

Why Do Firms Go Dark?  
Causes and Economic Consequences of  
Voluntary SEC Deregistrations

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First Version: June 2004  
This Version: September 2004

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## **Abstract**

We examine public companies that choose to “go dark” , i.e., cease reporting to the SEC by deregistering their common stock, but continue to trade in the over-the-counter market. A firm can simply deregister by filing a one page form with the SEC, provided that the firm satisfies certain criteria, most notably having fewer than 300 holders of record (or 500 holders for smaller firms). In 2003 alone, over 200 companies went dark, raising concerns that recent changes to U.S. securities regulation and the associated costs are driving firms to deregister their stock. This study analyzes the rationales for, and economic consequences of, voluntary deregistrations from 1998 to 2003. We document a large negative abnormal return at the announcement and filing of deregistration, particularly for smaller firms, suggesting that cost savings alone are unlikely to be the reason for firms going dark. Consistent with the reduction in disclosure, we find a significant drop in trading volume after deregistration. We use a probit analysis to compare our going dark sample to firms that went private over this period, as well as to a control sample of firms that were eligible to go dark based on their number of holders of record, but chose to continue reporting. The evidence on firm performance, growth prospects and ownership structures is consistent with insiders opting out of SEC reporting for private control benefit reasons, as well as managers and investors reacting to the firm’s diminished future prospects.

**KEYWORDS:** Deregistration, Voluntary disclosure, Going-private; Sarbanes-Oxley Act.

# 1 Introduction

The choice between private and public financing is a fundamental corporate decision. Companies must weigh factors such as less costly access to capital and increased liquidity of shares against direct and indirect costs of public trading and increased disclosure. These tradeoffs play out not only in the binary decision to be public or private, but also along a spectrum of choices reflecting varying degrees of liquidity and disclosure. Of particular recent interest is the surge of public companies that have decided to dramatically decrease their disclosure to the public by deregistering their common stock, and in so doing suspending their obligation to make periodic filings to the SEC. The increased disclosure and related internal control requirements introduced by the Sarbanes–Oxley Act of 2002 are frequently cited as catalysts in this recent movement to “go dark.”<sup>1</sup> In 2003 alone, 219 U.S. companies deregistered their common stock for reasons other than a bankruptcy, liquidation, merger, acquisition, or going-private transaction.

Public companies may voluntarily file for deregistration if they have fewer than 300 shareholders of record, or fewer than 500 holders of record and less than \$10 Million of assets in each of the prior three years. Many companies that meet these criteria have thousands of beneficial shareholders, most of whom have their shares held in street name by financial institutions, each of which represents only one holder of record. In a petition sent to the SEC on July 3, 2003 (Nelson (2003)), a group of institutional shareholders asked the SEC to amend Rule 12g5-1 of the Securities and Exchange Act of 1934 (which was added in 1964 in response to legislation enacted by Congress) to include as “held of record” each account for a beneficial owner holding the security in street name.<sup>2</sup> They argue that the recent wave of deregistrations has left many shareholders without access to accurate, publicly available information about companies in which they have ownership stakes, and go further to claim that amending the definition of holders of record will help tide the “current widespread manipulation of the capital markets by some unprincipled issuers”.

Since the decision to deregister is a voluntary one, the claim that many shareholders are impacted negatively by this decision suggests that insiders of the firm are affected by the decision differently than are minority shareholders. The impact of the resulting loss of liquidity may be of minor concern to insiders whose shares

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<sup>1</sup>See McKay (2003) and Frigo and Litman (2004).

<sup>2</sup>In another petition sent to the SEC on November 1, 2002 (Goldstein (2002)), an institutional investor claims that the burden of Sarbanes–Oxley will “soon streamroll into an avalanche of companies removing themselves from SEC regulation.” This petition asks the SEC to consider an exemption for small businesses from rules and regulations dictated by Sarbanes–Oxley. The outcome of these petition review processes are still pending as of the date of writing.

are already relatively illiquid. Furthermore, managers and directors may be able to increase their private control benefits due to the increased difficulty in monitoring their activities. These benefits potentially include more favorable compensation packages, increased expenditure in projects that build managerial reputation, and, in the extreme, expropriation of corporate funds.<sup>3</sup>

While the recent surge of deregistrations is often credited to the higher costs associated with disclosure, our results indicate that the decision to go dark may also be driven by the desire of insiders to protect or increase their private control benefits. The increase in corporate disclosure requirements and the growing liability exposure of officers and directors appear to have provided additional incentive for insiders to look for a way to keep investors in the dark. Supporting this position is the significant average stock price decline we find associated with going-dark deregistrations, which is magnified in the period following the passage of the Sarbanes-Oxley Act. However, the significantly negative returns surrounding deregistrations may also reflect that shareholders infer a negative signal about the firm's future growth prospects. Stronger performing firms appear to go private rather than go dark during our sample period.

While this is the first study to examine a large sample of deregistrations in detail, we connect our hypotheses and results to those from related studies, particularly from three different strands of the literature.<sup>4</sup> First, to the extent that a deregistration allows a firm to quickly and inexpensively become "quasi-private", we compare deregistrations to going-private transactions. Both actions remove the obligation to provide information to public investors, and allow the management team to focus its attention on the company's strategy and operations, and to avoid efforts to manage earnings or to attain other short-sighted goals, which may impair long-term shareholder value (e.g. Frigo and Litman (2004), Graham et al. (2004), and Jensen (2002)).<sup>5</sup> However, going-private and going-dark differ considerably not only in complexity but also in motivation. In going-private transactions, most of

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<sup>3</sup>Recent instances of such suspected behavior at large companies such as Adelphia, Enron, Global Crossing, HealthSouth, Hollinger, Parmalat, Qwest, Tyco and World Com have been well publicized. The Sarbanes-Oxley Act was designed to address and mitigate such behavior, thus protecting shareholders of public companies.

<sup>4</sup>In a concurrent paper, Marosi and Massoud (2004) analyze a small sample of 42 firms that voluntarily deregister and delist from major exchanges.

<sup>5</sup>Graham et al. (2004) report that 78% of the 401 financial executives they surveyed would give up economic value - for example not investing in positive NPV projects - in order to smooth earnings or meet earnings targets. The impetus to use various potentially value-reducing maneuvers in order to smooth earnings seems to be driven by the stock market's reaction to firms' earnings relative to their benchmarks. Going dark or private renders such value-destructing activities largely pointless, and in turn can increase firm value, particularly for firms that rely more heavily on managing their earnings, such as technology firms and companies with more volatile revenue streams.

the existing shareholders are bought out at a premium, and, through larger shareholder stakes and the necessity of servicing a higher debt load, insiders are highly incentivized to work closely with a few large private investors to increase operating efficiency and realize a higher value for the company. To highlight these differences, we examine a parallel sample of going-private transactions. We find that companies that go dark rather than go private tend to be smaller, and have weaker recent performance, higher leverage, and fewer institutional owners.

Second, since the decision to deregister is a voluntary one that affects the public firm's disclosure policy, there are some natural connections to the recent literature on voluntary disclosure (e.g. Healy and Palepu (2001)). Our study adds a new dimension to this literature as it appears to be the first to focus on a *decrease*, rather than increase, in the commitment to disclosure.<sup>6</sup> Our paper is also related to the cross-listing literature. Cross-listing on U.S. exchanges involves firms' willingness to submit themselves to SEC regulations and may entail a similar tradeoff between increased disclosure and insiders' private control benefits (e.g. Doidge et al. (2003))

Third, since deregistration often results in the delisting of a company's stock, or may become more likely following a delisting, there are some connections between deregistration and delisting to explore. It is important, however, to note the distinction between these two events. Most delistings occur involuntarily, and are not associated with deregistration of the stock.<sup>7</sup> Voluntary deregistration may or may not imply contemporaneous delisting of the company's stock: if the firm already trades in the Pink Sheets, there will be no delisting; if, however, the stock trades on another exchange, the stock will delist and trade in the Pink Sheets since all other markets require registration of the firm's stock. Our sample contains significant numbers of stocks in both categories, and thus we are able to separate out the effects of deregistration and delisting. As expected, we find that if the company's stock is not already traded in the Pink Sheets, then it will experience a larger price drop associated with deregistration than if it already trades in the Pink Sheets. We also find that there is an additional drop in the company's stock price at the time of delisting, even after the firm's stock has been deregistered and thus delisting should be fully anticipated. However, firms that already trade in the Pink Sheets experience both a price and liquidity drop as a result of deregistration, indicating

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<sup>6</sup>Miller (2002) documents that firms' voluntary disclosures are related to their earnings performance and may decrease after performance declines. Another related case is the situation where firms choose not to change their disclosure policy despite a change in regulatory policy favoring increased disclosure. In this vein, Bushee and Leuz (2004) examine firms' disclosure decisions in response to a new rule requiring OTC Bulletin Board firms to register with the SEC.

<sup>7</sup>Recently, Macey et al. (2004) and Angel et al. (2004) examine regulatory (involuntary) delistings to the over-the-counter market from the NYSE and Nasdaq, respectively. They document a significant impact on the delisted companies' stock price and liquidity.

that deregistration has a distinct effect from delisting on a firm's stock.

The next section details the deregistration process from a legal and procedural perspective. In Section 3, we discuss the costs and benefits associated with both going-dark and going-private decisions, and present our research design. Section 4 describes our sample selection and presents some descriptive statistics. Section 5 documents our findings. Section 6 provides concluding remarks.

## 2 The Deregistration Process

Under SEC rules, a company with a class of securities registered under the Securities Exchange Act of 1934 may choose to terminate the registration of any such class of securities if the securities have fewer than 300 record holders, or fewer than 500 record holders if the company's total assets have not exceeded \$10 million at the end of the company's three most recent fiscal years, and if the company satisfies some additional criteria to be discussed below. If a company deregisters all of its securities, it is no longer required to file annual, quarterly or periodic reports with the SEC, or to comply with the Sarbanes-Oxley Act and the SEC rules promulgated thereunder.<sup>8</sup> The Exchange Act (Rule 12g5-1) defines "holders of record" for purposes of Sections 12(g) and 15(d) of the Act. Most security holders hold their certificates in street name through a broker, in which case the broker is the holder of record. The SEC originally proposed a version of the deregistration rule that would have looked through to the beneficial owners of the street-name securities, but decided against this.<sup>9</sup>

A company that is interested in deregistering its securities in order to go dark, but has more than 300 record holders, may follow one of two approaches in order to reduce its holders of record below the threshold. First, the company could orchestrate a reverse stock split with a sizable split ratio (e.g. 1 for 1000 shares). This would result in significant fractional interests that could then be cashed out. Such a split is affected by a charter amendment and requires shareholder approval. This approach requires filing a proxy statement together with a Schedule 13e-3 filing, and SEC review must precede the solicitation of shareholder consent.

The second approach involves an issuer self-tender offer, whereby the company

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<sup>8</sup>These rules include the implementation and disclosure of upgraded internal controls, CEO and CFO personal certifications, the hiring of financially qualified independent directors to serve on audit committees, the cessation of loans to insiders, and the facilitation of financial whistleblowing.

<sup>9</sup>SEC (1997) provides further details of this history, and a petition by Nelson (2003) seeks to change the ruling to reflect beneficial owners. In contrast to the SEC's interpretation in this instance, Nasdaq uses the number of beneficial owners, rather than the holders of record, in defining its minimum shareholder requirement for continued listing.

offers to repurchase its shares pursuant to particular SEC rules. Though this approach also involves filing Schedule 13e-3, this process tends to be faster to execute than the reverse split, and is more favorably viewed given that minority shareholders choose whether to tender their shares, as opposed to being squeezed out by a majority vote in the case of a reverse split. However, there is no guarantee that the number of record holders will fall below 300 under this approach, particularly if a significant number of small investors holding shares in bearer form ignore the offer.

Since we later compare going-dark and going-private firms, it is worth noting that companies that intend on going-private also often execute reverse-splits and self-tender offers in order to eliminate smaller shareholders. They also frequently use a special form of merger specifically designed for going-private transactions, or rely on a tender offer by a third party to take them private. In all cases, a 13e-3 Schedule must be filed if the company does not already have fewer than 300 shareholders of record, or trades on a national securities exchange or is authorized for quotation on Nasdaq. The 13e-3 disclosure requirements are rigorous, including providing details on all the alternatives considered by the Board of Directors, all bids received during the past two years, and a statement as to the fairness of the transaction to unaffiliated shareholders.

In addition to having fewer than 300 (or 500 for smaller firms) holders of record, there are several other requirements that a firm must satisfy to qualify to deregister its securities. First, a company is not allowed to suspend its reporting obligations with respect to a class of equity securities during the fiscal year in which a registration statement related to this class of securities was declared effective (e.g. if the firm had an IPO or SEO). Second, the company must have filed all of its annual and quarterly reports for the shorter of its most recent three fiscal years (and the portion of the current year preceding the Form 15 filing) or the period since the company began its obligation to report. Third, the company must not have any contractual obligations (such as registration rights granted to investors or vendors) that require the company to continue filing reports with the SEC (or it must get the consent of the affected parties to waive such a requirement). Fourth, if the company has a stock option plan, it will not be able to issue shares to employees once it deregisters its stock unless it is able to get an exemption from Securities Act registration requirements (which may be difficult if there are a large number of employees). Fifth, the company's certificate of incorporation and bylaws must not include restrictions on terminating SEC reporting (which they rarely do).

If a company satisfies all these requirements and wishes to deregister its common stock, it may first have to apply to delist its stock from an exchange before filing

Form 15 to deregister. The exact process depends on where the company's stock is traded, and in turn what Section(s) of the Exchange Act the company is registered under. Companies whose securities are listed on a national securities exchange are registered pursuant to Section 12(b) of the Exchange Act. These companies must first apply to the exchange to remove the company from listing at the exchange. Each exchange stipulates its own rules regarding voluntary delisting. For instance, the NYSE requires the company to obtain approval of the company's audit committee and board of directors, to publish a press release announcing the proposed delisting, and to send to at least the largest 35 shareholders of record written notice of the proposed delisting and expected effective date. The company need not, however, obtain formal stockholder approval. If the exchange approves the company's request for delisting, the company will then submit an application to the SEC pursuant to Rule 12d2-2 of the Exchange Act to get the SEC's approval. After a 21-day comment period following publication of the application in the Federal Register, the SEC then decides whether to approve the application to deregister under Section 12(b).

Companies whose securities are quoted on the Nasdaq National Market, the Nasdaq Small Cap Market, or the OTC Bulletin Board, or companies that have more than 500 holders of record and \$10 Million in assets at the end of the previous calendar year, have their securities registered pursuant to Section 12(g) of the Exchange Act. Nasdaq companies need only provide written notice to Nasdaq of their request for voluntary delisting, stating the reason for such an action. The OTC Bulletin Board has no formal requirements related to voluntary delisting.

Section 15(d) of the Exchange Act creates reporting obligations for companies not registered under either Section 12(b) or 12(g), but that have registered a distribution of securities under the Securities Act of 1933. Companies that terminate their registration under Section 12 will become subject to a filing requirement under Section 15(d). However, under Rule 12h-3, this obligation can be suspended by checking the appropriate box on Form 15 (together with the box for the applicable subsection of Rule 12g-4 if appropriate).

Once a company files Form 15, which is a simple one-page form certifying the number of record holders and the company's intention to terminate reporting under particular sections of the Exchange Act, its duty to file any reports required under Section 13(a) of the Exchange Act (which include Forms 10-K, 10-Q and 8-K) is effectively suspended. If the company's stock has been quoted on Nasdaq or the OTC Bulletin Board, the stock will no longer be quoted in these markets once Form 15 is filed, but will be eligible for quotation on the Pink Sheets, an automated, real time electronic quotation service. The SEC has up to 90 days to approve

or deny the termination of registration, and the company may withdraw its filing during this period.<sup>10</sup> Once the deregistration is approved, all reporting requirements of the SEC are formally suspended.<sup>11</sup> However, the laws of the state in which a company is incorporated may stipulate ongoing disclosure obligations, including furnishing financial statements to shareholders (e.g., for Arizona companies) and holding annual stockholder meetings (e.g., for Delaware and New York companies).<sup>12</sup>

### 3 Hypothesis Development and Research Design

Having reviewed the regulatory requirements surrounding the decisions to go dark or private, we now detail and contrast the complex cost benefit tradeoffs that drive these decisions, and then outline our research design.

#### 3.1 The Benefits and Costs of Going Dark

The most often cited benefit of going dark, as reported in press releases (as well as the occasional 13e-3 filing that precedes going-dark deregistrations), is the cost saving from not having to comply with SEC regulations. Periodic reporting to the SEC consumes considerable internal resources, and involves increased expense of retaining auditors and lawyers. Since there are some scale economies associated with these costs, smaller firms claim to find compliance to be particularly burdensome. The new requirements introduced by the Sarbanes–Oxley Act of 2002 have significantly increased the direct costs of reporting due to higher audit and legal fees, new internal control systems that need to be implemented, higher D&O insurance premiums, and a host of other expenses associated with complying with Sarbanes–Oxley (principally Titles III and IV dealing with Corporate Responsibility and Enhanced Financial Disclosure, respectively).<sup>13</sup> Regulation FD, introduced in 2000, has also resulted in

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<sup>10</sup>For example, on August 22, 2003, Dotronix withdrew its request to end registration originally made on June 27, 2003, at the request of a firm that indicated its interest in acquiring Dotronix.

<sup>11</sup>A company wishing to reenter the Exchange Act reporting system once the SEC has approved its Form 15 filing would need to file Form 10s and other suspended reporting requirements for the period since the deregistration, for review by the SEC. If the company has no intention of returning to reporting status, it should monitor annually its record holders and take appropriate action to reduce the number of holders if the number exceeds the maximum threshold of 300 (or 500) to avoid having to re-register.

<sup>12</sup>At the time of quote initiation in the Pink Sheets, Rule 15c2-11 states that the company has to provide a market maker with its current financial statements (which might be the most recent 10K). After this date, companies can effectively avoid having to provide any additional financial information (see Bushee and Leuz (2004)).

<sup>13</sup>According to a recent survey of CFOs (Nyberg (2003)), 48% of their companies will spend at least \$500,000 on Sarbanes-Oxley compliance. Nearly 40% of the CFOs surveyed see the increased burden as having “very little” or “no effect” on the efficiency of their current processes, and only 30% believe the benefits outweigh the costs. In addition to the direct costs associated with compliance,

increased corporate effort and expense.<sup>14</sup> Deregistration can thus directly increase profitability by cutting out these expenses.<sup>15</sup>

In addition to the direct cost savings associated with curtailing reporting activities, there are also potential indirect cost savings. By controlling the information which is made public, companies are able to avoid disclosing information that may be of value to their competitors.<sup>16</sup> Furthermore, to the extent that managers attempt to live up to Wall Street’s standards of meeting or exceeding earnings targets by managing their operations in ways that might otherwise impair a company’s value, going-dark allows managers to escape short-term pressures, and instead focus on maximizing long-term corporate value.

Insiders may perceive additional benefits from going dark. They may be better able to hide activities that increase their private benefits, including loans on favorable terms, generous compensation packages, special deals with companies in which the insiders hold stakes, investment in glamorous or “pet” projects (Demsetz and Lehn (1985), Jensen (1993)), activities that increase their human capital (Shleifer and Vishny (1989)), perks, and, in the extreme, blatant expropriation of wealth (e.g. Conrad Black’s recently exposed looting of over \$400 Million from Hollinger).<sup>17</sup> Going dark increases the expected value of these private benefits, and reduces the expected costs associated with preventing detection, and acquiring legal protection and potentially paying penalties in the event that these activities are uncovered.<sup>18</sup> The lack of publicly available information will also likely reduce the frequency and attractiveness of outside offers, leading to increased managerial entrenchment.

Of course, the extent to which insiders can increase their control benefits by

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one CFO states that “the fear of personal liability is so great that managers are afraid to take risks on innovation.” Other CFOs note that compliance has left them with less time to spend on strategic decisions, and 33% of the CFOs stated that projects or initiatives have been delayed or cancelled as a result of Sarbanes–Oxley compliance.

<sup>14</sup>A Securities Industry Association study in May 2001 estimates that the aggregate cost of complying with Regulation FD has been somewhere between \$250 and \$450 million.

<sup>15</sup>Companies that deregister may still have to incur costs associated with complying with state laws related to incorporation. Some states (e.g. New York and Arizona still require periodic audited financial information. Other states (e.g. California) require the firm’s charter and related material and procedures to be amended if the firm’s deregistration leads to delisting by an exchange.

<sup>16</sup>Campbell (1979) and Yosha (1995) use this argument to explain why firms may not want to go public. Other indirect costs of disclosure are discussed in the literatures on going-public and going-private decisions (e.g., Pagano et al. (1998), Roell (1996) and Lehn and Poulsen (1989)).

<sup>17</sup>Boehmer and Ljungqvist (2004) find that firms whose controlling shareholders enjoy large private benefits of control are less likely to go public, which is consistent with this argument. In modelling the IPO timing decision, Benninga et al. (2004) provide a model in which an entrepreneur trades off control benefits that are enjoyed only if the firm remains private against the higher valuations that diversified outside investors are willing to pay. Private benefits of control have been most recently examined in a global setting by Dyck and Zingales (2004).

<sup>18</sup>The Sarbanes–Oxley requirement that CFOs and CEOs must sign off on their companies’ 10K statements increases the legal stakes associated with fraudulent reporting.

going dark will depend on the strength of the firm's corporate governance. Potential increases in control benefits will be abated by the presence of strong monitoring by large shareholders who don't receive the same pro rata amount of private benefits as do the insiders. The presence of outside directors and of powerful creditors may also impose monitoring that mitigates expropriation by insiders.

Turning now to the costs associated with going dark, there are several reasons why the resulting loss of transparency will likely have a negative impact on the value of equity. When a firm ceases its regular filings to the SEC, outside investors will be dramatically less informed than the firm's insiders. The presence of such asymmetric information increases expected asset returns, as uninformed traders require compensation to hold stocks where there is greater private information.<sup>19</sup> Firms that go dark are also less likely to be followed by analysts and investors as access to information becomes severely limited.<sup>20</sup> As Merton (1987) argues, a smaller, and thus less diversified, base of investors will in turn require a higher risk premium.<sup>21</sup> Furthermore, even if a company's stock does not disappear from investors' radar screens, investors will become less confident in their estimates of the return distribution of the stock, leading to an increase in expected return.<sup>22</sup>

Without the careful monitoring of shareholders and the enforcement mechanisms of the SEC that lead to more reliable reporting, creditors will be forced to increase their monitoring of the firm, thus increasing the cost of debt. The company may also lose its bargaining power with banks if it loses its access to other sources of external capital.<sup>23</sup> Taken together with an increase in the company's cost of equity, the resulting higher cost of capital reduces the value of potential projects within the company, and results in foregoing otherwise profitable projects, both of which reduce the value of equity.<sup>24</sup> Firms that have strong growth opportunities and that depend

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<sup>19</sup>See Easley and O'Hara (2000), Wang (1993), and Admati (1985) for theoretical arguments supporting this argument, and Easley et al. (2002) for empirical evidence that stocks with higher probabilities of information-based trading indeed have higher rates of return.

<sup>20</sup>The investor base may also shrink because of regulations restricting investors from buying Pink Sheet stocks on margin, institutions from holding penny stocks, and brokers from recommending such stocks or trading them in an investor's managed account.

<sup>21</sup>Basak and Cuoco (1998), Shapiro (2001) and others present models that build on this intuition. Benos and Weisbach (2003), Doidge et al. (2003), Karolyi (1998) and Reese and Weisbach (2002) provide supporting evidence in the context of cross-listing of securities, where a larger international base of investors leads to a lower cost of capital.

<sup>22</sup>See Barry and Brown (1984), Barry and Brown (1985), Barry and Jennings (1992) and Coles et al. (1995).

<sup>23</sup>Rajan (1992) develops this argument of competition in sourcing capital as a rationale for going public.

<sup>24</sup>SEC reporting may also be stipulated in the firm's existing debt covenants and registration agreements, leading the firm to have to redeem existing securities. To the extent that SEC reporting is required in order to access certain sources of funding (e.g. Rule 144 sales), the company will further limit its options to secure future financing.

on external financing will suffer comparatively more than those whose growth is limited or can be self-financed.<sup>25</sup> Corporate profitability may also decline if the company's trade relationships with suppliers and customers, as well as its ability to hire and structure effective compensation packages for employees, suffer as a result of the lack of corporate visibility and transparency.<sup>26</sup> Furthermore, the company's growth will be hindered if their securities will be difficult to use as currency for potential acquisitions.

Finally, the company's stock is likely to suffer a decrease in liquidity when the firm goes dark. If the stock is not already traded in the Pink Sheets prior to deregistration, and thus will be delisted as a result of going dark, a loss of liquidity is to be expected based on empirical evidence provided in Macey et al. (2004), Angel et al. (2004) and Bushee and Leuz (2004) for stocks delisted to the Pink Sheets from the NYSE, Nasdaq, and the OTCBB, respectively. For stocks already trading in the Pink Sheets prior to deregistration, while there will not be a change in trading venue, liquidity will likely still decline as a result of the smaller investor base that deregistration may produce and the restricted information flow. (We will address this empirical question directly in Section 5.) Both theory and empirical evidence suggest that a loss in liquidity translates into a higher cost of equity.<sup>27</sup> Thus, the impact of liquidity should be a key factor in the going dark decision. Of course, minority shareholders likely place a much higher premium on liquidity than do insiders, who may consider their significant ownership stake in the company to be largely illiquid anyway. Thus, relative to minority shareholders, insiders may be more predisposed to give up liquidity by going-dark in exchange for higher long-term corporate value, and particularly for higher private benefits.

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<sup>25</sup>Companies that are young and have high leverage, low cash balances and cash flows, and high cash flow volatility, will be particularly impacted. To the extent that a company's stock may be underpriced by the market, the firm would be less likely to access external equity, and thus the impact of a higher cost of equity due to going dark may have little marginal impact on the firm's investment and financing decisions (see Baker et al. (2003)).

<sup>26</sup>Roell (1996) cites three key reasons why companies go public: trading liquidity that facilitates an effective employee incentive system, the use of the company's share price to convey information about the company's prospects to suppliers, customers, employees and potential sources of funding, and the potential to access capital on more competitive terms.

<sup>27</sup>Amihud and Mendelson (1986) argue that in equilibrium, traders require higher returns to compensate for higher bid-ask spreads. Amihud and Mendelson (1986) and Eleswarapu (1997) present empirical evidence supporting this liquidity hypothesis. Other studies, including Brennan and Subrahmanyam (1996), Brennan et al. (1998), and Amihud (2000), have also found a negative relationship between returns and liquidity using alternative measures of liquidity.

### 3.2 Going Private vs. Going Dark

Given that many firms choose to become fully private, rather than simply going dark, it is useful to briefly review the rationales for going private transactions, and contrast these motivations with those for going dark. By examining a concurrent sample of going-private transactions, we will be better able to focus on differences between going-dark and going-private, and thus to identify the unique drivers of the going-dark decision. While a going-private transaction, like a voluntary going-dark deregistration, releases the company from its obligation to report to the SEC, and often keeps at least some of the current management team in place, there are two important distinguishing characteristics. First, following a going-private transaction, the company's stock will no longer be publicly quoted or traded. Second, many going-private transactions (such as LBOs and MBOs) create more concentrated ownership positions, typically engineered through the addition of significant leverage and an infusion of private equity capital.

Several motivations for going private transactions have been studied in the literature. First, the restructuring of the company realigns ownership with control, concentrates ownership in the hands of a few large shareholders, and frequently creates a pre-commitment device in the form of a higher debt load, all of which should serve to mitigate agency problems, particularly that associated with free cash flow (Jensen (1986)).<sup>28</sup> Second, there may be significant tax savings that are derived from an increase in leverage.<sup>29</sup> Third, based on their private information, insiders may be able to take advantage of undervaluation of the firm's shares by the market.<sup>30</sup> Fourth, going-private transactions could also be driven by managerial entrenchment (and related private control benefits).<sup>31</sup> Finally, the avoidance of direct and indirect

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<sup>28</sup>Lehn and Poulsen (1989) find that high free cash flow and low growth opportunity firms are more likely to go private, and that the size of the premiums are positively related to the level of free cash flow, particularly when insider ownership is low, which provides support for the agency hypothesis. Kaplan (1989a) and Lichtenberg and Siegel (1990) also show that accounting profits increase significantly following going private transactions.

<sup>29</sup>Kaplan (1989b) finds that this is in fact an important source of value in management buyouts. Another consequence of the substantially higher leverage is a redistribution of wealth from existing bondholders to shareholders, which may contribute to the motivation to go private.

<sup>30</sup>Weir et al. (2003) provides some indirect evidence consistent with this rationale. They find that the probability of going private increases with concentrated ownership, suggesting that insiders stand to gain more from (and are better able to execute) buying out smaller shareholders at a low price.

<sup>31</sup>Lehn and Poulsen (1989), Halpern et al. (1999) and Weir et al. (2003) find that the probability of a going private transaction increases in the presence of a greater threat of a (hostile) takeover. This lends support to the management entrenchment hypothesis if managers are trying to sidestep a hostile takeover, though it may also suggest that external and internal governance solutions emerge simultaneously to repair companies with substantial agency problems. Jensen (1988) discounts the management entrenchment hypothesis by arguing that in a typical leveraged buyout, the private equityholders generally become the largest shareholders and control the board of directors (see

costs associated with being public is another potential motivation for going-private, particularly in the wake of Sarbanes-Oxley.<sup>32</sup>

A comparison of the motivations for going dark and going private point to specific consistencies and differences in the characteristics of firms that go private versus those that go dark. Both sets of firms are likely to have lower growth opportunities, more concentrated ownership and a higher threat of a hostile takeover than firms that remain public and continue to file to the SEC. While both going-dark and going-private decisions may be influenced by the high costs of being public, the decision to go private must also reflect one or more of the other rationales mentioned above given that a going-private transaction is considerably more complex and costly than simply going-dark, including compliance with more stringent SEC regulations and an increased risk of shareholder litigation.<sup>33</sup> Going-private firms are thus likely to be undervalued and underleveraged relative to going-dark firms, are expected to have higher free cash flow, and are perhaps comparatively larger given the fixed costs involved in the transaction. If going-private firms are indeed undervalued relative to going-dark firms, an announcement that a firm will go dark rather than go private may be interpreted by the market as a negative signal of value. Coupled with inferences made by investors regarding insiders' unwillingness to continue reporting to the SEC, the market may react negatively to a firm's going-dark decision even if there are substantial cost savings to be realized through this action.

### 3.3 Research Design

Our analysis is designed with the primary goal of understanding why firms go dark, while also considering the alternative of going fully private. Our discussion above suggests two main motives for going dark. The benign motivation is that managers seek to maximize long-term corporate value by saving on the direct and indirect costs of SEC reporting when these costs exceed the benefits of registration. The agency explanation is that insiders decide to go dark in order to protect or increase their

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Kaplan (1989a)), and these shareholders have both greater ability and greater incentive to monitor managers than do directors with smaller equity stakes who represent a more diffuse shareholder population in a typical public corporation.

<sup>32</sup>Engel et al. (2004) find evidence, consistent with what we report in Section 5, that the frequency of going-private transactions has increased following the passage of SOX. In addition, they find that share prices of larger firms react more favorably to the passage of SOX, indicating that the net benefits of SOX accrue disproportionately to shareholders of larger firms.

<sup>33</sup>Since the interests of management may conflict with those of other shareholders in going-private transactions, allegations of breach of fiduciary duty frequently arise, including claims of inadequate price, self-dealing and misleading disclosure. Safeguards such as appraisals and an independent board committee to represent outside shareholders are often put in place to minimize the litigation risk.

benefits from private control. We design tests that can help us understand whether either, or both, of these explanations appear to drive going-dark deregistrations.

We first focus on deregistration induced changes in price and liquidity.<sup>34</sup> We conduct an event study analysis to capture the market's reaction to going dark. A positive reaction would provide strong support for the benign motivation for going dark, while perhaps also signaling positive information about the ability of the firm's profitability to internally drive its growth. A negative price reaction would suggest that, while there may be some cost savings from deregistration, minority shareholders believe that the going-dark decision is not in their best interest. The loss of transparency and liquidity for these shareholders is more severe than for the insiders making the decision, and insiders may be increasing their private control benefits. The going-dark announcement may also signal bad news to the market about the firm's future prospects.

In order to further examine what drives the price reaction, we look at the effects of changes in the regulatory environment (pre-SOX vs. post-SOX) as well as the recent performance of the firm, as these may alter the cost-benefit tradeoff of being a reporting company. We also analyze the effects of other variables on the market's response to going-dark, including the size and price of the firm, and whether the firm is already traded on the Pink Sheets. Furthermore, we carefully separate out the effects of deregistration and delisting by conducting a pooled time-series regression with dummies for different event dates.

While we hypothesize that deregistration leads to a drop in liquidity, this requires empirical confirmation. We examine whether there are any differences in liquidity in the year before versus the year after deregistration. We use a regression analysis that allows us to disentangle the separate effects attributable to going-dark and delisting, given that prior literature has already shown that liquidity drops as a result of delisting to the Pink Sheets.

Finally, we employ a probit analysis to identify the characteristics of going-dark firms that differentiate these firms from those that go private, and from those that continue reporting to the SEC even though their holders of record are low enough to qualify for deregistration. The economic arguments presented earlier in this section suggest a set of drivers that may affect the propensity to go dark or to go private, including: the potential cost savings from suspending reporting, which will depend on firm size and existing regulation (pre- versus post-SOX); the likelihood that insiders can and would seek to increase their private benefits of control, which may depend on the size of their ownership stake, as well as the strength of firm

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<sup>34</sup>Other effects on income statement and balance sheet items are clearly precluded by the fact that these data are no longer available following deregistration.

governance, including the extent of institutional and block ownership; the impact of a decrease in transparency on firm value, which is likely to be more significant for larger firms; the expected loss in liquidity, which is likely to be higher for firms trading outside the Pink Sheets and having higher liquidity prior to deregistration, and may also depend on the stock capitalization and price<sup>35</sup>; whether the firm has growth opportunities that would require external financing, as measured by variables such as asset growth and R&D intensity; and variables such as leverage, and recent accounting and stock price performance, which may proxy for financial distress, as well as the suitability of the firm as a going-private candidate.

## 4 Sample Selection and Descriptive Statistics

### 4.1 Going Dark Sample

Form 15 filings are available from LiveEdgar on a five-year rolling basis. Our data capture covers the period January 1998 - December 2003. Form 15 requests the filer to specify the title of each class of securities covered by the form, the title of all other classes of securities for which the filing responsibility remains, and the appropriate rule provision(s) relied upon to deregister. Based on the above information, we exclude the following three types of filers: (1) firms that deregistered securities other than their common stock; (2) firms that deregistered their common stock, but have other public securities that are still subject to public reporting requirement; and (3) foreign companies (firms that filed Form 15 based on rule 12g-4a(2)(i), 12g-4a(2)(ii), 12h-3b(2)(i), or 12h-3b(2)(ii)). These exclusions leave us with 3915 Form 15 filings by U.S. companies.

A company may deregister its common stock for various reasons: it is acquired by or merged into another company; it goes bankrupt and is liquidated; it withdraws a security registration; it goes private; or, it can and wants to be exempted from the duty to report to the SEC. The last category of Form 15 are the “going-dark” firms that make up the core sample in our study. These firms they no longer file to the SEC, but they continue to have their common equity publicly traded.<sup>36</sup> During

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<sup>35</sup>Macey et al. (2004) find that the liquidity of shares of larger firms seem relatively insensitive to delisting from the NYSE to the Pink Sheets.

<sup>36</sup>A few of these firms continued trading for a few days or weeks, and then subsequently ceased trading due to a bankruptcy or liquidation. Given that these events were likely anticipated at the time of deregistration, these firms were excluded from our sample. Most of the rest of the companies’ stocks in our going-dark sample continued trading through the end of 2003. Others ceased trading at some point subsequent to the deregistration filing because of bankruptcy, liquidation, or a merger or acquisition or going-private transaction. We also exclude one going-dark firm, and several firms in our control sample described below, that have SIC code equal to 99, and assets less than \$100,000. These firms are shell holding companies that are vehicles for acquiring companies, and thus whose

1998 to 2003, 421 companies filed to go dark. We used Compustat, CRSP, Compact Disclosure and Datastream to extract stock prices, volume and corporate financial information.

For every Form 15 filer in our going-dark sample, we obtain the date of the Form 15 filing. For firms that filed multiple Form 15s, we record the date of the first filing.<sup>37</sup> In order to properly measure the stock market reaction to firms' Form 15 filings, we also search Lexis-Nexis and Bloomberg for any corporate announcements of deregistration before, on, or after the date of the Form 15 filing. We are able to identify such announcements for 150 of the firms in our going-dark sample.<sup>38</sup> Since a Schedule 13e-3 filing might provide information that signals an impending deregistration, for instance a 1000 for 1 reverse split that brings the holders of record below 300, we also obtain the date of the first such filing for our sample firms from LiveEdgar. 46 firms in our going-dark sample file a Schedule 13e-3 prior to a Form 15.

## 4.2 Going Private Sample

There does not appear to be a universally accepted definition of "going private" as the term is used in the academic literature and in practice. Going private typically denotes a transaction initiated by employees and/or existing investors that concentrates ownership in the hands of a few sets of investors who do not seek to have their equity publicly traded (at least in the short run). This broadly corresponds to cases where Schedule 13e-3 filings are made in connection with "transactions initiated by affiliates of the company." Existing going-private studies appear to use different selection criteria for constructing their samples, including announcements of going-private deals in the press, or classification as going-private transactions by third parties with unreported criteria. We follow more closely the SEC's definition of going-private based on Rule 13e3, as do H. DeAngelo and Rice (1984) and Engel et al. (2004).

While we use LiveEdgar to identify companies that file a Schedule 13e3 followed by a Form 15, indicating apparent completion of the going-private transaction culminating in deregistration of the stock (Engel et al. (2004) appear to follow a similar procedure), our sample selection process is unique in two respects. First, we recog-

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asset size and other firm characteristics change dramatically in years in which a transaction takes place, yielding extreme outliers whose economic interpretation may be misleading.

<sup>37</sup>Subsequent Form 15 filings by the same company typically make minor corrections, such as slightly altering the holders of record, changing the box specifying the section code under which the deregistration is being made, or checking off an additional one of these boxes.

<sup>38</sup>Of these 150 announcements, 55 are prior to the filing date, 70 fall on the date of filing, and 25 occur after the date of filing.

nize that there are cases where companies file Schedule 13e3s in connection with a transaction such as a reverse split that reduces its holders of record below 300, but yet the affected companies keep their stock traded in the Pink Sheets. These firms are part of our going-dark, rather than going-private, sample since the company's intention appears to be to suspend reporting rather than to take the company fully private. Second, some companies already have fewer than 300 holders of record and do not trade on a national exchange (nor are they quoted in Nasdaq), and thus need not file a Schedule 13e-3 in connection with a transaction that takes the company fully private. Based on information available on LiveEdgar, we identify 12 such going-private firms that file Form 15 yet do not need to file Schedule 13e3. Using this selection process, we construct a sample of 429 firms. Lack of availability of financial information on Compustat reduces our sample size down to 374 companies.

### 4.3 Control Sample

We create a control sample to use in our probit analysis that consists of Compustat firms during fiscal years 1998-2003 that have fewer than 300 holders of record of their common equity, or fewer than 500 holders if the company's total assets have not exceeded \$10 million at the end of the company's three most recent fiscal years).<sup>39</sup> We exclude firms that are less than one year old because they are not eligible to deregister, and firms with fewer than 500 holders of record if asset value information was not available for each of the previous three fiscal years. While firms that do not satisfy the holder of record criteria could potentially qualify for deregistration by executing a transaction such as a reverse-split to reduce their holders of record, they are much less likely to be in a position to deregister than firms within our control sample given the complexity and costs associated with such transactions. Thus, our control sample allows us to better analyze what firm characteristics appear to be associated with the going-dark decision for those firms that can deregister.<sup>40</sup> Our control sample consists of 2314 firms.<sup>41</sup>

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<sup>39</sup>Firms are required to report their number of equity holders in item 5 of 10K reports. While most report their holders of record, some appear to report beneficial, rather than record, holders. Thus, there are some firms that should be in our sample that are excluded given incorrect reporting in their 10K. However, there is no reason to believe that this would induce any bias in our probit analysis.

<sup>40</sup>We also constructed another control sample of 988 firms matched on industry and size. We do not report the probit results based on this alternative control sample since they are generally consistent with those using our control sample based on holders of record, and the latter control sample is more appropriate in the context of our study.

<sup>41</sup>Some firms satisfy the holders of record criteria for more than one year during the 1998-2003 period, so there are a total of 7513 firm-year observations in our probit analysis associated with the control sample.

## 4.4 Descriptive Statistics

Univariate statistics describing our going-dark, going-private and control samples are shown in Tables 1 and 2. Panel A of Table 1 shows the frequency of going-dark and going-private deregistrations over the years in our sample. Note that approximately half of the going-dark deregistrations in the six-year sample period occurred in 2003. The Sarbanes-Oxley Act may be the catalyst for this increased deregistration activity, either because of the additional costs associated with compliance, or because of the additional responsibilities, monitoring, and legal consequences it imposes on executives and directors. However, this clustering may also be affected by the weak stock price performance during the preceding three years, a relationship that we will investigate later through the probit analysis. Note that while the going-dark deregistrations spike during 2003, there does not appear to be a similar increase in the incidence of going-private transactions during that year.<sup>42</sup>

Some key characteristics of the firms in our going-dark sample are compared against those of the going-private and control samples in Panel B of Table 1. The variables are based on financial information obtained from the last 10K filing of each firm (in the case of the control sample, this is the 10K for the fiscal year for which the holders of record satisfied the maximum threshold criterion required for inclusion in our sample). Definitions of the variables are as follows: *Assets* is the Total Assets of the firm; *Market Value* is the company's equity market capitalization; *Leverage* is the ratio of long-term debt to assets; *Asset Growth* is the average growth in assets over the past two fiscal years (asset growth is used rather than sales growth given that there are several financial companies in our sample); *Past-year Return* is the return to common stock over the last fiscal year; *ROA* is the ratio of net income to assets; *R&D Intensity* is the ratio of R&D expenditures to assets; *Ext. Fin. Asset Growth* is asset growth minus  $ROA/(1 - ROA)$  (see Demirguc-Kunt and Maksimovic (1998)); *Book-to-Market* equals assets/(assets - book value of equity + market value of equity) (only positive book value of equity observations are used in the computation); *Holders of Record* is the number of shareholders of record; *Insider* is the percentage ownership of officers and directors; and *Institution* is the percentage ownership of institutional holders. We truncate the top and bottom 1% of the observations from our sample since there are some extreme observations given the nature of the firms in our study.

The univariate statistics suggest that going-dark firms appear to be significantly smaller than control sample firms as measured by both Total Assets and Market

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<sup>42</sup>The frequencies shown are based on the date of the first filing of Form 15. Therefore, some of the going-private transactions that were initiated in 2003, but that were not completed to the point of deregistering the firm's common stock, are not included in the count for 2003.

Value. They seem to have underperformed relative to the control sample firms as measured by ROA and past-year stock return. They also have lower average growth, as measured by asset growth, externally financed asset growth, R&D intensity, and Book-to-Market, though the last measure may also indicate a higher level of distress for going-dark firms. Institutional ownership is much lower for the going-dark firms, perhaps given that these are smaller companies. In contrast, insider ownership is higher in going-dark firms relative to the control sample firms.<sup>43</sup> Going-private firms are much larger companies, and, while their asset growth is higher, they have comparable Book-to-Market, R&D intensity and externally financed asset growth relative to the going-dark firms. Their recent accounting and stock market returns are, however, significantly higher than those of going-dark firms. However, note from Panel A of Table 1 that the time distribution of these two samples is different, and the clustering of going-dark firms in 2003 may at least partially explain this performance differential. We will control for this timing difference in the probit analysis. Insider holdings for going-private and going-dark firms are comparable, but going-private firms have significantly higher institutional holdings.

Table 2 shows the distribution of firms across different industry SIC codes for the going-dark and going-private samples. There is broad representation across major industry groups, and there does not appear to be any significant clustering of firms within a given industry that might affect the interpretation of our results.

## 5 Results

### 5.1 The Effects of Going Dark on Stock Price

If the decision to go dark induces a change in the company's value, a stock price change should be observed when investors learn of the company's decision. We conduct an event analysis to study the stock price reaction to going-dark. We primarily focus on two dates: the date the firm files Form 15, and the date it

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<sup>43</sup>While the mean and median holders of record in both samples are very low, they are lower for the control sample. This is largely a result of two sample selection issues. First, while the holders of record for going-dark firms must be below the 300 (or 500) level at the time of deregistration, they may be higher than this level in the last 10K report filed by the company. In contrast, the control sample firms will always have holders of record below the threshold given that this is the sole selection criterion. Second, as mentioned earlier, some companies may erroneously report the number of beneficial holders, rather than the holders of record, in their 10Ks. As a result, while the holders of record may be below the 300 threshold (as reported in Form 15 at the time of deregistration), a much higher number may be reported in the last 10K. Again, given the control sample selection criterion, this issue will not arise with the control sample firms.

announces its decision to deregister.<sup>44</sup> We align our sample in event time based on three possible events: the Form 15 filing; the earlier of the announcement or the filing; and the filing if there is no announcement, otherwise the announcement (even if it occurs after the filing).<sup>45</sup> While we focus primarily on the event that captures the earlier of the announcement and filing dates, the alternative event dates provide some robustness checks.

We calculate abnormal returns in two ways. First, given the infrequent trading of many stocks in our sample, we use a simple market adjusted return based on the equally-weighted CRSP market index. Second, we adjust returns using the size decile portfolio returns. Given the low capitalization of the firms in our sample, cumulative abnormal returns are calculated based on a buy and hold strategy (see MacKinlay (1997) and Blume and Stambaugh (1983)). We examine three different windows around each event date: the standard  $[0,1]$  window; the slightly longer  $[0,2]$  window to allow for slower dissemination of information for these less visible and infrequently traded stocks; and a two-week window surrounding the event date, again to more broadly capture lagged reactions, possible leakage of information prior to the event date, and the relatively low liquidity of these stocks. Given that the very low prices for some stocks in our sample yield extreme observations on both tails, we exclude firms trading for prices below \$.001 on a particular day, and truncate the top and bottom .5% tail of the return distribution.<sup>46</sup>

The results for each window are virtually equivalent under either adjustment to calculate abnormal returns, as shown in Panel A of Table 3.<sup>47</sup> The CARs are highly significant and economically large. For the event that captures the earlier of the announcement and filing dates, the average stock price drop is approximately 9.4% for the  $[0,1]$  window, 11.3% during the  $[0,2]$  window, and 13.8% over the  $[-5,5]$  window. These highly negative returns indicate that shareholders do not perceive the decision to deregister to be in their best interest. Shareholders may believe that insiders are deregistering the firm's stock in order to more readily engage in value destroying activities that increase private control benefits. A less malign explanation is that insiders decide to go dark in order to save costs and increase future cash flow, but they do not internalize the lower liquidity and transparency faced by

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<sup>44</sup>Since the SEC seems to routinely approve qualified deregistration applications, the date at which the SEC approves the company's deregistration filing is not particularly noteworthy.

<sup>45</sup>46 firms in our going-dark sample filed a Schedule 13e-3 prior to Form 15, which might convey some information to investors about the impending deregistration. Thus, we also examined the event of the earlier of the Form 13e3 filing, the Form 15 filing, and the announcement. The results were very similar to those for the three events reported here.

<sup>46</sup>We follow a similar procedure in our time-series regressions reported below.

<sup>47</sup>Adjusting for the beta of each stock using a market model also makes a negligible difference when computing the CARs.

minority shareholders. Transparency is not an issue for insiders, and if insiders hold large blocks of stock, their shares are highly illiquid regardless of whether the firm deregisters or not. The share price will drop as the market reprices the stock to reflect the higher return premium required by minority shareholders. Another possible explanation for the price drop is that the decision to deregister conveys new information to the market about the company's future profitability from existing assets, its lack of opportunities for profitable growth, and its diminished prospects of receiving a premium offer from potential suitors. If insiders believe that this information will be revealed through their continuing disclosure, they may decide to save on costs of reporting even if investors will immediately infer the negative news.

To try to gain deeper insight into the potential causes of the negative stock price reaction surrounding deregistration, we bifurcate our sample using different criteria, as shown in Panel B of Table 3. Firms deregistering after the passage of SOX suffer a larger negative price drop, though the difference between the two periods is not statistically significant. Judging from the higher incidence of deregistrations following the passage of SOX, coupled together with a seemingly benign explanation for this activity in the form of increased cost savings from deregistering, one would expect to see a significantly smaller stock price drop than in the pre-SOX period.<sup>48</sup> The fact that we do not see this relation, and that it appears to be pointing somewhat in the opposite direction, suggests that shareholders believe that managers may be seeking refuge in a "lights-out" environment that permits increased control benefits and decreased exposure to legal liability.

We also observe that returns to smaller firms (less than \$5 Million in market capitalization) are significantly more negative as a result of going-dark than those of larger firms. This result again seems to run counter to the argument that deregistrations are driven by public companies trying to avoid the high costs of reporting. If that were indeed the key driving force, then one would expect smaller firms to benefit more from deregistering given that the cost savings are proportionately higher for smaller firms. We further find that firms with lower stock price (below the \$1 threshold) are more negatively impacted by going-dark. Deregistration by low-priced firms may be viewed by the market as a signal that the firm recognizes that it will not remain listed, or will not become eligible to be listed, outside the Pink Sheets, and, given this prospect, has little incentive to continue reporting. In contrast, the deregistration decision of firms whose stock price does not preclude

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<sup>48</sup>There also appears to be at least casual evidence that the Pink Sheets market has become more active in recent years (e.g. Bushee and Leuz (2004)). This suggests that the liquidity drop associated with deregistration for those firms not already traded on the Pink Sheets should be less severe during the post-SOX period, and thus the post-SOX price reaction should be less negative, which makes our finding of more negative returns even more striking.

them from being listed on exchanges outside the Pink Sheets may be viewed as being more discretionary. While the decision may still benefit insiders at the expense of minority shareholders, and thus negatively impacts the stock price, it may not convey as much of a negative signal regarding the firm’s financial health.

While 230 firms in our sample trade in markets other than the Pink Sheets prior to going dark, 86 firms are already trading in the Pink Sheets at the time of deregistration.<sup>49</sup> Panel B of Table 3 reports that while the market’s reaction to going dark is less negative for firms already trading in the Pink Sheets, the price drop for those firms is still significantly negative (-6.2%, at the 1% level). If a loss in liquidity from being delisted were the only major concern of shareholders of going-dark firms, one would expect firms already trading in the Pink Sheets to be rewarded by the market, rather than penalized, for going dark. The negative price reaction for Pink Sheets firms suggests one or more of the following possible explanations: managers do not internalize the impact of the loss of transparency to outside shareholders when making their decision to go dark; outsiders interpret deregistration as a negative signal of the firm’s true value; outsiders believe insiders will use the firm’s non-reporting status to expropriate additional private control benefits; or, deregistration will result in a loss of liquidity even though the trading venue will be unchanged.

This last result from Table 3 provides some indication that deregistration is not “just” a signal of a future delisting (for the majority of firms that are not already traded in the Pink Sheets), but rather that deregistration has a distinct effect from delisting. To more carefully address the separate effects of going dark and delisting, we conduct a set of time-series random effects GLS regressions to capture price effects associated with our going dark sample on specific dates of interest. In Panel A of Table 4, we set *Dereg.* equal to one for the day of, and the day after, the earlier of the filing and announcement date of deregistration. Similarly, *Delist* is set equal to one for the day of, and the day after, a company delists from one exchange to another during the year before, and the 50 days following, the deregistration date. *Delist to PS* and *Delist to OTCBB* are similarly defined for delisting to the Pink Sheets and OTC Bulletin Board, respectively. In Panel B, we separately identify price effects on the announcement and filing dates of deregistration, and break down our sample into subsamples based on the timing of the announcement. All regressions in Table 4 control for the daily returns to the corresponding size decile portfolio for each firm in our sample.

The results clearly demonstrate that going dark and delisting have separate, and

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<sup>49</sup>For the other 116 firms in our sample, we either lacked price data or information that allowed us to determine the exchange that the firm traded on prior to deregistration.

significantly negative, price effects. Panel A shows that firms that delist to the Pink Sheets suffer a larger price decline at the time of delisting than those delisting to the OTCBB, as expected given the relative standing of these markets in the trading hierarchy. While some of these delistings may be involuntary, occurring before the announcement or filing dates, others occur after, and as a result of, deregistration. Since these delistings (to the Pink Sheets) are anticipated, it is interesting that there is a significantly negative price reaction on those dates. Panel B shows that there is a price reaction on both the announcement and filing dates, and that when the announcement occurs after the filing date, there is a particularly large price decline on the delisting date. These results point to the fact that investors may become aware of the deregistration (and associated delisting for some firms) at different times as these firms are not widely or carefully followed.

Given that firms that wish to avoid direct and indirect costs of reporting may choose to go private rather than go dark, it is useful to document the stock market's reaction to firms' going-private decisions during the same time period as for our going-dark sample. In Table 5, we show the cumulative returns around a compound event day which is the earliest of the first Schedule 13e3 filing date, the announcement date (if there is one), and the Form 15 filing date.<sup>50</sup> As expected, the cumulative returns across all event windows (and using either market- or size-adjusted returns) are significantly positive. For the subsample of firms that have announcements, the cumulative return in the  $[0,1]$  window is approximately 10% (not reported in Table 5). Since minority holders' shares are typically bought out at a premium in a going-private transaction, as reflected in the event window returns we observe, shareholders of firms that go dark are comparatively disadvantaged by the companies' chosen method of ceasing reporting.<sup>51</sup>

## 5.2 The Effects of Going Dark on Liquidity

The effect of deregistration on liquidity is reported in Table 6. In Panel A, we compare the mean daily turnover (volume of shares traded / shares outstanding) in the year before versus after the Form 15 filing date (more specifically, the means during the  $[-250, -6]$  and  $[6, 250]$  windows).<sup>52</sup> Inverting prior disclosure studies, we expect that a lower commitment to disclosure should result in decreased liquidity (e.g., Leuz and Verrecchia (2000)). Consistent with this conjecture, we find an eco-

<sup>50</sup>The Form 15 filing date is included since nine firms in our sample did not need to file Schedule 13e3 given that they already had fewer than 300 holders of record.

<sup>51</sup>This appears to be particularly the case after SOX, where returns for going-private firms become more positive, while returns for going-dark firms become more negative (though neither change in event returns between the pre-SOX vs. post-SOX periods is statistically significant).

<sup>52</sup>The top .5% of the volume data has been truncated.

nomically and statistically significant drop in liquidity as a result of deregistration, even if we control for firms' market capitalization ( $\text{Log}(MV)$ ) and stock price volatility ( $\text{Std.Dev.}$ ). To investigate whether this drop may be due to a contemporaneous delisting effect, we analyze whether the effect of deregistration on turnover is the same whether or not the firm is already traded on the Pink Sheets at the time of deregistration ( $\text{Pink}=1$  if the firm is already traded on the Pink Sheets). Given that the two variables in the regression involving  $\text{Pink}$  are insignificant, the deregistration effect appears to be similar for both samples.<sup>53</sup> In Panel B of Table 6, we report that measuring liquidity by the percentage of days in which trading occurred during the periods before and after deregistration leads to similar results as using turnover.

### 5.3 Probit Analysis of the Going Dark Decision

Table 7 reports results of probit regressions that identify characteristics associated with firms that go dark, relative to the control sample of firms (in Panel A), and going-private firms (in Panel B). Industry controls based on the classification in Campbell (1996) and year controls are included in all the regressions, but coefficients for these dummies are not reported. A positive (negative) coefficient for a particular firm characteristic means that going-dark firms have a higher (lower) value of the characteristic relative firms in the control sample. Panel A shows that going-dark firms are significantly smaller than firms that choose to continue reporting despite satisfying the threshold rule for deregistration.<sup>54</sup> Going-dark firms also appear to have weaker recent stock market performance relative to the control sample firms. Going-dark firms also have significantly higher leverage and lower asset growth than reporting firms, suggesting that going-dark firms may face less promising growth opportunities going forward.<sup>55</sup>

One interpretation of these findings is that distressed firms are those that can least afford to deal with the economic burden of reporting. While this is often the rationale provided by management in press releases, the negative returns surrounding the announcement and filing dates suggests that shareholders do not view the deregistration as good news. Perhaps they see management as using reporting in a strategic manner, stopping disclosure when performance becomes weak. They may

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<sup>53</sup>In unreported tests, we find similar results when using medians rather than means in our tests. We also conduct a panel time-series regression of turnover on each day in the [-250,250] sample against separate deregistration and delisting event dummies, as well as a time trend variable. Consistent with the results reported in Table 6, we find that liquidity drops significantly as a result of deregistration, even after controlling for delisting.

<sup>54</sup>In unreported regressions, we have also found consistent results using  $\text{Log}(MV)$  rather than the book value of assets.

<sup>55</sup>In unreported regressions, we find consistent (and more significant) results using externally financed asset growth and R&D intensity as alternative proxies for growth.

also infer that the firm will have problems raising capital regardless of its trading venue or reporting status, and that the firm has few new growth opportunities, and thus management sees little point in trying to conserve the current level of transparency and liquidity. Furthermore, note that institutional ownership is significantly lower for going-dark firms than for control sample firms, controlling for firm size. Institutional shareholders may play a role in preventing going-dark deregistrations that they perceive as benefiting insiders at the expense of minority shareholders.

The probit analysis in Panel B indicates that there are some systematic differences between firms that choose to go dark and those that go private. Going-dark firms are significantly smaller and more highly leveraged than going-private firms. This is consistent with theory presented earlier that posits that there may be a greater opportunity to create value through a going-private transaction for firms that are underleveraged. There also needs to be sufficient scale in the transaction for the efficiency and potential tax gains to outweigh the substantial costs associated with taking a company private. This regression also shows that stronger presence of institutional holders tends to lead firms to go private rather than go dark. Institutions likely perceive that cashing out in a going-private transaction, or continuing to invest in the restructured firm, will be preferable to holding on to illiquid stock of a dark firm. The fact that the coefficient of the Institution variable is significantly negative indicates that institutions may influence the firm's decision to go private rather than go dark. Finally, note that firms with more shareholders appear to go private rather than go dark. Companies with more than 300 (or 500 for smaller firms) holders of record will need to reduce their record holders through a transaction such as a tender offer before deregistering. This requires the approval of shareholders, who will be more supportive in the case of a going-private transaction since they will likely benefit from the transaction.<sup>56</sup>

## 6 Conclusions

We analyze what motivates firms to go dark, and how markets respond to this action. While it is difficult to rule out the often-cited benign explanation that companies are simply trying to cut costs, we find results that cast doubt on this rationale. Stock prices react quite negatively to firms' decisions to go dark, and smaller firms and firms deregistering after the passage of the Sarbanes-Oxley Act experience even

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<sup>56</sup>While not reported in Table 7, the time dummies in the Panel B regressions have insignificant coefficients, in contrast to corresponding coefficients in Panel A. This is consistent with the observation made earlier in the context of Panel A of Table 1 that the frequency of going-private deregistrations is relatively constant through time during our sample period, in contrast with going-dark registrations that have become much more common recently, likely as a result of SOX.

sharper drops due to going-dark filings. While these results do not preclude cost savings as one of the rationales for going dark, there appear to be less benign forces at work.

At a minimum, insiders may not be fully internalizing the impact of decreased liquidity and transparency on the outside shareholders when deciding to go dark. Of greater concern, insiders may be using the veil of deregistration in order to increase their private control benefits and decrease their legal risk. While the Sarbanes-Oxley Act doesn't appear to be pushing out stronger firms from the reporting system, it may be leading managers of poorly performing firms to go dark, having the perverse effect of decreasing transparency, and exacerbating agency problems, at least for a segment of the market. A further indication that going-dark may be related to insiders' control benefits is our finding that firms that are subject to the increased scrutiny of institutional owners are more likely to go private rather than go dark.

An alternative explanation for the negative share price reaction surrounding deregistrations may be that shareholders infer a negative signal about the firm's future growth prospects. If managers recognize that shareholders will soon become aware of the firm's diminished prospects through its reporting, then it may decide to save on reporting costs, even if investors will immediately infer the negative news. We do find that stronger performing firms appear to go private rather than go dark during our sample period. Thus, to the extent that investors view firms as having the choice to go dark or go private, the choice of the former may well explain the associated negative price reaction. Through continuing data collection efforts and additional empirical tests, we are further exploring the different explanations for why firms go dark, and why the market reacts as it does to this decision.

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## Table 1: Descriptive Statistics

### Panel A: Time Trend of Deregistration

This panel reports the yearly frequency of Form 15 filings related to going-dark and going-private decisions. The key distinguishing characteristic between these samples is that “dark firms” trade on the Pink Sheets after deregistration, while private firms are no longer publicly traded.

Year	1998	1999	2000	2001	2002	2003	1998-2003
Going-Dark	32	37	19	53	72	219	432
Going-Private	27	60	82	94	72	94	429

### Panel B: Firm Characteristics of Going-Dark, Control and Going-Private Samples

This panel presents descriptive financial and ownership statistics for firms in our going-dark, control, and going-private samples. Every firm in the control sample has holders of record below 300 (or 500 if the firm’s assets was below \$10 million at the end of the three previous fiscal years). All variables are measured as of the end of the prior fiscal year (or from the last 10K in the case of going-dark and going-private firms). The table shows the median and mean (in parentheses) of each characteristic variable. *Assets* is the Total Assets of the firm. *Market Value* is the company’s equity market capitalization. *Leverage* is the ratio of long-term debt to assets. *Asset Growth* is the average growth in assets over the past two fiscal years. *Past-year Return* is the return to common stock over the last fiscal year. *ROA* is the ratio of net income to assets. *R&D Intensity* is the ratio of R&D expenditures to assets. *Ext. Fin. Asset Growth* is asset growth minus  $ROA/(1 - ROA)$ . *Book-to-Market* equals  $assets/(assets - book\ value\ of\ equity + market\ value\ of\ equity)$ . *Holdings of Record* is the number of shareholders of record. *Insider* is the percentage ownership of officers and directors. *Institution* is the percentage ownership of institutional holders. We report the  $z$  statistics for Wilcoxon tests that compare characteristics of the going-dark sample with those of the control and going-private samples. \*\*, \* indicate significance levels of 1, 5%, respectively.

(Panel B continued)

	Going-Dark	N	Control Sample	N	Wilcoxon $z$	Going-Private	N	Wilcoxon $z$
<i>Financials</i>								
Assets (\$M)	13.53 (145.91)	365	46.96 (316.09)	7383	-8.44**	105.52 (811.10)	355	-15.50**
Market value (\$M)	3.15 (13.09)	361	42.90 (255.70)	7385	-20.46**	41.09 (364.78)	330	-12.72**
Leverage	0.05 (0.19)	333	0.03 (0.17)	7306	1.56	0.12 (0.22)	340	-2.97**
Asset Growth	-0.03 (0.19)	369	0.09 (0.52)	7098	-7.99**	0.06 (0.42)	361	-5.41**
Past-year Return	-0.42 (-0.14)	337	-0.09 (0.39)	7156	-9.76**	-0.13 (0.06)	321	-6.80**
ROA	-0.13 (-0.42)	358	-0.04 (-0.40)	7265	-6.14**	0.01 (-0.07)	354	-11.01**
Ext. Fin. Asset Growth	0.05 (0.35)	349	0.11 (0.64)	7067	-4.57**	0.03 (0.43)	353	1.00
R&D Intensity	0.00 (0.05)	365	0.00 (0.08)	7358	-7.15**	0.00 (0.03)	355	1.23
Book-to-Market	1.03 (1.05)	235	0.70 (0.74)	6142	10.50**	0.98 (1.03)	288	0.94
<i>Ownership Structure</i>								
Holders or Record	304 (808)	327	154 (166)	7468	13.26**	703 (292)	338	-6.71**
Insider (%)	19.21 (28.15)	313	15.18 (23.28)	5534	2.52*	19.11 (29.08)	314	0.18
Institution (%)	0.93 (7.68)	306	18.73 (28.23)	5517	-14.20**	12.60 (21.36)	314	-8.97**

**Table 2: Industry Distributions**

This table reports the distribution of deregistration events across industry segments. Firms in the going-dark sample and in the going-private sample are classified into 23 industry segments based on 2-digit or 3-digit SIC codes, as detailed in the table. For each industry, we report both the number of firms and the percentage in the total sample (in parentheses).

Industry Segments	Going-Dark	Going-Private
Agriculture (100-900)	0 (0.00)	3 (0.82)
Mining (1000-1400)	3 (0.74)	9 (2.45)
Construction (1520-1731)	11 (2.70)	6 (1.63)
Food & Tobacco (2000-2111)	2 (0.49)	13 (3.54)
Fabrics & Textile Products (2200-2390)	5 (1.23)	11 (3.00)
Wood & Furniture (2400-2590)	2 (0.49)	6 (1.63)
Paper & Printing (2600-2790)	10 (2.45)	10 (2.72)
Chemicals (2800-2990)	13 (3.19)	13 (3.54)
Materials & Related Products (3011-3490)	19 (4.66)	9 (2.45)
Industry Manufacturing (3510-3569, 3578-3590, 3711-3873)	30 (7.35)	28 (7.63)
Computer-related Hardware (3570-3577)	12 (2.94)	6 (1.63)
Electronics (3600-3695)	20 (4.90)	7 (1.91)
Miscellaneous Manufacturing (3910-3990)	11 (2.70)	6 (1.63)
Transportation (4011-4731)	8 (1.96)	7 (1.91)
Telecommunications (4812-4899)	10 (2.45)	9 (2.45)
Utilities (4900-4991)	2 (0.49)	6 (1.63)
Wholesales (5000-5190)	25 (6.13)	27 (7.36)
Retails (5200-5990)	28 (6.86)	33 (8.99)
Financial Services (6021-6799)	76 (18.63)	66 (17.98)
Services (7000-7361, 7380-7997, 8111-8744)	54 (13.24)	48 (13.08)
Software & Programming (7370-7377)	50 (12.25)	32 (8.72)
Healthcare Services (8000-8093)	9 (2.21)	9 (2.45)
Others (8880-9995)	8 (1.96)	3 (0.82)
Total	408	367

**Table 3: Stock Price Reaction to Going-Dark****Panel A: Full Sample Event Returns**

This panel reports both the market-adjusted and size-adjusted cumulative returns around three different event dates and over three different event windows. “Filing Date” denotes the date of the Form 15 filing date. “Min (Ann., Filing)” denotes the earlier of the deregistration announcement date and the Filing Date. “Ann., else Filing” denotes that the announcement date is used if the going-dark event is announced, otherwise the Form 15 filing date is used. 150 of the 432 firms in our going-dark sample made announcements pertaining to their deregistration decision. Of these 150 firms, 55 firms announce prior to filing, 70 firms announce on the filing date, and 25 firms announce after filing. The Brown-Warner t-statistics for two-sided tests are presented in parentheses. \*\*, \* indicate significance levels at 1, 5%, respectively. The numbers of observations used to compute the mean abnormal returns are reported in square brackets.

	CAR (market-adjusted)			CAR (size-adjusted)		
	[0,1]	[0,2]	[-5,5]	[0,1]	[0,2]	[-5,5]
Filing Date	-0.074 (-7.77)** [315]	-0.094 (-7.76)** [315]	-0.132 (-3.33)** [314]	-0.075 (-7.88)** [315]	-0.094 (-7.80)** [315]	-0.132 (-3.63)** [314]
Min(Ann.,Filing)	-0.094 (-9.40)** [316]	-0.113 (-8.61)** [317]	-0.138 (-3.41)** [316]	-0.095 (-9.58)** [316]	-0.113 (-8.70)** [317]	-0.139 (-3.76)** [316]
Ann., else Filing	-0.097 (-9.81)** [316]	-0.118 (-9.14)** [316]	-0.138 (-3.46)** [315]	-0.098 (-9.87)** [316]	-0.117 (-9.10)** [316]	-0.138 (-3.76)** [315]

(Table 3 continued)

### Panel B: Sub-sample Event Returns

This panel reports event window returns for various subsamples. CARs are the cumulative abnormal returns during the [0,1] window surrounding the earlier of the announcement or the filing date of deregistration. Post-SOX denotes the period beginning 8/1/2002. MV and Price are the firm's average market value and stock price during event days [-33,-3]. Return is the one-year return over event window [-253, -3], and Median denotes the median return over the whole going-dark sample. The dummy variable Pink equals one if the firm was traded on the Pink Sheets before the Form 15 filing date, and zero otherwise. For each subsample, the Brown-Warner t-statistics for two-sided tests are reported in parentheses. For the difference across each pair of sub-samples, regular t-statistics are reported. \*\*, \* indicate significance levels at 1, 5%, respectively.

	# of Firms	CAR (market-adjusted)	CAR (size-adjusted)
Pre-SOX	97	-0.071 (-6.53)**	-0.071 (-6.59)**
Post-SOX	219	-0.105 (-10.70)**	-0.105 (-10.92)**
Difference		0.034 (1.27)	0.034 (1.31)
MV ≤ \$5M	240	-0.111 (-10.94)**	-0.111 (-11.28)**
MV > \$5M	76	-0.042 (-3.97)**	-0.043 (-4.26)**
Difference		-0.069 (-2.81)**	-0.068 (-2.78)**
Price ≤ \$1	255	-0.113 (-11.13)**	-0.113 (-11.31)**
Price > \$1	91	-0.049 (-5.17)**	-0.050 (-5.33)**
Difference		-0.064 (-2.51)*	-0.063 (-2.49)*
Return ≤ Median	150	-0.111 (-11.71)**	-0.111 (-11.85)**
Return > Median	152	-0.076 (-7.53)**	-0.077 (-7.73)**
Difference		-0.035 (-1.35)	-0.034 (-1.30)
Pink=0	230	-0.106 (-10.27)**	-0.107 (-10.47)**
Pink=1	86	-0.062 (-6.98)**	-0.063 (-7.10)**
Difference		-0.044 (-1.66)	-0.044 (-1.68)

**Table 4: Time-Series Analysis of Deregistration Effect**

This table reports the results from time-series random effects GLS regressions of firms' daily returns on various deregistration and delisting dummy variables. In Panel A, Dereg.=1 for the day, and the day after, the earlier of a company's Form 15 filing date and its deregistration announcement date. Delist=1 for the day, and the day after, a company delists from one exchange to another during the year before deregistration and the 50 days after deregistration. Delist to PS and Delist to OTCBB are similarly defined for delisting to the Pink Sheets and to the OTC Bulletin Board, respectively. Size Portfolio denotes the daily return on the corresponding size decile portfolio. In Panel B, we separate out the effects of filing and the possible announcement of the deregistration decision. Filing=1 for the Form 15 filing date and the day after, and Announcement=1 for the going-dark announcement date and the day after. Panel B contains four regressions for the following subsamples of firms: those firms for which we found no announcement (No Ann.); those firms where the announcement occurred on the date of the Form 15 filing (Ann.=File); those firms for which announcement preceded filing (Ann.<File); and those firms where announcement occurred after the filing date (Ann.>File). t-statistics for two-sided tests are reported in parentheses (controlling for clustered errors). \*\*, \* indicate significance levels at 1, 5%, respectively.

**Panel A: Deregistration vs. Delisting Effects**

	Model 1	Model 2	Model 3
Intercept	0.01 (7.75)**	0.01 (7.98)**	0.01 (8.04)**
Size Portfolio	0.39 (7.99)**	0.39 (8.07)**	0.39 (8.06)**
Dereg.	-0.04 (-6.13)**	-0.04 (-5.58)**	-0.04 (-5.64)**
Delist		-0.04 (-5.11)**	
Delist to PS			-0.07 (-3.63)**
Delist to OTCBB			-0.03 (-3.92)**
$\chi^2(d.f.)$	101.35 (2)	127.46 (3)	129.82 (4)
$R^2$	0.001	0.001	0.002
N	88842	88842	88842

(Table 4 continued)

**Panel B: Filing, Announcement and Delisting Effects**

	All	No Ann.	Ann.=File	Ann.<File	Ann.>File
Intercept	0.01 (7.92)**	0.01 (5.40)**	0.01 (4.35)**	0.003 (3.00)**	0.01 (3.26)**
Size Portfolio	0.39 (8.06)**	0.37 (5.55)**	0.42 (3.72)**	0.32 (3.38)**	0.61 (3.58)**
Delist	-0.04 (-4.71)**	-0.03 (-2.51)*	-0.03 (-2.15)*	-0.03 (-2.04)*	-0.13 (-4.42)**
Filing	-0.02 (-2.68)**	-0.02 (-2.17)*	-0.09 (-5.40)**	0.01 (0.41)	-0.03 (-1.23)
Announcement	-0.06 (-4.91)**			-0.04 (-2.94)**	-0.06 (-2.12)*
$\chi^2(d.f.)$	142.32 (4)	42.21 (3)	55.08 (3)	24.77 (4)	41.33 (4)
$R^2$	0.002	0.001	0.003	0.002	0.007
N	88842	51348	17430	13767	6297

**Table 5: Market Reaction to the Going-Private Decision**

This table reports both market-adjusted and size-adjusted cumulative returns around firms' going-private transactions.  $\text{Min}(13e3, \text{Ann.}, 15)$  denotes the earliest among the first Schedule 13e3 filing date, the going-private announcement date, and the Form 15 filing date. Of the 429 firms in our going-private sample, 420 firms filed Schedule 13e3, and we found announcements for 107 firms. Post-SOX denotes the period beginning 8/1/2002. The last row analyzes the difference between pre- vs. post-SOX CARs. The Brown-Warner t-statistics for two-sided tests are reported in parentheses. The numbers of observations used to compute mean abnormal returns are reported in square brackets. \*\*, \* indicate significance levels at 1, 5%, respectively.

	CAR (market-adjusted)			CAR (size-adjusted)		
	[0,1]	[0,2]	[-5,5]	[0,1]	[0,2]	[-5,5]
Min(13e3,Ann.,15)	0.031 (5.51)** [278]	0.029 (4.17)** [278]	0.045 (3.98)** [278]	0.031 (5.55)** [278]	0.029 (4.18)** [278]	0.045 (4.10)** [278]
Pre-SOX	0.016 (3.48)** [208]	0.015 (2.75)** [208]	0.043 (4.00)** [208]	0.016 (3.59)** [208]	0.016 (2.85)** [208]	0.046 (4.29)** [208]
Post-SOX	0.075 (11.79)** [70]	0.068 (8.56)** [70]	0.048 (3.89)** [70]	0.073 (11.64)** [70]	0.066 (8.33)** [70]	0.041 (3.52)** [70]
Difference	-0.059 (-1.40)	-0.053 (-1.25)	-0.005 (-0.17)	-0.056 (-1.34)	-0.050 (-1.17)	0.005 (0.17)

**Table 6: Effect of Deregistration on Liquidity**

This table reports the effects of deregistration on liquidity, based on OLS regressions that control for other firm-specific variables. Two liquidity measures are used. For each firm in our sample, we compute the average turnover and percentage of days traded before and after deregistration (using event windows [-250,-6] and [6,250], respectively). Similarly, the log of market value, Log(MV), and the standard deviation of stock returns, Std.Dev., are computed as averages before and after deregistration. Dereg.=1 after deregistration, and zero otherwise. Pink=1 if the firm was already traded on the Pink Sheets before the Form 15 filing date. \*\*, \* indicate significance at 1, 5% levels, respectively.

**Panel A: Average Turnover**

	Model 1	Model 2	Model 3	Model 4
Intercept	0.16 (10.89)**	0.14 (11.66)**	0.14 (11.66)**	0.15 (9.65)**
Dereg.	-0.08 (-4.20)**	-0.06 (-3.49)**	-0.06 (-3.39)**	-0.06 (-3.08)**
Log(MV)		0.01 (2.10)*	0.01 (2.11)*	0.01 (2.10)*
Std.Dev.			-0.001 (-3.02)**	-0.001 (-2.80)**
Pink				-0.01 (-0.29)
Dereg.*Pink				0.02 (0.55)
F-stat.	17.64	8.97	12.88	7.84
$R^2$	0.03	0.04	0.05	0.05
N	519	519	519	519

**Panel B: Percentage of Days Traded**

	Model 1	Model 2	Model 3	Model 4
Intercept	0.49 (27.45)**	0.47 (26.30)**	0.47 (26.30)**	0.47 (22.58)**
Dereg.	-0.16 (-6.75)**	-0.13 (-4.98)**	-0.13 (-4.95)**	-0.14 (-4.59)**
Log(MV)		0.02 (3.40)**	0.02 (3.38)**	0.02 (3.33)*
Std.Dev.			0.0004 (0.24)	0.0004 (0.26)
Pink				-0.02 (-0.47)
Dereg.*Pink				0.02 (0.46)
F-stat.	45.50	30.20	20.11	12.19
$R^2$	0.08	0.10	0.10	0.10
N	524	519	519	519

**Table 7: Multivariate Probit Analysis of Firms' Deregistration Decisions**

This table reports results from two sets of multivariate probit analyses, combining the going-dark sample together with our control sample of firms with fewer than 300 holders of record (in Panel A), and the going-dark sample together with the going-private sample (in Panel B). Variable definitions are provided in Table 1. Industry controls based on the classification in Campbell (1996) and year dummies are included in all regressions. The t-statistics of the coefficient estimates are reported in parentheses. \*\* and \* indicate significance at 1% and 5% levels, respectively.

**Panel A: Going Dark vs. Reporting**

	Model 1	Model 2	Model 3
Intercept	-0.96 (-5.22)**	-1.32 (-4.92)**	-1.22 (-4.25)**
Log(Assets)	-0.11 (-10.30)**	-0.06 (-2.54)*	-0.06 (-2.64)**
Asset Growth	-0.09 (-1.86)	-0.11 (-1.62)	-0.10 (-1.66)
Leverage	0.30 (2.97)**	0.35 (3.18)**	0.31 (2.78)**
Past-year Return	-0.10 (-1.87)	-0.18 (-2.34)*	
ROA			-0.004 (-0.10)
Insider (%)		0.002 (1.20)	0.001 (1.17)
Institution (%)		-0.02 (-5.66)**	-0.02 (-5.85)**
Industries/Years	included	included	included
$\chi^2(d.f.)$	276.82 (22)	239.92 (24)	267 (24)
Pseudo $R^2$	0.11	0.19	0.17
N	7088	5543	5584

**Panel B: Going Dark vs. Going Private**

	Model 1	Model 2	Model 3
Intercept	4.82 (7.75)**	4.27 (6.05)**	4.39 (6.45)**
Log(Assets)	-0.40 (-9.00)**	-0.32 (-6.33)**	-0.29 (-5.77)**
Asset Growth	0.01 (0.36)	-0.01 (-0.21)	-0.01 (-0.40)
Leverage	0.47 (1.85)	0.71 (2.51)*	0.63 (2.16)*
Past-year Return	-0.06 (-1.03)	-0.16 (-1.57)	
ROA			-0.68 (-2.13)*
Insider (%)		-0.003 (-1.16)	-0.003 (-1.33)
Institution (%)		-0.01 (-2.56)**	-0.01 (-2.53)*
Log(Shareholders)	-0.17 (-3.76)**	-0.18 (-3.65)**	-0.23 (-4.47)**
Industries/Years	included	included	included
$\chi^2(d.f.)$	157.48 (23)	167.87 (25)	146.72 (25)
Pseudo $R^2$	0.30	0.32	0.33
N	572	503	527