 2824 Mnmd Org Fiber,Ex Cellulosic, 2830 Drugs, 2833 Medicinal Chems,Botanicl Pds, 2834 Pharmaceutical Preparations, 2835 In Vitro,In Vivo Diagnostics, 2836 Biological Pds, Ex Diagnostics, 2869 Indl Organic Chemicals, Nec, 2870 Agricultural Chemicals, 2879 Pesticides, Agric Chems, Nec, 2890 Misc Chemical Products, 2891 Adhesives and Sealants, 2892 Explosives, 2899 Chemicals and Chem Preps, Nec, 2900 Pete Refining and Related Inds, 3510 Engines and Turbines, 3568 Mech Power Transmissn Eq,Nec, 3569 General Indl Mach and Eq, Nec, 3570 Computer and Office Equipment, 3571 Electronic Computers, 3572 Computer Storage Devices, 3575 Computer Terminals, 3576 Computer Communications Equip, 3577 Computer Peripheral Eq, Nec, 3578 Calculate, Acct Mach, Ex Comp, 3579 Office Machines, Nec,3663 Radio, TV Broadcast, Comm Eq, 3669 Communications Equip, Nec, 3670 Electronic Comp, Accessories, 3671 Electron Tubes, 3672 Printed Circuit Boards, 3674 Semiconductor,Related Device, 3675 Electronic Capacitorsm, 3676 Electronic Resistors, 3677 Electr Coil,Transfrm,Inductr, 3678 Electronic Connectors, 3679 Electronic Components, Nec, 3690 Misc Elec Machy,Eq,Supplies, 3691 Storage Batteries, 3692 Primary Batteries, Dry and Wet, 3694 Elec Eq-Internl Combust Engr, 3695 Magnetc,Optic Recordng Media, 3699 Electrical Machy, Equip, Nec, 3700 Transportation Equipment, 3710 Motor Vehicles, Motor Veh Eq, 3720 Aircraft and Parts, 3721 Aircraft, 3724 Aircraft Engine, Engine Parts, 3728 Aircraft Parts, Aux Eq, Nec, 3760 Guided Missiles and Space Vehc, 3761 Guided Missiles and Space Veh, 3764 Guid Miss,Space Veh Propulsn, 3769 Guid Miss,Space Veh Part,Nec, 3795 Synthetic Rubber, 3799 Transportation Equipment,Nec, 3800 Meas Instr;Photo Gds;Watches, 3810 Srch,Det,Nav,Guid,Aero Sys, 3812 Srch,Det,Nav,Guid,Aero Sys, 3820 Lab App,Optic,Meas,Ctl Instr, 3821 Lab Apparatus and Furniture, 3822 Automatic Regulatng Controls, 3823 Industrial Measurement Instr, 3824 Totalizing Fluid Meters, 3825 Elec Meas and Test Instruments, 3826 Lab Analytical Instruments, 3827 Optical Instruments and Lenses, 3829 Meas and Controlling Dev, Nec, 3840 Surgical, Med, Dental Instr, 3841 Surgical,Med Instr,Apparatus, 3842 Ortho,Prosth,Surg Appl,Suply, 3843 Dental Equipment and Supplies, 3844 X-Ray and Related Apparatus, 3845 Electromedical Apparatus, 3850 Ophthalmic Goods, 3851 Ophthalmic Goods, 3860 Photographic Equip and Supply, 3861 Photographic Equip and Supply, 4400 Water Transportation, 4800 Communications, 4810 Telephone Communications, 4840 Cable and Other Pay TV Svcs, 4841 Cable and Other Pay TV Svcs, 4910 Electric Services, 4911 Electric Services, 4953 Refuse Systems,4955 Hazardous Waste Management, 4959 Sanitary Services, Nec, 4960 Steam, Air-Conditioning Supp, 4961 Steam, Air-Conditioning Supp, 5010 Motor Veh Parts, Supply-Whsl, 5012 Autos and Other Vehicles-Whsl, 5013 Motor Veh Suply,New Pts-Whsl, 5040 Prof and Coml Eq and Supply-Whsl, 5043 Photographic Eq, Supply-Whsl, 5044 Office Equipment-Wholesale, 5045 Computers and Software-Whsl, 5046 Commercial Equip-Whsl, Nec, 5047 Med, Dental, Hosp Eq-Whsl, 5048 Ophthalmic Goods-Wholesale, 5049 Prof Eq and Supply-Whsl, Nec, 5050 Metals,Minerals,Ex Pete-Whsl, 5051 Metals Service Centers-Whsl, 5052 Coal, Oth Minerals, Ores-Whsl, 5060 Electrical Goods-Wholesale, 5063 Elec Apparatus and Equip-Whsl, 5064 Elec Appliance,TV,Radio-Whsl, 5065 Electronic Parts,Eq-Whsl,Nec, 5070 Hardwr, Plumb, Heat Eq-Whsl, 5074 Plumb,Heat Eq-Hydrionics-Whsl, 5075 Air Heat and Condition Eq-Whsl, 5078 Refrigeration Eq and Supp-Whsl, 5080 Machinery and Equipment-Whsl, 5082 Constr, Mng (Ex Pete) Eq-Whsl, 5083 Farm and Garden Mach and Eq-Whsl, 5084 Industrial Mach and Eq-Whsl, 5085 Industrial Supplies-Whsl, 5087 Service Est Eq,Supplies-Whsl, 5088 Trans Eq, Ex Motor Veh-Whsl, 5730 Radio,TV, and Music Stores, 5731Radio,TV,Cons Electr Stores, 5734 Cmp and Cmp Software Stores, 6794 Patent Owners and Lessors, 7291 Tax Return Preparation Svcs, 7313 Radio, TV Advertising Reps, 7323 Credit Reporting Services, 7370 Cmp Programming, Data Process, 7371 Computer Programming Service, 7372 Prepackaged Software, 7373 Cmp Integrated Sys Design, 7374 Cmp Processing, Data Prep Svc, 7375 Information Retrieval Svcs, 7376 Cmp Facilities Mgmt Service, 7377 Computer Rental and Leasing, 7378 Cmp Maintenance and Repair, 7379 Computer Related Svcs, Nec, 7381 Detect,Guard,Armor Car Svcs, 7382 Security Systems Service, 8000 Health Services, 8062 Gen Med and Surgical Hospitals, 8070 Medical and Dental Labs, 8071 Medical Laboratories

Total of 869 industries listed above as entrepreneurial, 68 of the above industries present in sample variable ESIC = 1 for any SIC code listed above, ESIC = 0 for all other SIC codes