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THE EFFECT OF ENHANCED DISCLOSURE
ON OPEN MARKET STOCK REPURCHASES

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THE EFFECT OF ENHANCED DISCLOSURE ON OPEN MARKET STOCK REPURCHASES

Michael Simkovic*

ABSTRACT

Publicly traded companies distribute cash to shareholders primarily in two ways--either through dividends or through anonymous repurchases of the companies' own stock on the open market. Companies must announce a repurchase authorization, but do not actually have to repurchase any stock, and until recently did not have to disclose whether or not they were in fact repurchasing any stock. Scholars and regulators noticed that companies frequently announced repurchases but then appeared not to complete them. Scholars and regulators became concerned that such announcements might be used by insiders to exploit public investors. To increase transparency and reduce opportunities for exploitive behavior, the SEC required that companies disclose their repurchase activity for the past quarter in their 10-Q and 10-K filings beginning in January 2004. This paper tracks the 365 repurchase programs announced in 2004 and finds that since the SEC disclosure requirement went into effect, companies are more likely to complete their announced repurchases and do so within a shorter time period after the repurchase announcement.

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THE EFFECT OF ENHANCED DISCLOSURE ON OPEN MARKET STOCK REPURCHASES

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I. Introduction

The primary organizing principle of United States Securities regulation is disclosure. As the Securities and Exchange Commission explains on its website:

The laws and rules that govern the securities industry in the United States derive from a simple and straightforward concept: all investors, whether large institutions or private individuals, should have access to certain basic facts about an investment prior to buying it, and so long as they hold it. To achieve this, the SEC requires public companies to disclose meaningful financial and other information to the public. This provides a common pool of knowledge for all investors to use to judge for themselves whether to buy, sell, or hold a particular security. Only through the steady flow of timely, comprehensive, and accurate information can people make sound investment decisions.

The result of this information flow is a far more active, efficient, and transparent capital market that facilitates the capital formation so important to our nation's economy.²

The SEC has sought, through greater disclosure, to ameliorate problems ranging from deceptive proxy solicitations³ to excessive executive compensation.⁴

The SEC recently promulgated a new disclosure rule intended to stamp out suspected abuses associated with company repurchases of their own stock. This study examines whether the new SEC disclosure rule has had the intended effect. The repurchase disclosure regulation is a specific test case for the broader question of whether disclosure regulations change the behavior of market participants.

Stock repurchases, like dividends, are used by publicly traded corporations to distribute cash to shareholders. Most stock repurchases are Open-Market Repurchases (OMRs), repurchases in which a corporation uses a broker to purchase its own stock in the public market over an extended period of

² <http://www.sec.gov/about/whatwedo.shtml#intro>

³ See SEC Proxy Rules available at <http://www.sec.gov/about/forms/reg14a.pdf> and Schedule 14A available at <http://www.sec.gov/about/forms/sched14a.pdf>.

⁴ SEC Release No. 34-8732A, "Executive Compensation and Related Person Disclosure (conforming amendments)," August 29, 2006, available at <http://www.sec.gov/rules/final/2006/33-8732a.pdf>.

time.⁵ OMRs may have advantages over dividends in terms of tax treatment and distribution costs. OMRs may also be preferable because they can supply stock for employee incentive compensation plans and increase liquidity.⁶ However, OMRs also have features that may facilitate self-dealing by managers at the expense of investors: first, OMRs are less transparent than dividends; second, OMRs, unlike dividends, can redistribute value between shareholders who sell and shareholders who hold the stock.

Legal and financial scholars argue that managers opportunistically enrich themselves through OMRs. Repurchase announcements are usually followed by a short-term stock price spike, presumably because repurchases suggest that managers believe that the company is undervalued. According to the false signaling hypothesis, managers announce a repurchase—which they secretly do not intend to complete—in order to exploit this short-term price spike.

According to the bargain repurchases hypothesis, managers seeking to repurchase stock when it is undervalued will sometimes announce repurchases that they do not intend to complete for the same reason that good poker players sometimes bluff—to make themselves harder to read. If the market cannot readily tell which repurchase announcements will be followed by actual repurchases, then the market must discount the signal from repurchase announcements, leaving the stock somewhat undervalued when the company actually wishes to repurchase stock.

In response to concerns about potential managerial opportunism, the SEC promulgated a new repurchase disclosure requirement that took effect on December 17, 2003.⁷ Under the new rule, companies quarterly statements must disclose the number of shares purchased each month, the average price per share, and the maximum number (or approximate dollar value) of shares that may

⁵ See Gustavo Grullon & David L. Ikenberry, What Do We Know About Stock Repurchases?, 13 J. Applied Corp. Fin. 31, 33-34 (200) (reporting that OMRs accounted for over 90% of announcements and over 90% of the value of actual repurchases between 1980 and 1999).

⁶ See, e.g., Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1336-40 (2005);

⁷ See Purchases of Certain Equity Securities by Issuer and Others, Exchange Act Release No. 33-8335, 68 Fed. Rec. 64,952 (Nov. 17, 2003) available at <http://www.sec.gov/rules/final/33-8335.htm>

yet be purchased under the program.⁸ A recent paper by Jesse Fried argues that the SEC's disclosure requirement still leaves room for managerial opportunism because the disclosure is limited and ex-post.⁹ Fried argues for a more thorough, pre-trade disclosure rule.¹⁰

To examine the new SEC disclosure requirement's effectiveness in increasing the transparency and reliability of repurchase announcements, this study tracks 50 repurchase programs announced in the first quarter of 2004 and compares the non-completion rates to non-completion rates reported in two previous studies of repurchase programs announced before the disclosure rule. This study improves on the methodology of previous studies: this study uses actual repurchase data from mandatory disclosures, whereas previous studies either estimated repurchases (and were therefore inaccurate) or used repurchase data voluntarily supplied by companies (and therefore suffered from selection bias). This methodological improvement therefore improves the accuracy of the data but complicates cross-study comparisons.

This study's key finding is that within 20 months of the repurchase announcement, the overwhelming majority of companies substantially completed their repurchases—only 2% of companies repurchased less than 20% of their announced target. This 2% non-completion figure contrasts sharply with the 10% and 27% non-completion figures reported by previous studies of repurchases announced before the 2003 SEC disclosure rules.

This dramatic difference in repurchase completion suggests that the new disclosure requirement had the desired effect—repurchase announcements today are more transparent and reliable than they were before the SEC disclosure requirement. This paper also considers and rejects alternate interpretations of these results.

⁸ Id.

⁹ Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1341, 1384-85

¹⁰ Id. at 1374-85

II. Background on Repurchases

A. *Growing Use of Repurchases as Substitutes for Dividends*

Stock repurchases were relatively rare until the 1980s, but have since grown dramatically and today account for roughly half of cash distributions to shareholders.¹¹ Share repurchases grew from \$6.6 billion in 1980 to almost \$200 billion in 2000.¹² This increase in stock repurchases over the last three decades was accompanied by a corresponding decline in dividend payouts as a share of annual earnings, while aggregate payout levels held constant at 26-28% of annual earnings.¹³

The profile of corporations that pay dividends—larger, more profitable firms with more constant return on assets—is the same as the profile of firms that distribute cash through repurchases.¹⁴ They are, in fact, generally the same firms—between 1980 and 2000, 87.9% of repurchase expenditures came from firms that also paid dividends.¹⁵ In other words, corporations that distributed cash to shareholders merely shifted their mode of distribution from predominantly dividends to half-dividends, half repurchases.

Furthermore, the trend toward repurchases will likely accelerate. A recent survey of CFOs suggests that if firms that do not currently pay out cash to shareholders begin to payout cash, two-thirds will do so exclusively through repurchases.¹⁶

¹¹ See William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 851, note 23 (2005) citing Gustavo Grullon & Roni Michaely, Dividends, Share Repurchases, and the Substitution Hypothesis, 57 J. Fin. 1649, 1649 (2002)

¹² Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1341, 1326, note 3 citing Gustavo Grullon & Roni Michaely, Dividends, Share Repurchases, and the Substitution Hypothesis, 57 J. Fin. 1649, 1649 (2002)

¹³ See William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 851, notes 20-23 (2005) citing Gustavo Grullon & Roni Michaely, Dividends, Share Repurchases, and the Substitution Hypothesis, 57 J. Fin. 1649, 1649, 1656 (2002) and Murali Jagannathan et al., Financial Flexibility and the Choice Between Dividends and Stock Repurchases, 57 J. Fin. Econ. 355, 356 (2000).

¹⁴ See William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 852, notes 26-28 (2005) citing Eugene Fama & Kenneth R. French, Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?, 60 J. Fin. Econ. 3, 6 (2001) and Gustavo Grullon & Roni Michaely, Dividends, Share Repurchases, and the Substitution Hypothesis, 57 J. Fin. 1649, 1658 (2002).

¹⁵ William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 852, notes 25 (2005) citing Gustavo Grullon & Roni Michaely, Dividends, Share Repurchases, and the Substitution Hypothesis, 57 J. Fin. 1649, 1659 (2002).

¹⁶ See William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 852, note 29 (2005) citing Alon Brav et al., Payout Policy in the 21st Century 11-12 (Nat'l Bureau of Econ Research, Working Paper No. 9657, 2003) (forthcoming in J. Fin. Econ).

Scholars and commentators have sought to explain the shift to repurchases in terms of either benefits to investors or opportunistic behavior by managers that harms investors. As the amount of cash channeled through repurchases increases, so does the potential harm to investors and the need for regulatory scrutiny.

B. Possible Benefits of Repurchases to Shareholders/Investors

The most common form of repurchases,¹⁷ and the focus of this paper, is Open-Market Repurchases (OMRs)—in which a corporation uses a broker to purchase its own stock in the public market over an extended period of time. A corporation conducting an OMR essentially has a free hand to anonymously buy as much or as little stock as it wants, when it wants, at market price.¹⁸

Commentators have described four possible benefits of OMRs: (1) tax advantages over dividends (2) lower distribution costs than dividends (3) supplying stock for employee incentive compensation plans, and (4) increasing liquidity. Of these four, the most significant driver of repurchases is probably supplying stock for employee incentive compensation plans.

1. Tax Advantages of OMRs over Dividends

Historically, repurchases offered significant tax advantages over dividends, mainly because long-term capital gains were taxed at advantageous rates.¹⁹ However, the 2003 dividend tax cut under The Jobs and Growth Tax Relief Reconciliation Act of 2003 (“JGTRRA”)²⁰ equalized dividend and capital gains rates at 15%, thereby eroding repurchases’ tax advantage.²¹ Repurchases are still somewhat advantageous because shareholders who sell are taxed

¹⁷ See Gustavo Grullon & David L. Ikenberry, What Do We Know About Stock Repurchases?, 13 J. Applied Corp. Fin. 31, 33-34 (200) (reporting that OMRs accounted for over 90% of announcements and over 90% of the value of actual repurchases between 1980 and 1999).

¹⁸ Regulation of OMRs is discussed below in part II.c.

¹⁹ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1336-38. See also William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 852-62 (2005).

²⁰ Pub. L. No. 108-27, 117 Stat. 752 (2003).

²¹ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1336-38. See also William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 852-62 (2005).

only on gains above their basis in the stock, whereas dividends are fully taxed.²² Repurchases also better facilitate tax planning, because shareholders can decide whether (and when) to sell depending on their particular circumstances, whereas dividends accrue to all shareholders regardless of their tax-planning preferences.²³

Empirical evidence suggests that tax considerations play a fairly minor role in corporations' payout-policy decisions, possibly because many large shareholders are tax exempt.²⁴

2. Distribution Costs: OMRs vs. Dividends

OMRs may be more efficient than dividends for distributing small, non-recurring cash flows to investors.²⁵ However, for larger and/or recurring cash flows, dividends are generally more efficient.²⁶ Given the substantial size of repurchases, and their parity with dividends, it seems unlikely that firms use repurchases primarily to distribute small non-recurring cash flows.

3. OMRs and Employee Stock Option Plans

Unlike dividends, repurchases provide shares for employee incentive compensation programs. A substantial portion of executive compensation comes in the form of stock options,²⁷ and many firms also use stock options to compensate lower ranking employees. Such compensation is thought to reduce agency costs by tying compensation to the performance of the firm, measured by the share price at the time the options vest.

There is strong empirical support for a link between stock repurchases and exercisable employee options.²⁸ Firms are more likely to announce repurchases when executives have large

²² See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1337.

²³ Id.

²⁴ See William W. Bratton, The New Dividend Puzzle, 93 Geo. L.J. 845, 852-62 (2005). See also Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1337-38.

²⁵ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1338.

²⁶ Id.

²⁷ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1339, note 41, citing Lucian Bebchuk & Jesse Fried, Pay without performance: The Unfulfilled Promise of Executive Compensation 137 (2004).

²⁸ See Kathleen M. Kahle, When a Buyback isn't a Buyback: Open Market Repurchases and Employee Options, 63 Journal of Financial Economics 235 (2002).

numbers of options outstanding and when employees have large numbers of options currently exercisable.²⁹ The size of repurchases correlates with total employee options currently exercisable, but is not related to executive options.³⁰ This suggests that firms calibrate the size and timing of their repurchases to serve the needs of their incentive compensation programs.³¹

Instead of repurchasing existing shares, boards could issue new shares.³² However, issuing new shares would dilute earnings per share, lower the value of each share, and therefore lower the value of stock options held by employees and executives.³³ Furthermore, some corporate charters may require the board to obtain shareholder approval before issuing new shares.³⁴ Such approval may be desirable for corporate governance reasons, but would entail additional delay and transaction costs.

4. Liquidity

Repurchases increase the volume of trading in the repurchasing company's stock. This additional liquidity may lower market-makers' inventory costs; the market-maker in turn may lower the bid-ask spread, which lowers transaction costs for investors seeking to buy or sell the stock.³⁵ There is in fact empirical evidence that repurchases lower the bid-ask spread.³⁶

C. Possible Harm to Investors: False Signaling and Bargain Repurchases

OMRs are not transparent because firms that announce repurchases do not commit themselves to buy, they merely give themselves the option to buy. Until 2004, it was difficult to ascertain the extent to which firms carried through on their repurchases, because firms were not

²⁹ Id. at 238.

³⁰ Id.

³¹ Id.

³² See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1339.

³³ See William W. Bratton, "The New Dividend Puzzle, 93 Geo. L.J. 845, 872-876.

³⁴ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1339.

³⁵ Id. at 1339-40.

³⁶ See Douglas O. Cook et al., On Timing and Execution of Open Market Repurchases, 17 Rev. Fin. Stud. 463, 485-86 (2004).

obligated to disclose any repurchase data.³⁷ One influential study estimated that within 3 years of announcing a repurchase, 43 percent of firms repurchased fewer shares than their announced targets, 10 percent of firms bought less than 5 percent of the number of shares announced, and a significant number of firms did not repurchase any shares at all.³⁸ According to another study, 27% of announcing firms did not repurchase any shares within four years.³⁹

According to the false-signaling hypothesis, firms announce repurchases that they do not intend to carry through because managers hope to exploit the price-spike that typically follows a repurchase announcement.⁴⁰ Following repurchase announcements, studies report short-term abnormal returns averaging three percent.⁴¹ This price spike is most commonly explained to result because the market views a repurchase announcement as a signal that a firm is undervalued.⁴² Some scholars theorize that managers could exploit this price spike by announcing a repurchase when the firm is overvalued and then dumping their shares shortly after the announcement.⁴³ Although there

³⁷ In December of 2003, the SEC revised its disclosure rule. Under the new rule, companies quarterly statements must disclose the number of shares purchased each month, the average price per share, and the maximum number (or approximate dollar value) of shares that may yet be purchased under the program. Purchases of Certain Equity Securities by Issuer and Others, Exchange Act Release No. 33-8335, 68 Fed. Reg. 64,952 (Nov. 17, 2003) available at <http://www.sec.gov/rules/final/33-8335.htm>

³⁸ Clifford P. Stephens and Michael S. Weisbach, Actual Share Reacquisitions in Open-Market Repurchase Programs, 53 J. Fin. 313, 314 (1998). The sample of this study was the 944 open market repurchase programs announced from 1981 to 1990 in *The Wall Street Journal Index*, excluding the 995 announcements made during the fourth quarter of 1987. *Id.* at 317.

³⁹ Uptal Bhattacharya and Amy Dittmar, Costless Versus Costly Signaling: Theory and Evidence (May 2004) (Unpublished working paper), available at <http://ssrn.com/abstract=250049>. The sample for this study was all 2,297 firms announcing open market repurchases between 1985 and 1995 as listed in the Securities Data Corporation's Mergers and Acquisitions database, excluding announcements in the last quarter of 1987.

⁴⁰ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1351-55.

⁴¹ See e.g., David L. Ikenberry et al., Market Underreaction to Open Market Share Repurchases, 39 J. Fin. Econ. 181, 183 (1995); William W. Bratton, "The New Dividend Puzzle, 93 Geo. L.J. 845, note 78, citing Gustavo Grullon & Roni Michaely, The Information Content of Share Repurchase Programs (Nov. 2002) (unpublished working paper), at <http://ssrn.com/abstract=206328> and David L. Ikenberry & Theo Vermaelen, The Option to Repurchase Stock, 25 Fin. Mgmt. 9, 17-18 (1996).

⁴² See e.g., David L. Ikenberry et al., Market Underreaction to Open Market Share Repurchases, 39 J. Fin. Econ. 181, 183 (1995); Murali Jagannathan & Clifford Stephens, 32 Fin. Mgmt. 71 (2003). Ikenberry and Jagannathan first describe the traditional signaling hypothesis, and then posit refinements regarding the market's ability (or inability) to distinguish undervaluation from other possible motivations for repurchase announcements.

⁴³ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1352-53.

is empirical evidence that could be interpreted to support this hypothesis, it seems unlikely, for reasons that will be discussed below.

Evidence consistent with the false-signaling hypothesis comes from a study of OMR announcements between 1993 and 1998 which found that managers who announced that they were repurchasing stock because the stock was under-priced, and who therefore might have been attempting to boost the stock price, tended to manipulate earnings upward around the time of the announcement.⁴⁴ The study also found a short-term price spike of approximately 3%, followed by negative medium-term abnormal returns of almost 11%.⁴⁵ This suggests that the firms were overvalued at the time of the announcement, but the announcement nevertheless ‘fooled’ the market and boosted the stock price.⁴⁶

There is also evidence that, during market crashes, managers may announce repurchases that they do not intend to carry out in order to reassure the market and stabilize (or boost) the stock price.⁴⁷ However, such market-crash repurchase announcements are generally viewed as exceptional

⁴⁴ See De-Wai Chou & Jane-Ruang Philip Lin, False Signals from Open-Market Repurchase Announcements: Evidence from Earnings Management and Analyst’s Forecast Revisions (Nov. 20, 2003) available at <http://ssrn.com/abstract=471122>

⁴⁵ Id.

⁴⁶ Although the market may be fooled in some instances, recent studies find that the market reacts less positively to repurchase announcements that are less likely to signal undervaluation. See Murali Jagannathan & Clifford Stephens, 32 *Fin. Mgmt.* 71 (2003) (noting that “it is unlikely that a firm could credibly signal that its stock is undervalued on a regular basis” and finding that “infrequent repurchases are greeted much more favorably than more frequent repurchases” with abnormal returns averaging 3.4% for the first repurchase in five years falling to 2% for the second repurchase and 1.1% for the third.); Kathleen M. Kahle, When a Buyback isn’t a Buyback: Open Market Repurchases and Employee Options, 63 *Journal of Financial Economics* 235, 239 (2002) (noting that a repurchase initiated to provide stock for employee options programs is less likely to signal undervaluation, and finding that the announcement return is negatively related to non-executive options outstanding).

But See David L. Ikenberry et al., Market Underreaction to Open Market Share Repurchases, 39 *J. Fin. Econ.* 181, 191 (1995) (finding a very similar short term market reaction to glamour stocks and value stocks, at 3.36% and 3.56% respectively).

There are reasons to doubt crude pump-and-dump stock price manipulation by managers. Insider trading is heavily regulated and policed, and the penalties for violations are heavy. There is scant direct evidence of managers personally enriching themselves by manipulating the stock price through repurchase announcements. For an example of the indirect evidence offered to support this argument, See Nikos Vafeas, Determinants of Choice Between Different Repurchase Methods, 12 *J. Acct. Auditing and Fin.* 101, 112-13 Table 1(1997) (reporting a very slight decline in inside ownership after open market repurchases; mean inside ownership fell from 15.7% to 15%).

⁴⁷ See, e.g., Beverly Kracher & Robert R. Johnson, Repurchase Announcements, Lies and False Signals, 16 *J. Bus. Ethics* 1677, 1678 (1997) (following the 1987 market crash, many companies announced large repurchases and then reassured credit rating agencies that they did not intend to carry through with the repurchases).

by both scholars⁴⁸ and the SEC.⁴⁹ In fact, the SEC sought to encourage repurchases after the October 1987 and September 2001 market crashes by relaxing its anti-manipulation rules.⁵⁰ The SEC viewed repurchases as a way to reassure investors and forestall a panic.⁵¹

The bargain repurchases hypothesis suggests that non-completed repurchase announcements are functionally equivalent to bluffing in poker—they cast doubt on the meaning of an action that would otherwise provide a clear signal to others. In poker, a raised bet signals to the other players that the betting player either believes he has a winning hand, or is trying to bluff because his hand is weak. If other players misinterpret his actions, he can profit from their miscalculations. Similarly when managers announce a repurchase, the announcement either signals that the company believes its stock is undervalued and will therefore seek to repurchase it at a bargain price, or that the company is simply blowing smoke and will not complete the repurchase. If the market cannot readily tell which repurchase announcements will be followed by actual repurchases, then the market must discount the signal from repurchase announcements, leaving the stock somewhat undervalued

Repurchase announcements that occurred during the two weeks after the October 19, 1987 market crash generated positive excess returns, and announcing firms outperformed the market over the forty days that followed the announcement day. Elias Raad and H. K. Wu, *Insider Trading Effects on Stock Returns Around Open-Market Stock Repurchase Announcements: An Empirical Study*, 18 *J. Fin. Res.* 45, 47 (1995), note 5 citing J.M. Netter and M.L. Mitchell, *Stock repurchase announcements and insider transactions after the October 1987 stock market crash*, *Financial Management* 18, 84-96 (1989).

⁴⁸ Many empirical studies exclude repurchase announcements made during the fourth quarter of 1987 because such announcements are regarded as atypical and unrepresentative of normal repurchase activity. See e.g., Clifford P. Stephens and Michael S. Weisbach, *Actual Share Repurchases in Open-Market Repurchase Programs*, 53 *J. Fin.* 313, 317 (1998); Uptal Bhattacharya and Amy Dittmar, *Costless Versus Costly Signaling: Theory and Evidence* (May 2004) (Unpublished working paper), available at <http://ssrn.com/abstract=250049>; Elias Raad and H. K. Wu, *Insider Trading Effects on Stock Returns Around Open-Market Stock Repurchase Announcements: An Empirical Study*, 18 *J. Fin. Res.* 45, 47 (1995).

⁴⁹ See Beverly Kracher & Robert R. Johnson, *Repurchase Announcements, Lies and False Signals*, 16 *J. Bus. Ethics* 1677, 1679 (1997) (“During the stock market crash of 1987 SEC chairman David Ruder encouraged firms to repurchase stock...Under severe market conditions, the SEC felt it necessary to relax the rules and allow free trading.”); Missy Piccioni, *A regulatory response by the SEC to the terrorist attacks on America—Did the issuer repurchase relief make a difference?*, 34 *Rutgers L.J.* 564, (2003) (“On September 14, 2001 the SEC relaxed the volume and timing conditions for companies that repurchased their own shares.”).

⁵⁰ *Supra* Note ____ (immediately above this one)

⁵¹ Missy Piccioni, *A regulatory response by the SEC to the terrorist attacks on America—Did the issuer repurchase relief make a difference?*, 34 *Rutgers L.J.* 564, 581-585 (2003) citing Chairman Harvey L. Pitt, U.S. Securities and Exchange Commission, *Testimony Concerning the Condition of the U.S. Financial Markets Following the Recent Terrorist Attacks Before the Committee on Banking, Housing, and Urban Affairs, United States Senate* (September 20, 2001), at <http://www.sec.gov/news/testimlny/092001tshlp.htm>

when the company actually wishes to repurchase stock.⁵² The resulting bargain repurchases transfer value from shareholders who sell to shareholders who retain their stock and to insiders who own stock options. Managers can increase their stake in the company and indirectly capture insider-trading-like gains by simply holding onto their shares and options.⁵³

Empirical support for market mispricing comes from David Ikenberry et. al. who found significant abnormal positive returns during the four years after repurchase announcements and concluded that “the market treats repurchase announcements with skepticism, leading prices to adjust slowly over time.”⁵⁴ Empirical support for managerial inside (or “informed”) trading comes from Raad & Wu, who found that a higher level of insider stock purchases in the month immediately before a repurchase announcement, a higher percentage of insider ownership, and a higher percent of shares outstanding authorized for repurchases all predicted higher significant abnormal positive stock returns within 10 days after the repurchase announcement.⁵⁵

At least one of these theories of managerial opportunism seems to have resonated with the Securities and Exchange Commission. In adopting their new repurchases disclosure requirement, the SEC explained:

We believe information about how much common stock the issuer has repurchased is important to investors. Studies have shown that the public announcement by an issuer of a repurchase program is often followed by a rise in the issuer's stock price. Studies have also shown that some issuers publicly announce repurchase programs, but do not

⁵² See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1356-57 (2005).

⁵³ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1344-47 (2005). Fried refers to this as “informed trading” and suggests that it is probably legal.

⁵⁴ David Ikenberry et. al., Market Underreaction to Open Market Share Repurchases, 39 J. Fin. Econ. 181, 183 (1995). But See Konan Chan, et. al., Do Managers time the market? Evidence from open-market share repurchases, (Unpublished Working Paper)(November 2005)(arguing that pseudo market-timing is not “a viable explanation for the positive long-horizon stock return drift observed subsequent to repurchase announcements”) and De-Wai Chou & Jane-Ruang Philip Lin, False Signals from Open-Market Repurchase Announcements: Evidence from Earnings Management and Analyst’s Forecast Revisions (Unpublished Working Paper) (Jan 6, 2004) available at <http://ssrn.com/abstract=471122> (finding no evidence of the market underreaction phenomenon and negative abnormal returns in the three to twelve month period following the repurchase announcement).

⁵⁵ Elias Raad and H. K. Wu, Insider Trading Effects on Stock Returns Around Open-Market Stock Repurchase Announcements: An Empirical Study, 18 J. Fin. Res. 45 (1995) See also Nikos Vafeas, et. al., Earnings Management Around Share Repurchases. (Unpublished Working Paper)(February 2003)(reporting evidence weakly consistent with the hypothesis that pre-repurchase earnings are managed downward to induce shareholders to sell at sub-par prices, while post repurchase announcements prices are higher than expected as the earnings management is reversed).

purchase any shares or purchase only a small portion of the publicly disclosed amount. Thus, disclosure of an issuer's actual repurchases will inform investors whether, and to what extent, the issuer had followed through on its original plan. Investors also will have information regarding an issuer's repurchase activity in order to assess its possible impact on the issuer's stock price, similar to periodic disclosure of issuer earnings and dividend payouts.⁵⁶

D. Regulation

SEC regulations seek to reduce the extent to which company insiders can profit at the expense of other market participants from their insider access to non-public information. Repurchases create opportunities for abuse because companies' can anonymously repurchase their own shares on the open market using non-publicly available information that is relevant to the company's valuation. SEC regulations of repurchases seek to reduce the potential for abuse, but probably fall short of completely eliminating it. There are three elements to regulation of repurchases: (1) insider trading liability under rule 10b-5; (2) anti-manipulation rules and; (3) disclosure requirements.

1. Insider Trading and Rule 10b-5

Rule 10b-5 requires insiders—including the firm and its officers—to refrain from trading in the firm's shares while in possession of “material” non-public information regarding their value. This prohibition applies to stock repurchases. However, the bar for materiality is high, so firms' officers can conduct repurchases while aware of information that, though not “material”, is nonetheless valuable.⁵⁷ Furthermore, using insider information to refrain from trading (i.e., deciding not to purchase shares) generally does not trigger 10b-5 liability. 10b-5 therefore leaves the door open for companies to repurchase their own shares at advantageous prices.

2. Stock Manipulation and the 10b-18 Safe Harbor

Under Section 9(a)(2) of the Securities and Exchange Act of 1934, it is illegal for an individual or corporation to conduct a series of transactions in a security to induce others to buy or sell the

⁵⁶ Purchases of Certain Equity Securities by Issuer and Others, Exchange Act Release No. 33-8335, 68 Fed. Rec. 64,952 (Nov. 17, 2003) available at <http://www.sec.gov/rules/final/33-8335.htm>

⁵⁷ *Id.* at 1343.

security. A repurchase program would violate 9(a)(2) if it was conducted with the intent of driving up the stock price and making it appear as if there is heavy demand for the stock.

However, SEC rule 10b-18 provides repurchasing firms with a safe harbor if the firm: (1) limits its daily open market purchases to 25% of the average daily trading volume of the previous month; (2) does not offer a price which exceeds the highest independent bid or the last independent transaction price, whichever is higher; (3) Does not repurchase any shares at the start or during the last half hour of trading; and (4) Conducts all purchases on a given day through the same brokerage firm.

Neither Section 9(a)(2) nor rule 10b-18 apply to repurchase announcements—they only apply to actual repurchases. The false signaling hypothesis postulates that firms seek to drive up the price of their stock by announcing repurchases they do not intend to complete. The bargain repurchases hypothesis suggests that firms announce some repurchases they do not intend to complete in order to confuse the market and minimize the price spike that follows repurchase announcements, thereby facilitating repurchases at favorable prices. Such manipulation is not covered under Section 9(a)(2).⁵⁸ Firms that announce repurchase targets protect themselves by indicating that actual repurchases will depend on market conditions.⁵⁹ Announcing firms are not obligated to repurchase any shares.⁶⁰

3. Disclosure

All major U.S. stock exchanges require listed firms to announce board authorization of an OMR program. However, at the time of announcement the firm does not have to disclose the target (in dollars or shares) or the expiration date of the authorization.

⁵⁸ Although Kracher and Johnson argue that such manipulation should be covered under the general anti-fraud provision Rule 10b-5, which prohibits false or misleading statements in connection with the sale or purchase of security, the SEC has not taken this view. See Beverly Kracher & Robert R. Johnson, Repurchase Announcements, Lies and False Signals, 16 J. Bus. Ethics 1677, 1679-80 (1997).

⁵⁹ See Jesse M. Fried, Informed Trading and False Signaling with Open Market Repurchases, 93 Cal. L. Rev. 1323, 1341 (2005)

⁶⁰ *Id.* at 1341-42

The December 2003 SEC disclosure requirement that is the subject of this paper requires firms to disclose the number of shares purchased each month, the average price per share, and the maximum number (or approximate dollar value) of shares that may yet be purchased under the repurchase program.⁶¹ These disclosures are made after-the-fact, in quarterly financial statements. Such retroactive disclosures increase transparency in the long run, but recent repurchases and future plans remain veiled.

III. Methods, Results & Discussion

Scholars and regulators became concerned that some repurchase programs might benefit insiders at the expense of public investors because of the suspicious frequency with which firms announcing repurchase programs failed to complete those repurchases. Repurchase non-completion rates are thought to be observable indicia of exploitive behaviors such as false signaling and bargain repurchases that are difficult to measure directly. Previous studies suggest that before the 2003 SEC disclosure requirement, as many as a quarter of firms announcing repurchases did not repurchase a single share.⁶² This study evaluates the effectiveness of the SEC's regulation by measuring whether more stringent disclosure requirements since 2004 have cut down on the proportion of announcing firms that repurchase no shares or only a small percent of their announced target. Because this study seeks to measure the impact of a regulation on repurchase non-completion rates, it is necessary to both measure non-completion rates after the regulation went into effect and to compare those measurements to non-completion rates before the regulation.

To measure non-completion rates after the SEC disclosure requirement went into effect, this study looks at fifty repurchases announced during the first three months of 2004—the first quarter during which the disclosure requirement was in effect—and tracks actual repurchases for 20 months.

⁶¹ See Purchases of Certain Equity Securities by Issuer and Others, Exchange Act Release No. 33-8335, 68 Fed. Rec. 64,952 (Nov. 17, 2003) available at <http://www.sec.gov/rules/final/33-8335.htm>

⁶² See supra Section II.C.1 False signaling.

This study is the first of its kind to use actual repurchase data from mandatory disclosures.⁶³ Before the SEC disclosure requirement went into effect, studies could either estimate repurchases⁶⁴ or use repurchase data voluntarily supplied by companies (and thereby introduce selection bias). This study is therefore more accurate than previous studies. However, this improvement in accuracy comes at the price of more complicated cross-study comparison. A detailed description of the sample, data source, analyses, and results of the original empirical portion of this study appear below in subsections A through D.

Non-completion rates before the disclosure requirement were reported in two previous empirical studies, each of which examined repurchases announced over a ten-year period. The first is a seminal study by Stephens and Weisbach⁶⁵ that analyzed almost a thousand repurchases announced between 1981 and 1990. The second is a more recent unpublished working paper by Bhattacharya and Dittmar⁶⁶ that examined over two thousand repurchases announced between 1985 and 1995. Both studies reported substantially higher non-completion rates than found in this study, suggesting that the SEC disclosure rule had the intended effect of making repurchase announcements a more reliable indicator of actual repurchases.

A. *Sample and Data*

The initial sample was drawn from the Securities Data Corporation Platinum Mergers and

⁶³ As of January 2004, publicly traded firms must disclose this information in SEC Form 10-Q item 2(e) and in Form 10-K item 5(c). As far as I am aware, no commercial database compiles and tracks this information—it had to be gathered by searching 10-Qs and 10-Ks on EDGAR and manually entering data into a spreadsheet.

In a few instances, monthly repurchases (in shares and dollars) were tracked based on another figure companies are required to disclose—the number of shares (or the dollar value) remaining to be repurchased under the existing authorization. Companies were assumed to have repurchased an amount equal to the decline in the remaining repurchase authorization, taking into account any new authorizations and/or cancellations of old authorizations.

⁶⁴ For a detailed discussion of the limitations of various methods of estimating actual repurchases, See Kathleen Kahle, et al., “Measuring Share Repurchases” (Unpublished working paper) (August 2005) available at <http://ssrn.com/abstract=726284>.

⁶⁵ Clifford P. Stephens and Michael S. Weisbach, Actual Share Reacquisitions in Open-Market Repurchase Programs, 53 J. Fin. 313, 314 (1998). The sample of this study was the 944 open market repurchase programs announced from 1981 to 1990 in *The Wall Street Journal Index*, excluding the 995 announcements made during the fourth quarter of 1987. *Id.* at 317.

⁶⁶ Uptal Bhattacharya and Amy Dittmar, Costless Versus Costly Signaling: Theory and Evidence (May 2004) (Unpublished working paper), available at <http://ssrn.com/abstract=250049>. The sample for this study was all 2,297 firms announcing open market repurchases between 1985 and 1995 as listed in the Securities Data Corporation’s Mergers and Acquisitions database, excluding announcements in the last quarter of 1987.

Acquisitions database (SDC Platinum), which was used to identify publicly traded U.S. companies⁶⁷ announcing open-market repurchases between January 1, 2004 and March 31, 2004. The sample was pruned by excluding four companies that were missing 2004 or 2005 10-Ks and 10Qs⁶⁸ and one company that only conducted privately negotiated block purchases, not open-market repurchases.⁶⁹ This left 87 companies.

SDC Platinum's "status" field designates each repurchase as either "intended" or "completed", depending on whether the announcement pertains to the initiation of future repurchases or to the completion of an existing program. "Completed" repurchase authorizations were generally initiated before January 1, 2004; only their completion was announced between January 1, 2004 and March 31, 2004.⁷⁰ Only announcements of "intended" repurchases were included in the final sample. The remaining 76 repurchase were sorted by the date of the announcement, and the first 50 repurchases were included in the final sample.

B. Descriptive Statistics

Of the 50 repurchases included in the sample, the first repurchase was announced by Chatterm Inc. (CHTT) on January 1, 2004; the last was announced by Wisconsin Energy Corp (WISC) on March 2, 2004. Thirteen repurchases were announced in January, thirty-five were announced in February, and two were announced in March.

The average target size announced was 6.43% of shares outstanding.⁷¹ This is in line with previous studies reporting an average announced target of approximately 6-7% of total shares

⁶⁷ Listed on the NYSE, ASE, or NASDAQ.

⁶⁸ The four pruned companies were: SouthTrust Corp., AL (merged with Wachovia in 2004); Kennedy Wilson Inc. (no financial statements available on EDGAR after 2004); Zweig Total Return Fund (no 10-Ks or 10-Qs available on EDGAR); and DST systems (no 10-Ks or 10Qs available on EDGAR). Although Select Medical Corp. (SEM) was missing financial statements for fourth quarter 2004 and first quarter 2005, SEM was included in the sample.

⁶⁹ Aftermarket Technology Corp.

⁷⁰ There were two exceptions: Wal-Mart and Timberland's repurchases were first announced between January and March 2004 and not completed until September 2004 and March 2005, respectively. However, because SDC designated the repurchase announcement as "completed", they were excluded from the final sample.

⁷¹ SDC provided this data for 27 out of the 50 repurchases in the sample. Southwest Airlines was an outlier, targeting 38.1% of shares outstanding. Excluding Southwest Airlines brings the average to approximately 5.3% of shares outstanding.

outstanding.⁷² The average dollar value of targeted shares was approximately \$421 million. The targeted values ranged from a minimum dollar value of approximately \$3.2 million to a maximum of \$7.38 billion. For this study's sample, the size of the repurchase authorization had a very slight negative correlation with repurchase completion.⁷³ In other words, larger repurchase programs were completed slightly more slowly than smaller repurchase programs.

C. Measuring Repurchase Program Completion: Shares vs. Dollars

Repurchase announcements include a maximum authorization, sometimes called a target. This target is either a maximum number of shares that may be repurchased, or a maximum dollar amount that may be spent on repurchases.⁷⁴ For the sake of simplicity, this study measures all repurchase announcements and actual repurchases in dollars.⁷⁵ Measuring in dollars avoids complications from stock splits and facilitates comparison across companies.

The unit of measurement can affect the reported percent completion when the stock price at announcement is different from the price at which shares are actually repurchased. If the stock price goes up after the announcement, and shares are repurchased at a higher price, then the reported percent completion will be higher when repurchases are measured in dollars than when they are

⁷² See, e.g., David L. Ikenberry et al., Market Underreaction to Open Market Share Repurchases, 39 J. Fin. Econ. 181, 185 (1995) (reporting that publicly traded firms announcing OMRs between 1980 and 1990 sought to repurchase, on average, 6.6% of outstanding shares); Clifford P. Stephens and Michael S. Weisbach, Actual Share Reacquisitions in Open-Market Repurchase Programs, 53 J. Fin. 313, 318 (1998) (reporting an average announced size of approximately 7% of firms total shares outstanding, with a median of approximately 5% of total shares outstanding for repurchases between 1981 and 1990); Kathleen M. Kahle, When a Buyback isn't a Buyback: Open Market Repurchases and Employee Options, 63 Journal of Financial Economics 235, 245 (2002) (reporting an average announced target of 6.4% for repurchases announced between January 1991 and December 1996).

⁷³ The size of the repurchase authorization was correlated with percent completion at 12 months after the announcement. The correlation was -0.025. If percent completion was truncated at 100% complete, the strength of the correlation increased to -0.041. Both correlations were statistically significant (P value for 2 tailed t-test < 0.01).

⁷⁴ Twenty-six of the fifty repurchase announcements in the sample were originally denominated in shares, while twenty-four were originally denominated in dollars. When repurchase announcements are denominated in shares, SDC automatically converts the target to a dollar value based on the closing stock price on the last full trading day prior to the announcement of the board's approval. Firms' subsequent repurchase activity can also be measured either in the number of shares repurchased or in dollars spent, because firms must report both the number of shares repurchased each month and the average price paid per share.

⁷⁵ Although the "maximum authorization" is sometimes referred to as a target, I am not aware of any evidence of a relationship between the denomination of the maximum authorization (in either shares or dollars) and the conduct of subsequent repurchase activity. Repurchase announcements generally include disclaimers that the amount of actual repurchases will depend on market conditions (i.e., price, liquidity, etc.). Actual repurchases presumably take such factors into account, whether the repurchase target is denominated in dollars or in shares.

measured in shares. On the other hand, if shares are repurchased at a lower price than the price at announcement, then reported percent completion will be lower when shares are measured in dollars than when they are measured in shares.

For the sample used in this study, the use of dollars instead of shares did not significantly affect the reported percentage completion of repurchases.⁷⁶ Firms that announced repurchases in shares paid an average of \$35.23 per share.⁷⁷ The average price at the time of the repurchase announcement⁷⁸ was \$35.91—about 2% more. This difference between the mean repurchase price and mean announcement price was not statistically significant (Two tailed P-value = 0.67).

D. Results and Comparison with Previous Studies

1. The Disclosure rule decreased the proportion of firms that failed to complete their announced repurchases

Since the 2003 SEC disclosure requirement, announced targets have become more reliable indicators of actual repurchases. Only 2% of companies studied failed to complete their repurchases within 20 months of announcing a repurchase program. This 2% figure was calculated by categorizing a company as “failing to complete” its repurchases if it repurchased less than 20% of its announced target. If the “failure to complete” category is restricted to companies that repurchased less than 5% of their announced target, then the same low non-completion rate—2%—is achieved even more rapidly, within 11 months of the repurchase announcement. This contrasts sharply with

⁷⁶ To the extent that there is a very small effect, reported repurchase completion will be slightly lower in this study than it would have been had percent completion been measured in shares for firms that announced repurchase targets in shares. Analysis of the distribution confirms this. The announcement price was higher than the repurchase price for 13 of the 24 repurchases. The announcement price was lower than the repurchase price for 11 of the 24 repurchases. Any bias to the data is therefore in a conservative direction; reversing the bias would yield even stronger results than reported.

⁷⁷ Twenty-six firms announced repurchases in shares, but two firms are excluded from this analysis (of the effects on reported percent completion of measuring repurchases in dollars instead of shares) because the firms’ stocks split. The two excluded firms are Bank of America (BAC) and Ryland Group, Inc. (RYL). This analysis looked at repurchases in the month of the repurchase announcement and in the 19 subsequent months. Each firm’s total dollars spent during the 20-month period was divided by each firm’s total shares purchased during the period to get dollars per share. The dollars-per-share figure for all 24 firms was then averaged.

⁷⁸ The closing price on the last full day of trading before the announcement, used by SDC to convert the announcement from shares to dollars.

previous studies, which reported significantly higher non-completion rates, even over a significantly longer repurchase period.

Non-completion rates before the disclosure requirement were reported in two previous empirical studies, each of which examined repurchases announced over a ten-year period. The first is a seminal study by Stephens and Weisbach⁷⁹ that analyzed almost a thousand repurchases announced between 1981 and 1990. The second is a more recent unpublished working paper by Bhattacharya and Dittmar⁸⁰ that examined over two thousand repurchases announced between 1985 and 1995. Both studies reported substantially higher non-completion rates than found in this study. Because those earlier studies tracked repurchases for a longer time period—3 and 4 years after the announcement versus 20 months for this study—companies in those studies had more opportunity to complete their repurchases, yet repurchased substantially less of their target.

Stephens and Weisbach found that in the three years after announcing a repurchase program, nearly 17% of companies repurchased less than 20% of their target. (10% of companies repurchased less than 5% of their announced target).⁸¹ Bhattacharya and Dittmar found that in the four years after announcing a repurchase program, 18% to 27% of companies announcing repurchases repurchased no stock whatsoever.⁸²

This study uses Stephens and Weisbach as the primary control/comparison study for two reasons: First, Stephens and Weisbach published far more detailed descriptive statistics that facilitate

⁷⁹ Clifford P. Stephens and Michael S. Weisbach, *Actual Share Reacquisitions in Open-Market Repurchase Programs*, 53 *J. Fin.* 313, 314 (1998). The sample of this study was the 944 open market repurchase programs announced from 1981 to 1990 in *The Wall Street Journal Index*, excluding the 995 announcements made during the fourth quarter of 1987. *Id.* at 317.

⁸⁰ Uptal Bhattacharya and Amy Dittmar, *Costless Versus Costly Signaling: Theory and Evidence* (May 2004) (Unpublished working paper), available at <http://ssrn.com/abstract=250049>. The sample for this study was all 2,297 firms announcing open market repurchases between 1985 and 1995 as listed in the Securities Data Corporation's Mergers and Acquisitions database, excluding announcements in the last quarter of 1987.

⁸¹ Stephens & Weisbach, page 323, Table II, Panel D.

⁸² Uptal Bhattacharya and Amy Dittmar, *Costless Versus Costly Signaling: Theory and Evidence*, at 17 (May 2004) (Unpublished working paper), available at <http://ssrn.com/abstract=250049> (Reporting that 18% of companies did not repurchase any stock within four years and 9% of companies dropped off Compustat without repurchasing any shares).

comparison; and second, Stephens and Weisbach's study was published in a journal while Bhattacharya and Dittmar's study is an unpublished working paper.

Figure 1 compares non-completion rates before and after the SEC disclosure rule. A repurchase is deemed "non-complete" if the company repurchased less than 20% of its announced target. The top line (blue diamond shaped data points) represents pre-disclosure rule rates of non-completion. Pre-disclosure data comes from Stephens and Weisbach, Table II, Panel D. Stephens and Weisbach estimated repurchases using CRSP Decrease in Shares Outstanding. The bottom line (red, with square-shaped data points) represents non-completion figures after the disclosure rule went to effect. Post-disclosure rule data comes from this study, based on direct reporting by sample companies in their 10Ks and 10Qs. Because Stephens and Weisbach reported data quarterly instead of monthly, there are fewer data points in the top line than in the bottom line. Because the top line has fewer data points and those data points are based on estimates, the top line is fitted with a logarithmic trend line. The bottom line runs through each of the data points.

The chart in **Figure 1** illustrates that after the SEC disclosure rule went into effect, the proportion of firms failing to complete their announced repurchases dropped substantially.

Figure 1: Before and After the New SEC Disclosure Rule:
Percent of announcing Firms that repurchase less than 20% of target

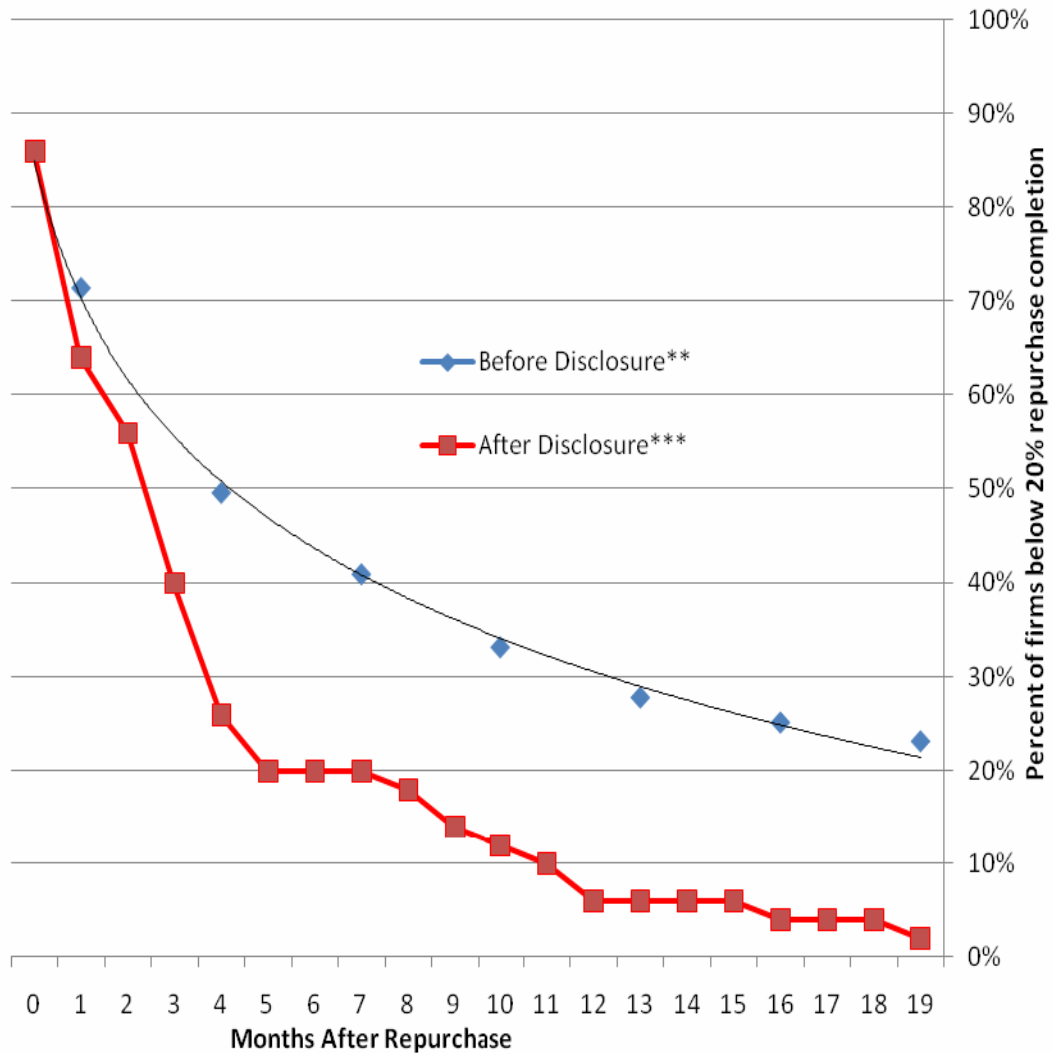
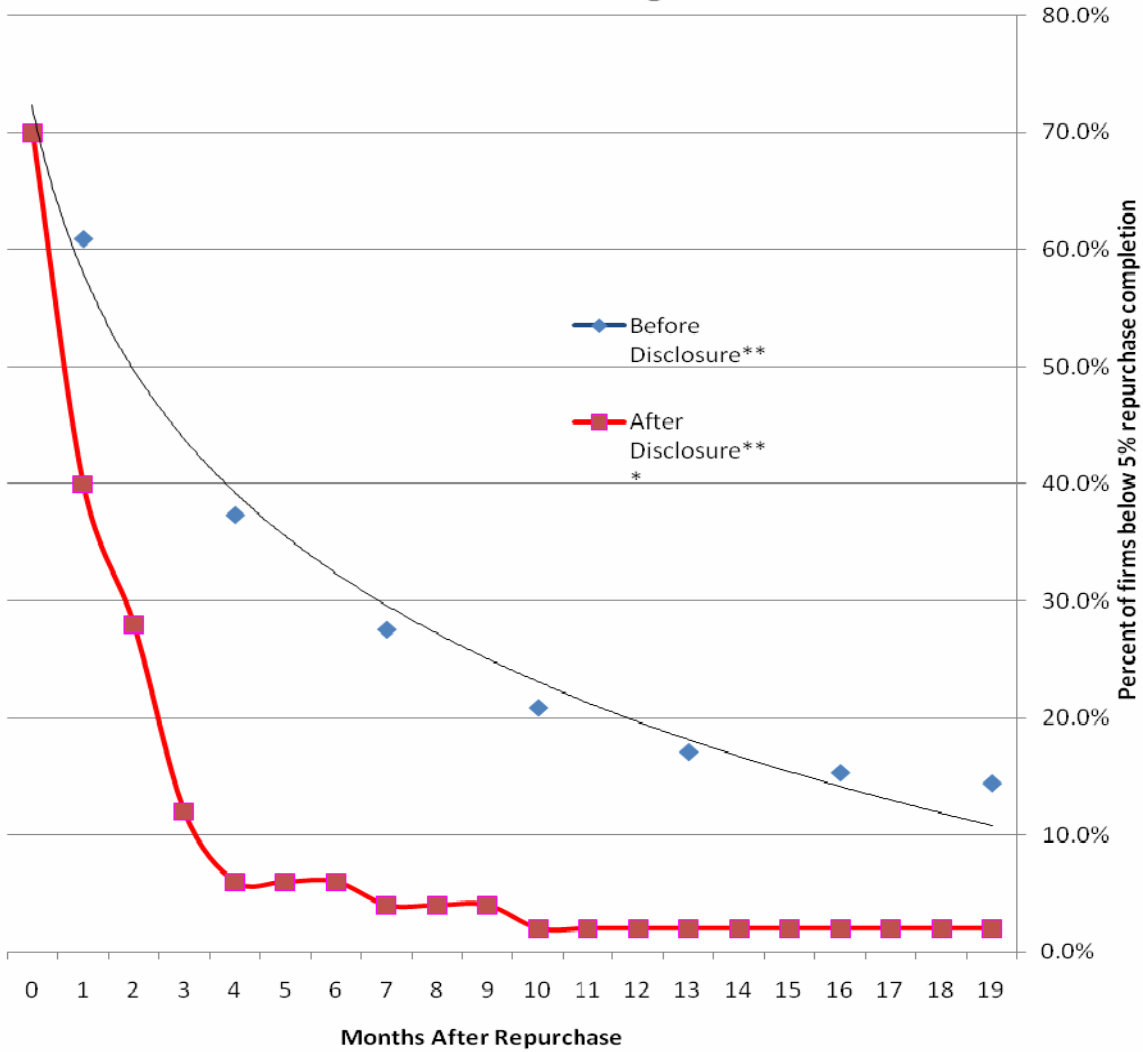


Figure 2 shows the same drop in repurchase non-completion after the SEC rule went into effect. Whereas **Figure 1** defines a repurchase as incomplete if a firm repurchases less than 20% of its announced target, **Figure 2** defines non-completion more narrowly to include only firms that repurchase less than 5% of their announced target.

**Figure 2: Before and After the New SEC Disclosure Rule:
Percent of announcing Firms that repurchase less than
5% of target**



When non-completion is defined as less than 5%, post-disclosure non-completion rates drop to close to zero rapidly, within the first few months.

Figure 1 and **Figure 2** illustrate results summarized in **Table 1** below:

**Table 1: Before and After Disclosure
Percent of Firms that Fail to Complete their Announced
Repurchases**

| Time* | | % of Firms that repurchase less than 20% of announced target within 6 Quarters of the announcement | | % of Firms that repurchase less than 5% of announced target within 6 Quarters of the announcement | |
|-----------------------------|---------------------------|--|---------------------|---|---------------------|
| Quarters after announcement | Months after announcement | Before Disclosure** | After Disclosure*** | Before Disclosure** | After Disclosure*** |
| | 0 | | 86.00% | | 70.00% |
| 0 | 1 | 71.33% | 64.00% | 60.88% | 40.00% |
| | 2 | | 56.00% | | 28.00% |
| | 3 | | 40.00% | | 12.00% |
| 1 | 4 | 49.55% | 26.00% | 37.33% | 6.00% |
| | 5 | | 20.00% | | 6.00% |
| | 6 | | 20.00% | | 6.00% |
| 2 | 7 | 40.88% | 20.00% | 27.55% | 4.00% |
| | 8 | | 18.00% | | 4.00% |
| | 9 | | 14.00% | | 4.00% |
| 3 | 10 | 33.11% | 12.00% | 20.88% | 2.00% |
| | 11 | | 10.00% | | 2.00% |
| | 12 | | 6.00% | | 2.00% |
| 4 | 13 | 27.77% | 6.00% | 17.11% | 2.00% |
| | 14 | | 6.00% | | 2.00% |
| | 15 | | 6.00% | | 2.00% |
| 5 | 16 | 25.11% | 4.00% | 15.33% | 2.00% |
| | 17 | | 4.00% | | 2.00% |
| | 18 | | 4.00% | | 2.00% |
| 6 | 19 | 23.11% | 2.00% | 14.44% | 2.00% |

*Because pre-disclosure figures were reported quarterly whereas post-disclosure figures were reported monthly, it is necessary to establish some equivalence for purposes of comparison. Quarter 0 (the quarter of the announcement) could equal month 0, month 1 or month 2. This study splits the difference and equates quarter 0 with month 1.

**Figures come from Stephens & Weisbach, Table II, Panel D. Data reported quarterly. Estimate by CRSP Decrease in Shares Outstanding.

***Figures come from this study, actual monthly repurchase data.

The lower non-completion rates since the 2003 SEC disclosure rule went into effect suggests that the rule had the intended effect of making repurchase announcements a more reliable indicator of actual repurchases.

2. Response to Possible Critiques

This causal interpretation is vulnerable to three critiques that challenge the use of Stephens and Weisbach's study as a pre-disclosure control. The first critique is that the sample differs because Stephens and Weisbach identified repurchases using Wall Street Journal announcements whereas this study identified repurchase announcements using the SDC database. The second critique is that the time gap between Stephens and Weisbach's pre-disclosure data and the disclosure rule is too large to attribute any shift in repurchase completion rates to the disclosure rule. The third critique is that the methods used by Stephens and Weisbach to estimate repurchases *underestimated* repurchases and therefore over-estimated repurchase non-completion rates.

These critiques present less of a challenge to the secondary control study, conducted by Bhattacharya and Dittmar. Bhattacharya and Dittmar's study is not vulnerable to the first or third critique, and is less vulnerable to the second critique. Furthermore, Bhattacharya and Dittmar report even lower rates of repurchase completion than Stephens and Weisbach. Had Bhattacharya and Dittmar's study been used as the primary control, the results would reflect an even more dramatic increase in repurchase completion rates after the disclosure rule went into effect. The choice of Stephens and Weisbach as the primary control was therefore a choice to *conservatively* estimate the impact of the new disclosure regulation.

First, Bhattacharya and Dittmar's sample is similar to the sample in this study because Bhattacharya and Dittmar also identified announcing companies using the SDC database. The choice of database may have an effect because SDC includes smaller firms which would probably not be included in a sample derived from the WSJ.

Second, although the time gap between the end of Stephens and Weisbach's sample period (1990) and the beginning of this study's sample period (2004) might give some pause in attributing the changes in repurchase completion to the new SEC regulation, Bhattacharya and Dittmar's data suggests that before the disclosure rule went into effect, non-completion rates were trending upward. Across studies, Bhattacharya and Dittmar (repurchases from 1985 to 1995) found higher rates of non-completion than Stephens and Weisbach (1981 to 1990). Furthermore, Bhattacharya and Dittmar found that within their sample, the proportion firms failing to complete repurchases trended upward over time.⁸³ Therefore a more recent control period would likely suggest an even more dramatic post-disclosure drop in non-completion rates.

Third, although the primary method used by Stephens and Weisbach to estimate repurchases tends to understate repurchases under certain circumstances,⁸⁴ it seems unlikely that this estimation bias could fully account for the dramatic difference in repurchase completion rates observed in this study. Furthermore, Bhattacharya and Dittmar used estimation methods that tend to *overstate* repurchases,⁸⁵ but still found higher rates of non-completion than Stephens and Weisbach. This suggests that the pre-disclosure-rule trend toward higher and higher rates of repurchase non-completion was even stronger than the raw data (unadjusted for estimation biases) suggests. This confirms that the use of Stephens and Weisbach as the primary control study was a conservative

⁸³ *Id.* at 18

⁸⁴ Stephens and Weisbach estimate repurchases using several different methods, some of which tend to overstate repurchases, some of which tend to understate repurchases. For their distributional data—presented in **Figures 1 and 2** and **Table 1**—they estimated repurchases as the monthly decrease in shares outstanding reported by the Center for Research in Securities Prices (CRSP), adjusted for stock splits. This measure tends to understate repurchases. The size of the error depends on the extent to which a firm distributes shares (for example, for exercises of employee stock options) in the same month as it repurchases them. Clifford P. Stephens and Michael S. Weisbach, Actual Share Reacquisitions in Open-Market Repurchase Programs, 53 J. Fin. 313-24 (1998). *See also* Kathleen M. Kahle, When a Buyback isn't a Buyback: Open Market Repurchases and Employee Options, 63 Journal of Financial Economics 235, 256 (2002) (“Option exercises have a significant effect on the CRSP measure of the change in shares outstanding, which could seriously bias this estimate of actual share repurchases.”)

⁸⁵ Bhattacharya and Dittmar estimate repurchases using the Compustat data item *Purchase of Stock*, reduced by any decrease in preferred stock. This measure overstates repurchases by the amount of class A, class B, and special stock converted into common stock, and by the amount of retired common stock. Uptal Bhattacharya and Amy Dittmar, Costless Versus Costly Signaling: Theory and Evidence, at 16 (May 2004) (Unpublished working paper), available at <http://ssrn.com/abstract=250049>

choice, and the true impact of the SEC disclosure rule is probably even greater than this study suggests.

3. Other measures of repurchase completion

The analysis in Section III.D.1 *supra* considers the percent of firms that fail to complete their announced repurchase targets within 20 months of the repurchase announcement. The analysis proceeds by defining a repurchase as “incomplete” if the firm repurchased less than either 20% (for **Figure 1**) or 5% (for **Figure 2**) of its announced target. Firms above the relevant “non-completion” cutoff percent are all grouped together as having “completed” their repurchases, while those below the relevant “non-completion” cutoff are deemed to have failed to complete their repurchases.

More fine-grained distributional data is presented in **Table 2** below. The data in **Table 2** is all post-disclosure data presented for the first time in this study. **Table 2** roughly corresponds to Stephens and Weisbach’s Panel C and Panel D on page 323 of their study.⁸⁶ Compared with Stephens and Weisbach, this study presents more fine grained data, both temporally (monthly data versus quarterly data) and in the number of percent completion categories (six “below” categories and five “above” for this study, versus three and three).

⁸⁶ Stephens and Weisbach’s full table is not presented in this study, but the first seven entries in the top two rows of Stephens and Weisbach’s Table II, Panel D are presented in this study’s Table 1 as the “Before Disclosure” data.

Table 2: Percentage of Firms' Repurchase Programs Above & Below Specified Percentages of Completion in Months After Announcement

| % of announced target actually repurchased (cumulative repurchases) | | | | | | | | | | | | |
|---|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|--|
| Months After Announcement | Below 5% | Below 10% | Below 20% | Below 30% | Below 40% | Below 50% | Above 50% | Above 75% | Above 100% | Above 150% | Above 200% | |
| 0 | 70% | 78% | 86% | 96% | 98% | 98% | 2% | 2% | 2% | 0% | 0% | |
| 1 | 40% | 50% | 64% | 80% | 88% | 90% | 10% | 4% | 2% | 0% | 0% | |
| 2 | 28% | 42% | 56% | 74% | 78% | 84% | 16% | 8% | 2% | 0% | 0% | |
| 3 | 12% | 22% | 40% | 54% | 64% | 70% | 30% | 14% | 6% | 4% | 2% | |
| 4 | 6% | 10% | 26% | 46% | 52% | 60% | 40% | 18% | 8% | 4% | 2% | |
| 5 | 6% | 10% | 20% | 36% | 48% | 56% | 44% | 20% | 14% | 4% | 4% | |
| 6 | 6% | 8% | 20% | 28% | 38% | 46% | 54% | 28% | 18% | 4% | 4% | |
| 7 | 4% | 6% | 20% | 26% | 36% | 40% | 60% | 42% | 22% | 6% | 4% | |
| 8 | 4% | 4% | 18% | 26% | 32% | 38% | 62% | 44% | 26% | 10% | 6% | |
| 9 | 4% | 4% | 14% | 22% | 30% | 38% | 62% | 50% | 30% | 12% | 6% | |
| 10 | 2% | 2% | 12% | 20% | 24% | 34% | 66% | 52% | 34% | 14% | 6% | |
| 11 | 2% | 2% | 10% | 20% | 24% | 32% | 68% | 58% | 38% | 14% | 6% | |
| 12 | 2% | 2% | 6% | 18% | 20% | 26% | 74% | 60% | 44% | 14% | 10% | |
| 13 | 2% | 2% | 6% | 16% | 20% | 26% | 74% | 62% | 50% | 16% | 12% | |
| 14 | 2% | 2% | 6% | 14% | 18% | 26% | 74% | 64% | 54% | 22% | 12% | |
| 15 | 2% | 2% | 6% | 14% | 18% | 22% | 78% | 64% | 56% | 28% | 16% | |
| 16 | 2% | 2% | 4% | 12% | 18% | 22% | 78% | 70% | 58% | 34% | 18% | |
| 17 | 2% | 2% | 4% | 10% | 18% | 20% | 80% | 70% | 58% | 36% | 20% | |
| 18 | 2% | 2% | 4% | 10% | 18% | 18% | 82% | 72% | 62% | 42% | 24% | |
| 19 | 2% | 2% | 2% | 8% | 14% | 16% | 84% | 76% | 68% | 42% | 26% | |

The data in **Table 2** was calculated as follows: for each of the 50 firms, cumulative monthly repurchases (measured in dollars) were divided by the firm’s announced target (also measured in dollars) to get a cumulative percent completion figure for each of 20 months—the month of the repurchase (the “zero” month) and the 19 subsequent months. Firms were divided into categories according to their level of repurchase completion, and the number of firms in each category was converted into a percent figure by dividing by the total number of firms. By the end of the 19th month after the announcement—the last month tracked by this study—68% of companies

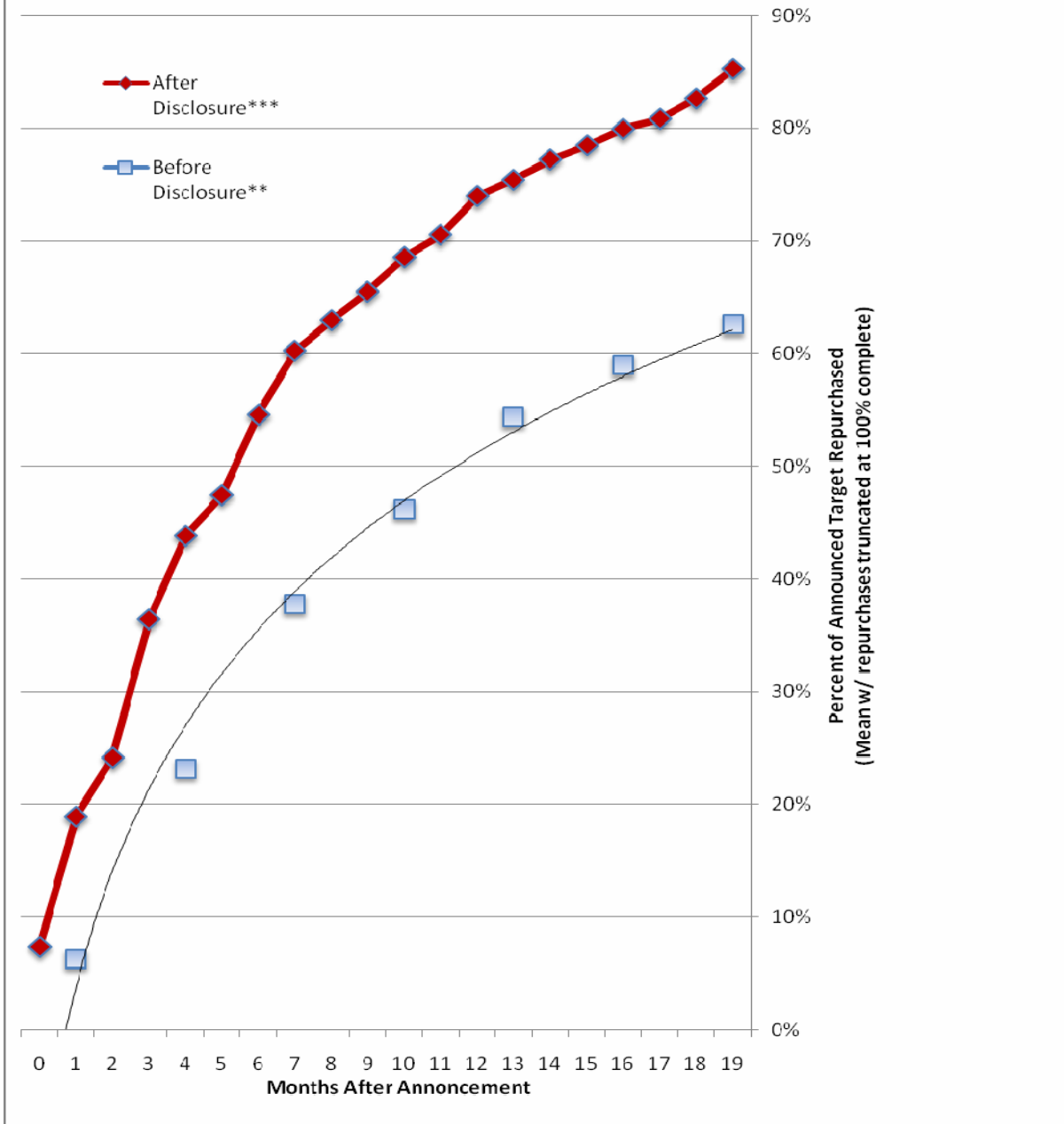
repurchased 100% or more⁸⁷ of their targets, and 76% of companies repurchased more than $\frac{3}{4}$ of their target. This distributional analysis gives equal weight to each repurchase program, regardless of its size.

Whereas all of the previous measures focus on distribution of repurchase programs into categories of completeness, another measure— average (mean) percent completion across all 50 studies over time—measures the central tendency of repurchase completion. **Figure 3** below depicts the average percent completion over time. The mean was calculating by truncating repurchases at 100% complete, summing the resulting percent completion figures for all 50 repurchase programs studied, and dividing by 50. The resulting measure gives equal weight to each repurchase program, regardless of size. Pre-disclosure figures come from Stephens and Weisbach's Table II, Panel A, and were estimate by CRSP Decrease in Shares Outstanding and truncated at 100%.

Figure 3 illustrates that after the disclosure rule went into effect, announced repurchases were completed more rapidly.

⁸⁷ Repurchases may be more than 100% complete for three reasons: (1) The company completed the first repurchase target and then announced a second authorization, which it proceeded to repurchase; (2) The company repurchased shares outside of a publicly announced repurchase program; (3) The authorized target was announced in shares but converted to dollars, and shares were subsequently repurchased for less than the price at announcement.

**Figure 3: Before & After the New SEC Disclosure Rule:
Mean Percent of announced target repurchased**



The source data for **Figure 3** above is displayed in **Table 3** below.

Table 3: Central Tendency Before and After Disclosure
Mean percent repurchase completion, truncated at 100% complete

| Time* | | % of announced target actually repurchased (cumulative repurchases) | |
|-----------------------------|---------------------------|---|---------------------|
| Quarters after announcement | Months after Announcement | Before Disclosure** | After Disclosure*** |
| | 0 | | 7.36% |
| 0 | 1 | 6.3% | 18.93% |
| | 2 | | 24.15% |
| | 3 | | 36.39% |
| 1 | 4 | 23.2% | 43.79% |
| | 5 | | 47.47% |
| | 6 | | 54.58% |
| 2 | 7 | 37.8% | 60.24% |
| | 8 | | 62.94% |
| | 9 | | 65.52% |
| 3 | 10 | 46.2% | 68.55% |
| | 11 | | 70.54% |
| | 12 | | 73.95% |
| 4 | 13 | 54.4% | 75.43% |
| | 14 | | 77.19% |
| | 15 | | 78.45% |
| 5 | 16 | 59.0% | 79.95% |
| | 17 | | 80.79% |
| | 18 | | 82.65% |
| 6 | 19 | 62.6% | 85.23% |

*Because pre-disclosure figures were reported quarterly whereas post-disclosure figures were reported monthly, it is necessary to establish some equivalence for purposes of comparison. Quarter 0 (the quarter of the announcement) could equal month 0, month 1 or month 2. This study splits the difference and equates quarter 0 with month 1.

**Figures come from Stephens & Weisbach, Table II, Panel A. Data reported quarterly. Estimate by CRSP Decrease in Shares Outstanding. Truncated at 100%.

***Figures come from this study, actual monthly repurchase data. Each company given equal weight, regardless of size of repurchase program. Truncated at 100%.

4. Difficulty of Estimating Repurchases Before the Disclosure Rule

This paper analyzes the impact of the SEC disclosure rule by comparing repurchase activity before the rule to repurchase activity after the rule. Pre-disclosure figures are, by necessity, estimates. The estimation method used, CRSP decrease in shares outstanding, is the primary method used by Stephens and Weisbach. CRSP decrease in shares is the only method of estimation for which Stephens and Weisbach reported distributional data used in **Figure 1**, **Figure 2**, and **Table 1**. However, Stephens and Weisbach also used other estimation methods to calculate the mean percent completion data used in **Figure 3** and **Table 3**. Data based on these alternate estimation methods are displayed below in **Figure 4** and **Table 4**. **Figure 4** and **Table 4** differ from **Figure 3** and **Table 3** only in that: (1) **Figure 4** and **Table 4** include alternate estimation methods for pre-disclosure data; and (2) the post-disclosure data in **Figure 4** includes only a fitted line without markers for specific data points.

Figure 4 illustrates the challenge faced by researchers and regulators who tried to estimate repurchases before the SEC required companies to disclose their repurchases. The difficulty of estimating repurchases demonstrates the need for the disclosure rule. The six estimates vary so widely that the two most aggressive estimates are scarcely any different from post-disclosure repurchase figures. However, the difficulty of estimating repurchases does not call into question the conclusions of this study because (1) the two most aggressive estimation methods used by Stephens & Weisbach clearly overstate repurchases and (2) the central tendency data is merely additional support for conclusions based primarily on the distributional data in **Figures 1**, **Figures 2**, and **Table 1** and (3) a more recent study by Bhattacharya and Dittmar suggests that the disclosure rule had an even greater effect in improving repurchase completion than suggested by Stephens and Weisbach's data.

Figure 4: The difficulty of Estimating Pre-disclosure Repurchases

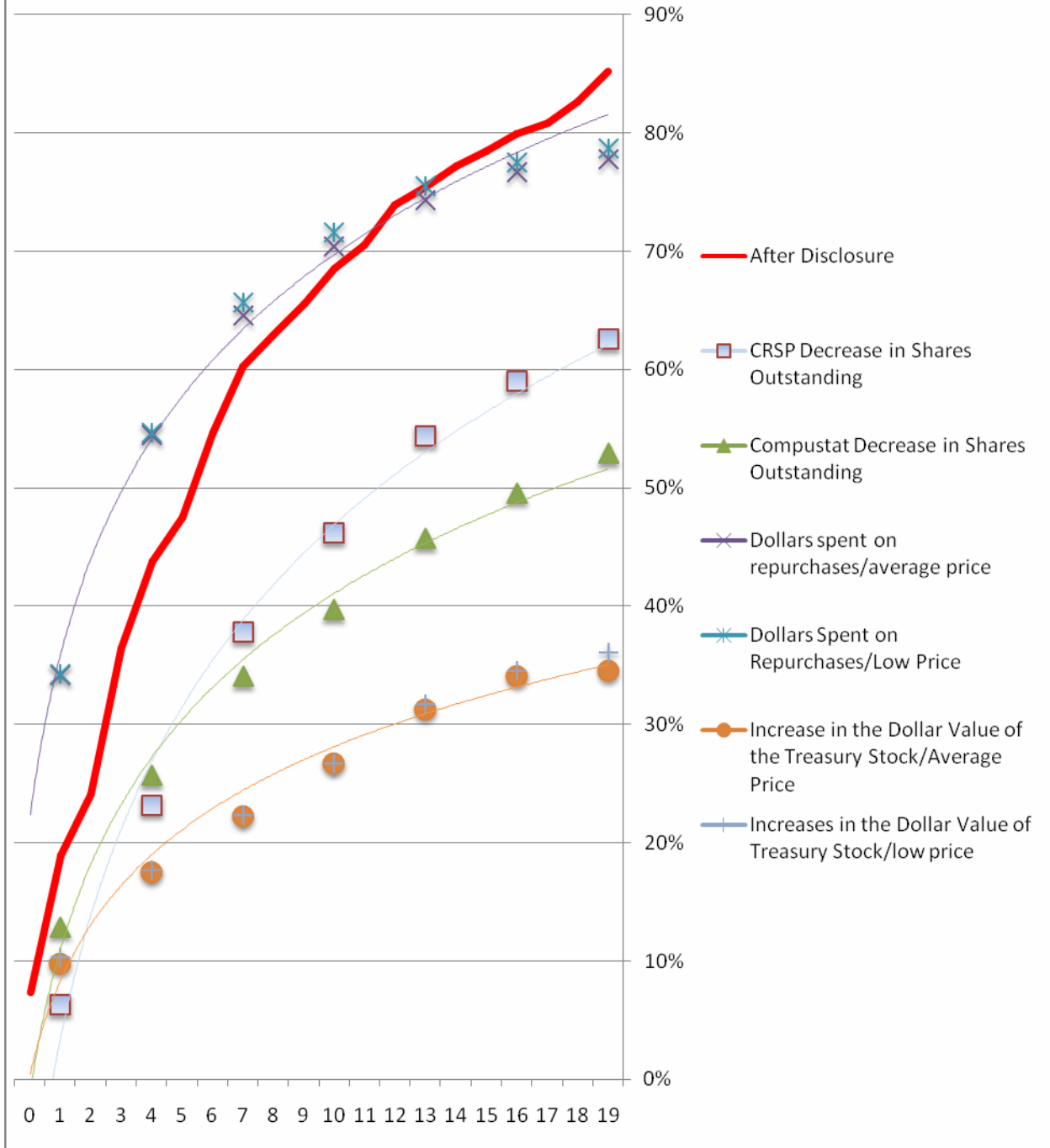


Table 4: The Difficulty of Estimating Pre-Disclosure Repurchases

| Time* | | % of announced target actually repurchased (cumulative repurchases) | | | | | | | |
|---------------------------|-----------------------------|---|-------------------------------------|--|--|--|--|--|--|
| Months after Announcement | Quarters after Announcement | After Disclosure | Before Disclosure | | | | | | |
| | | | CRSP Decrease in Shares Outstanding | Compustat Decrease in Shares Outstanding | Dollars spent on repurchases/average price | Dollars Spent on Repurchases/Low Price | Increase in the Dollar Value of the Treasury Stock/Average Price | Increase in the Dollar Value of Treasury Stock/low price | |
| 0 | | 7.36% | | | | | | | |
| 1 | 0 | 18.93% | 6.3% | 12.9% | 34.2% | 34.3% | 9.8% | 10.3% | |
| 2 | | 24.15% | | | | | | | |
| 3 | | 36.39% | | | | | | | |
| 4 | 1 | 43.79% | 23.2% | 25.7% | 54.5% | 54.7% | 17.5% | 17.7% | |
| 5 | | 47.47% | | | | | | | |
| 6 | | 54.58% | | | | | | | |
| 7 | 2 | 60.24% | 37.8% | 34.1% | 64.6% | 65.7% | 22.2% | 22.3% | |
| 8 | | 62.94% | | | | | | | |
| 9 | | 65.52% | | | | | | | |
| 10 | 3 | 68.55% | 46.2% | 39.7% | 70.4% | 71.6% | 26.7% | 26.7% | |
| 11 | | 70.54% | | | | | | | |
| 12 | | 73.95% | | | | | | | |
| 13 | 4 | 75.43% | 54.4% | 45.7% | 74.3% | 75.5% | 31.3% | 31.7% | |
| 14 | | 77.19% | | | | | | | |
| 15 | | 78.45% | | | | | | | |
| 16 | 5 | 79.95% | 59.0% | 49.6% | 76.7% | 77.5% | 34.1% | 34.5% | |
| 17 | | 80.79% | | | | | | | |
| 18 | | 82.65% | | | | | | | |
| 19 | 6 | 85.23% | 62.6% | 52.9% | 77.8% | 78.7% | 34.5% | 36.1% | |

*Because pre-disclosure figures were reported quarterly whereas post-disclosure figures were reported monthly, it is necessary to establish some equivalence for purposes of comparison. Quarter 0 (the quarter of the announcement) could equal month 0, month 1 or month 2. This study splits the difference and equates quarter 0 with month 1.

IV. Conclusion

Since the 2003 SEC disclosure requirement, announced targets have become more reliable indicators of actual repurchases. Whereas before the disclosure requirement, as many as a quarter of firms would announce repurchases and fail to complete their repurchases, since the 2004 SEC disclosure requirement, firms consistently complete their announced repurchases. Because repurchase completion is a good proxy for false signaling and bargain repurchases, we can conclude that disclosure has substantially reduced the danger to investors of false signaling or bargain repurchases. This demonstrates that mandatory disclosure rules change the behavior of market participants and can be an effective method to protect the investing public.